

研究报告

基于地统计学的二化螟种群时间格局分析

袁哲明,李方一,胡湘粤,张中霏

湖南农业大学生物安全科技学院,长沙 410128

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摘要

对常德鼎城区1960~2001年二化螟各世代的越冬后幼虫高峰虫量的时间序列资料进行了地统计学分析.结果表明,年际间二化螟种群总虫量、第1代虫量、第2代虫量和冬后基数序列数据结构性较强,可预测性较好,特别是年际间总虫量其结构性占总变异的比例高达91.1%,可以前11年总虫量预测下年总虫量;世代间幼虫高峰虫量,年际间第1代虫量、第3代虫量和冬后基数序列数据的长期趋势较为明显,特别是冬后基数的长期趋势极为明显;世代间幼虫高峰虫量呈现3代(1年)的季节性周期.首次采用缺失某世代虫量或插入冬后基数的方法分析了各世代虫量和冬后基数对整个世代间虫量数据系列的重要程度,结果表明,各世代虫量和冬后基数单独对整个世代间虫量数据系列的影响均较小,二化螟发生量更多地受栽培制度、气候、食料和天敌等因子的影响.初步总结并建立了种群时间格局分析的地统计学方法.

关键词 [二化螟](#) [地统计学](#) [时间格局](#) [克力格估值](#)

分类号

Geostatistical analysis on temporal patterns of *Chilo suppressalis* population

YUAN Zheming, LI Fangyi, HU Xiangyue, ZHANG Zhongfei

College of Bio-safety Science and Technology, Hunan Agricultural University, Changsha 410128, China

Abstract

The geostatistical analysis on the temporal patterns of *Chilo suppressalis* population in the Dingcheng District of Changde City, Hunan Province from 1960 to 2001 indicated that the data series of the total number and the numbers of 1st generation, 2nd generation, and over-wintering larvae from year to year displayed better autocorrelation and prediction, especially for the total number, whose autocorrelation range and degree were 10.3 years and 91.1%, respectively. The data series of generation to generation, 1st generation year to year, 3rd generation year to year, and over-wintering larvae year to year all demonstrated an obvious long-term tendency, especially for over-wintering larvae. A remarkable cycle of 3 generations in one year was observed in the population of generation to generation. Omitting certain generation or interposing over-wintering larvae only resulted in a slight change in the autocorrelation of the whole data series generation to generation, while planting system, food, climate, and natural enemies played more important roles in regulating the population dynamics rather than the base number of the larvae. The basic techniques of geostatistics applied in analyzing the temporal dynamics of *C. suppressalis* population were outlined.

Key words [Chilo suppressalis](#) [Geostatistics](#) [Temporal pattern](#) [Krigle estimation](#)

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