

# 长期人工选择对群体遗传结构的影响——一项计算机模拟研究

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**摘要** 本文给出了显性与超显性模型下加性方差的分部方式, 为研究选择作用下基因间关系的变化 提供了有力的方法。并模拟研究了群体大小、连锁强度与遗传力水平对遗传方差变化的影响。小群体中遗传方差在世代间波动很大; 大群体中则稳定下降、波动较小。选择作用下平衡 加性方差下降很快, 特别是高遗传力性状。紧密连锁在小群体中一方面降低选择反应, 一方面维持了更多的加性方差, 从而使得预测长期选择反应甚为困难。

**关键词** [长期选择,遗传方差,计算机模拟](#)

分类号

## The Effects of Longterm Selection on the Genetic Structure of Populations- A Simulation Study

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### Abstract

Monte Carlo simulation has been done to study the effects of longterm artificial selection on genetic variances under additive,dominant, and over-dominant models. The effects of population size,linkage,and heritability have been considered. Just as under the additive model,the additive variance under the dominant and over-dominant models has also been decomposed into three components which represent changes in gene frequencies(VT),departure from Hardy-Weinberg equilibrium (VHW) and from linkage equilibrium(VLD) respectively. These present a reasonable approach to study the association among multiple genes. In small populations,genetic variance fluctuates wildly over generations and replicates due to the establishment of linkage disequilibrium. Rapid decrease of VT observed. Intense linkage retained a greater additive variance in the small populations while slowing down responses, which makes it difficult to predict during longterm selection.

**Key words** [Longterm selection](#) [Genetic variance](#) [Computer simulation](#)

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