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BNS小麦雄性不育性表现及其恢复性的研究

Male Sterility and Restoration of Thermo photo sensitive Male Sterile Line BNS of Common Wheat (*Triticum Aestivum* L.)

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中文关键词: 杂交小麦 BNS 温光敏雄性不育

英文关键词: Hybrid wheat BNS Thermo photo sensitive male sterility

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作者

单位

宁江权, 茹振刚, 郑炜君, 柴守诚 (1.西北农林科技大学农学院, 陕西杨凌 712100; 2.河南科技学院小麦中心, 河南新乡 453003)

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中文摘要:

为研究来自河南的小麦温光敏雄性不育材料BNS在陕西关中地区用于杂交小麦育种的可能性, 在陕西杨凌进行了BNS连续四年的分期播种试验和杂种F₁育性恢复测验。结果表明, BNS在10月17日以前播种的自交结实率平均值为1.41%, 变幅为0.07%~4.96%, 呈全不育至高不育, 可进行BNS杂交种制种; 11月18日以后播种的自交结实率平均值为68.23%, 变幅为42.91%~98.96%, 育性得到恢复, 可进行BNS繁种; 10月25日至11月10日之间播种BNS的自交结实率为17.48%~46.77%, 表现为半不育特性。BNS的育性随播期的上述变化趋势年度间较稳定。测恢试验的78个杂种F₁组合中, 3个组合的育性得到恢复, 分别为BNS/9833、BNS/SN055525和BNS/CL0442, 其自交结实率分别为118.54%、104.564%和102.021%, 说明9833等三个材料携带对BNS的育性恢复基因。综上, BNS在陕西关中地区可同时实现繁种和制种, 在普通小麦中亦能找到恢复源, 因此在该地区具备应用于杂交小麦育种的潜力。

英文摘要:

The thermo photo sensitive male sterile wheat line BNS was developed in He'nan. In order to investigate the possibility of BNS used in hybrid wheat breeding in Guanzhong area of Shaanxi, the fertility of BNS were investigated in four years sowing at different dates, and its hybrids were investigated sowing at normal sowing dates in Yangling, Shaanxi. The results indicated that the average self seedset rate of BNS was 1.41%, ranged from 0.07% to 4.96%, showing completely or highly sterile when it was sowed before 17th October during the four years, and can be used in hybrid seed production. The average self seedset rate of BNS was 68.23% and ranged from 42.91% to 98.96% while sowed after 18th November, indicating the fertility of BNS is restored and it can be used in BNS propagation. The self seedset rate of BNS ranged from 17.48% to 46.77%, when sowed from 25th October to 10th November, showing semi sterility. The above fertility performance of BNS was stable among different years. Three hybrids among the 78 F₁ hybrids, BNS/9833, BNS/SN055525 and BNS/CL0442, were restored to fertile during the three years, and their self seedset were 118.54%, 104.564% and 102.021%, respectively, indicating that there were restoring genes in the three male lines. It was concluded that both BNS' propagation and hybrid seed production could be conducted in Guanzhong area of Shaanxi, and restoring genes could also be found in common wheat. Hence, BNS can be used in hybrid wheat breeding program in this area.

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