

数量遗传学中一种新的求综合性状的方法

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摘要 本文运用申农 (Shannon) 提供的最大熵原理, 提出一种构成单一综合性状的新方法, 并以此与数量遗传学中的多元统计法作了比较。在作多元遗传分析时, 常用多元统计法求出多个数量性状的综合性状, 再对这些相互关联的基本性状作主成份分析或用典范相关进行遗传分析[1-3]。本文提出了不同于多元统计学的另一种新的方法—最大熵法求出多个数量性状的单一综合性状值。它具有数学结构简单, 过程明晰, 结果简明等优点。

关键词 [综合性状,多元统计学,信息熵,最大熵原理,随机变数,相关系数](#)

分类号

A Novel Method for Determining an Integrated Character in Quantitative Genetics

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Abstract

This paper describes a novel method using maximum entropy principle introduced by Shannon to construct a unique integrated character and gives a comparison between this method and multivariate statistics in quantitative genetics. In multivariate genetic analysis multivariate statistics is usually used for a polygenic system of multiple quantitative traits to form several complex character. Genetic analysis can be implemented through treating these correlated elementary traits by using the technique of principal component analysis or canonical correlation. Differing from the multivariate statistics, this paper presents a new method using maximum entropy principle to obtain a unique integrated character from a set of correlated quantitative traits. This method has the advantages of simple mathematical structure and process, simple and clear results.

Key words [Integrated character](#) [Multivariate statistics](#) [Information entropy](#) [Maximum-entropy theory](#) [Stochastic variable](#) [Correlation coefficient](#)

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