

不同林下植被配置模式对柑橘园的水土流失控制、杂草调控的影响

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摘要:【目的】探究不同林下植被配置模式对红壤坡地柑橘园的土壤水土流失的控制、杂草的调控,为指导帮助红壤区柑橘园林下植被配置,柑橘园的生态系统服务与经济效益的权衡与协同关系提供理论依据。【方法】本研究以江西省信丰县的红壤坡地柑橘园为研究对象,通过在整地完成后的土壤上布设径流小区,设置狗牙根+紫云英、狗牙根+箭舌豌豆、狗牙根、地毯草+紫云英、地毯草+箭舌豌豆 5 种常用柑橘园生草模式,收集并测定各草种模式下的地表径流与壤中流情况。探究柑橘园下草种与裸坡对比下的水土流失和土壤 N、P 元素的流失规律。同时,还对不同年份柑橘园林下草种的地表径流情况进行收集分析,研究不同年份的柑橘园自然降雨情况下对水土流失的控制效果。【结果】不同林下植被配置模式中,狗牙根和地毯草对于柑橘园的土壤水土保持和土壤元素流失有较好的效果。不同林下植被配置模式对柑橘园在自然降雨条件下的水土流失控制效果与植被覆盖度以及坡地柑橘园的坡度相关。【结论】红壤坡地柑橘园在建立柑橘园时可以考虑狗牙根与地毯草的模式组合,有助于减少柑橘园土壤在自然降雨条件下的水土流失量。同时还有助于控制柑橘园林下杂草的生长。

关键词: 植被配置模式; 柑橘园; 水土保持; 杂草调控

Effects of different understory vegetation configuration patterns on soil erosion control, weed control, and resistance to mechanical compaction in citrus orchards

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Abstract: 【Objective】 The aim of this study was to explore the control of soil erosion and weed growth in citrus orchards on red soil slopes under different understory vegetation configuration modes, to provide theoretical basis for guiding and assisting the vegetation configuration under citrus orchards in red soil areas, and balancing and coordinating the ecosystem services and economic benefits of citrus orchards. 【Method】 This study takes the red soil slope citrus orchard in Xinfeng County, Jiangxi Province as the research object. Runoff plots were set up in the newly completed land preparation area of the local citrus orchard. five commonly used citrus orchard grass planting models were established, including *Cynodon dactylon* & *Astragalus sinicus*, *Cynodon dactylon* & *Vicia sativa*, *Cynodon dactylon*, *Axonopus compressus* & *Astragalus sinicus*, *Axonopus compressus* & *Vicia sativa*. Surface runoff and soil flow were collected and measured under each grass pattern. Explore the soil erosion and the loss patterns of soil N and P elements under the comparison of grass seeds and bare slopes in citrus orchards. At the same time, the surface runoff of grass species under citrus gardens in different years was collected and analyzed to study the control effect of soil erosion under natural rainfall conditions in citrus gardens in different years. 【Result】 Among different understory vegetation configuration modes, *Cynodon dactylon* and *Axonopus compressus* have

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good effects on soil and water conservation and soil element loss in citrus orchards. The effect of different understory vegetation configuration modes on soil erosion control in citrus orchards under natural rainfall conditions is related to vegetation coverage and slope gradient of the orchard. 【Conclusion】 When establishing citrus orchards on red soil slopes, the combination of *Cynodon dactylon* and *Axonopus compressus* patterns can be considered, which can help reduce the amount of soil erosion caused by natural rainfall in citrus orchards. It also helps to control the growth of weeds and is less affected by agricultural machinery.

Key words: understory vegetation configuration patterns; citrus orchards; soil erosion control; weed control;