Abstract

Pedigree Data Analysis of a Wheat Population [†]

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Abstract: Genetic diversity is an essential part of successful crop development and can be evaluated by different methods, e.g. the Coefficient of Parentage (COP). This coefficient is established on pedigree data. This method can determine the variation among genotypes without the influence of environment effects as would be the case for field data. This study measured genetic diversity among 317 wheat cultivars from a population generated by the speed breeding technique. Using pedigree data, we determined the associations between parents and individuals, and then used the pattern analysis techniques of principal component analysis and clustering. The results enabled an appropriate graphical representation of wheat cultivars. This information is useful for selecting future parents in breeding programs. This demonstrates that using COP is a viable way to evaluate diversity among genotypes, especially in inbred populations.

Keywords: genetic diversity; pedigree data; Coefficient of Parentage, pattern analysis

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