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研究论文

CHA杂种小麦灌浆优势规律研究

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摘要 以4个CHA杂种及其亲本和CK为材料， 采用数学模型分析、 相关分析、 通 径分析等方法， 研究了CHA杂种灌浆优势及其动态规律和与气象因子的关系， 结果表明 ， (1) 4个CHA 杂种籽粒干物质积累动态过程均存在杂种优势， 最终干物质积累均存在 超亲优势， 最终干物质超亲优势形成过程有灌浆全期形成、 灌浆中后期形成和灌浆后期形 成3种类型。 (2) 4个CHA杂种灌浆平均速度、 灌浆最大速度、 灌浆持续期均有杂种 优势， 灌浆速度均有超亲优势， 灌浆持续期存在超显性、 显性或部分显性效应。 (3) 杂 种和亲本的灌浆平均速度、 灌浆持续期与千粒重均呈正相关， 但2者千粒重形成的主导 因子不同， 亲本粒重形成的主导因子是灌浆平均速度， 杂种粒重形成的主导因子是灌浆持 续期。 (4) 在多雨低温寡照条件下， CHA杂种和亲本的灌浆与平均气温、 最高气温、 最 低气温、 日较差、 日照时数均呈正相关， 与降水呈负相关， 其中， 在灌浆与降水、 与 日照时数、 与气温日较差的相关程度方面， 杂种均明显小于亲本， 说明杂种对不利气候 因子比常规品种有较好的适应性。

关键词 CHA杂种 灌浆 杂种优势 小麦

分类号

Study on Grain Filling Heterosis Law of CHA Hybrids in Wheat

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Abstract The mathematical model,correlative analysis,path coefficient analysis were used to study the grain filling heterosis characters of 4 CHA hybrids and its parents in wheat, and its relationship with climate factors. The results ar e as follows: 1. The heterosis was found in the whole process of dry matter accu mulation in grain in 4 CHA hybrid wheats. The heterosis dynamic change curves of grain dry accumulation in grain include three types: single peak curve,single v alley curve and peak-valley curve. The final dry matter weights have heterosis o ver parents,which include three formation types: whole grain filling stage, mid- late grain filling stage,late grain filling stage. 2. The heterosis was found in 4 CHA hybrids for average grain filling rates, maximum filling rates and fillin g durations, heterosis over parent for grain filling rates. Filling durations ha v e over dominant,dominant or partially dominant effects. 3. The average grain fi lling rates and durations of the hybrids and its parents had positive correlatio n with 1000-grain weight,but the formative factors of 1000-grain weight were d if ferent, the main factor was grain filling duration for CHA hybrids, average grai n filling rates for its patents. 4. The grain filling was positively correlated t o average temperature, maximum temperature, minimum temperature, diurnal range a nd duration of sunshine, and negatively related to rainfall in lower temperature,r a iny, lack of sunshine weather in grain filling stage. For the absolute correlati v e coefficients of grain filling with rainfall, duration of sunshine,diurnal rang e in the hybrids were lower than that of parents, it indicated that the grain fi lling of hybrids were more adaptative to adverse weather than conventional varie ties.

Key words CHA hybrid Grain filling Heterosis Wheat

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