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小麦提型不育系和杂交种种子生活力遗传改良初探 The Genetic Improvement on Seed Viability of A-line and Hybridin Wheat with T.timopheevi Cytoplasm

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摘要 本试验共选用了4个提型不育系(A系)及其保持系(B系)、4个恢复系(R系)及其川7B/R4份F~1|代材料,用不同遗传背景的B、R系及川7B/R材料与A系杂交,种子成熟时收获干燥考种,度过休眠期后进行发芽试验。结果表明,父本对F~0|种子千粒重存在胚乳直感现象;川3A、川4A与其它B系杂交,其F~0|种子的千粒重、饱满度、发芽率和发芽势均有不同程度的提高;川4A×R和川6A×R的杂种种子千粒重多分别比川4A×川7B/R和川6A×川7B/R的高,但前种组合(A×R)的种子发芽和发芽率远不如后一种组合(A×川7B /R)的种子,且前种组合的穗发芽率也较高。作者认为,利用A系与农艺性状相近、但遗传背景各异的B系杂交,或在R系中输入抗提型细胞质负影响的高种子生活力基因, 是提高A系和杂交种种子生活力的值得注意的途径。

Abstract:The objective of this paper is trying to grope for ways of improving sced viability of A-line and hybrid in wheat with T.timopheevi cytoplasm.Four A lines and their B lines,4 restorers (R line) and 4 crosses of Chuan 7B/R were used.The combinations of A×B,A×R and A×Chuan 7B/R were madc,and 1 000-grain weight (GW),rate of pre-harvest sprouting(RPHS),germinating energy(GE) and germination percentage (GP) of their F0 seeds were investigated.The results showed that the GW,full weight,GE and GP of the seeds of Chuan 3A and 4A×other B lines were higher than those of Chuan 3A ×3B and chuan 4A×4B;although the GW of Chuan 4A and 6A×R were heavier than those of Chuan 4A and 6A×Chuan 7B/R,the GE and GP of the latter crosses increased largely and their RPHScs were less.Therefore,it was considered as effective ways for improvement on seed viability,that A lines cross with other B lines having different genetic background but similar agronomic characters and that the gene(s) concerning high seed viability were transferred into restorers.

关键词 小麦 提型A系和杂交种 穗发芽率 种子生活力 遗传改良 Key words Seed viability Genetic improvement A-line Hybrid T.timopheevi Cytoplasm

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