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# 基于特征向量的旱地连续种植模式土壤肥力综合评价

陈长青1;何园球2;卞新民1;余德贵1

1.南京农业大学农业部作物生长调控重点开放实验室 江苏南京210095;2.中国科学院南京土壤研究所 江苏南京210008

# Soil fertility comprehensive evaluation under continuous farming pattern on dry land base on eigenvector

CHEN Chang-qing1;HE Yuan-qiu2;BIAN Xin-min1;YU De-gui1*

1 Key lab of Crop Growth Regulation;Ministry of Agriculture;Nanjing Agriculture University;Nanjing 210095;China;2 Institute of Soil Science;Chinese Academy of Science;Nanjing 210008;China

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**摘要** 为了探索红壤区旱地种植模式对土壤肥力的影响,以及合理利用资源目的,本研究选择当地常见的种植模式以及运用常规施肥方式进行了连续性的小区试验,并根据综合评价原理,运用数理统计学知识,采用方差分析方法,构造了基于特征向量的指标权重计算方法,对红壤旱地连续种植模式下土壤肥力进行了综合分析。结果表明,该模型能够比较合理地反映试验数据的变化趋势,比较恰当地反映土壤肥力变化情况,评价分析方法具有一定的科学性和正确性。模型分析结论为:杂李+(花生—绿肥—花生)对提高土壤肥力效果相对最佳,而对照最差。研究还以试验小区的生物量和能量效益分析验证了结果。

**关键词:** 土壤肥力 综合评价 方差分析 特征向量 土壤肥力 综合评价 方差分析 特征向量

Abstract: The dry land on red soil is barren,and the improper farming may cause the soil fertility decline,even degradation.In China,cropping patterns on dry land are diversified.The effects of different cropping patterns on soil fertility are different.In order to study the influence of continuous cropping patterns on the soil fertility on the dry land with red soil,a five years field pilot trial with local traditional farming patterns and the conventional fertilization were carried out.Weighting index based on eigenvectors were adapted to evaluate for the soil fertility on red soil dry land under continuous cropping patterns.The results indicate that this model is able to reflect the data change tendency,and the soil fertility changing situation could be reflected appropriately,and this evaluation analysis method has certain scientificalness and correctness.Based on the resulted of the model,Chinese pear +(peanut-green manure-peanut) were the optimal cropping pattern in terms of the soil fertility,while the traditional pattern was the worst.These results were corroborated by the biomass and energy benefit analysis.

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