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研究报告

低丘李园复合经营模式间作物生态效应研究

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摘要

对沿江低丘李园4种优化模式的间作物生态效应分析表明，随重复种植的增加，4种间种模式土壤的有机质年均增加5%～20%；全N年增加7%～40%，全P年增加8%～70%，全K年增加15%～80%；全垦种植的土地水土流失严重，土壤侵蚀和地表径流第1年平均达1 415.2 t·hm^{-2}和790.7 m^3·hm^{-2}；水土保持最好的是马铃薯+毛豆，其次为油菜+花生、马铃薯+西瓜、小麦；土壤平均侵蚀量和地表径流量与对照相比分别降低44.19%、38.24%、39.52%、37.56%和22.40%、9.28%、24.11%、21.16%.4种模式中油菜+花生生物量最高，年均达100 276 kg·hm^{-2}，其次是马铃薯+西瓜，年均达73 692 kg·hm^{-2}；生产力最高的是马铃薯+西瓜，年均达37 565 kg·hm^{-2}，其次是马铃薯+毛豆，年均达25 934 kg·hm^{-2}；投能效率最高的是油菜+花生，年均达到2.96.其次为马铃薯+西瓜、马铃薯+毛豆、小麦，分别为2.08、2.01、0.96.同时，有机、无机能输入效应表明，以生物能为主源输入进行转化利用太阳光能和水土资源，维护了果园生态系统的能量盈余，生态效益较高.

关键词 低丘,李园,间作物,生态效应

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Ecological effects of intercrops in comprehensive management patterns of hilly area plum orchard

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Abstract

The study on the ecological effects of intercrops in four cropping patterns showed that with the increase of multiple cropping,the annual increase of soil organic matter,total N,total P and total K was 5%～20%,7%～40%,8%～70% and 15%～80%,respectively. Potato-soybean had the best benefit in soil and water conservation,followed by cole?peanut,potato?watermelon,and wheat. Compared with control,the average soil erosion module and runoff amount of 4 patterns were decreased by 44.19%,39.55%,38.24% and 37.56%,and 22.40%,9.28%,24.11% and 21.16%,respectively. Cole-peanut had the highest biomass,being averaged 100 276 kg·hm^{-2} annually,and the second was potato-watermelon,with an average of 73 692 kg·hm^{-2}. Potato-watermelon had the highest productivity,which averaged 37 565 kg·hm^{-2} annually,and the second was potato-soybean,averaged 25 934 kg·hm^{-2}. The efficiency of energy input was in order of cole-peanut,potato-watermelon,potato-soybean,and wheat,and the value was 2.96,2.08,2.01 and 0.96,respectively.

Key words Hilly area Plum orchard Intercrop Ecological effect

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