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研究论文

基于GIS和地统计学的低山茶园土壤肥力质量评价

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摘要 亚热带低山区是我国茶园的主要分布区域，研究其土壤肥力质量状况是茶园精准化和信息化管理的基础。利用地统计学、GIS以及多元统计分析相结合的方法，对蒙顶山茶园土壤肥力质量进行了定量化综合评价研究。结果表明：(1)蒙顶山茶园土壤肥力质量沿海拔高度垂直变化明显，大部分土壤肥力区沿蒙顶山阳坡面水平方向呈带状分布。土壤肥力较高的区域分布在山体的中上部，随着海拔高度的降低土壤肥力质量水平也逐渐降低。(2)蒙顶山茶园土壤肥力质量总体水平不高。区域内土壤各项肥力指标与优良茶园相比还存在差距，同时肥力质量偏低的区域所占面积较大：第四、五两级肥力区所占面积最大，占总面积的42.35%。肥力较低的后5级占总面积的近70%，而肥力最高的3级不到10%。(3)采用该方法进行土壤肥力质量评价能较客观地反映土壤肥力状况，为地统计研究成果实际运用提供了思路。

关键词 GIS _ 地统计学 _ 茶园 _ 土壤肥力质量

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Comprehensive evaluation of fertility quality in hilly tea plantation soils based on GIS and geostatistics

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Abstract The subtropical low hill areas have the largest tea fields in China. Research on soil fertility is fundamental for accurate information management of the tea cultivations. A comprehensive evaluation of the soil fertility in Mengding Mountain was carried out with Geostatistics, GIS, and statistics methods. The study shows: (1) The soil fertility quality of Mengding Mountain is changing dramatically with the change of altitude. The hill can also be divided into different sections delimited by their fertility level: the richest soils are located in the middle and top section of the hill; the poorest, at the bottom. In other words: the higher the elevation, the richer the soil; the lower the elevation the poorer the soil. (2) The overall fertility level in Mengding Mountain is not high. There is a difference between today's Mengding fertility quality situation and the soil quality standards of good tea fields.In fact, most of Mengding Mountain has a low-grade quality soil. Indeed, the fourth and fifth grade soils cover 42.35% of the whole area. In contrast, the highest-grade soil accounts for less than 10%.(3) The application of this comprehensive method provides accurate and objective information on the soil fertility quality. It also gives a new practical approach to Geostatistics.

Key words GIS _ geostatistics _ tea fields _ soil fertility

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