

## 不同自然植被管理措施对红壤丘陵果园水土流失的影响

### Effects of different natural vegetation management measures on red soil erosion in hilly orchards

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中文摘要:

丘陵是“山一丘一谷”的过渡地带, 生态系统脆弱, 一旦植被遭破坏, 极易水土流失。在红壤丘陵园地应用除草剂调控水土流失试验结果表明: 与传统的清耕法相比, 克无踪、草甘膦、草草克、克草草和生草法可使地表径流量分别减少47.7%, 20.8%, 31.4%, 41.3%和45.5%; 可使土壤侵蚀量分别减少52.4%, 39.0%, 48.1%, 50.7%和55.2%; 可使土壤养分分别减少50.2%, 37.0%, 41.8%, 45.8%和60.3%。除草剂对杂草再生率影响, 与生草法比较, 克无踪可达67.2%, 草甘膦达30.3%, 草草克36.8%, 克草草51.2%和清耕法55.1%; 克无踪调控杂草效果分别是草甘膦的2.2倍, 清耕法的1.2倍。克无踪调控杂草效果显著, 有望成为红壤丘陵园地培肥与水保相得益彰的有效措施。

英文摘要:

The effect of managing the natural vegetation with different mechanical and chemical methods to minimize runoff and soil erosion in the red soil hilly orchards was investigated. The traditional tillage without herbicide practiced by farmers resulted in 33.2 m<sup>3</sup>/hm<sup>2</sup> runoff and 167.8 t·km<sup>-2</sup> soil loss per year. The management of natural vegetation with sequential herbicide treatments such as paraquat, glyphosate, G-G-P (glyphosate-glyphosate-paraquat), P-P-G (paraquat-paraquat-glyphosate) and sod culture reduced the surface runoff by 47.7%, 20.8%, 31.4% and 41.3%, 45.5%, respectively. The five treatments also reduced the soil loss by 52.4%, 39.0%, 48.1%, 50.7%, and 55.2%, respectively, and the nutrient loss through runoff by 50.2%, 37.0%, 41.8%, 45.8%, and 60.3%, respectively. Average soil covers by natural vegetation 30 days after application with paraquat, glyphosate, G-G-P, P-P-G and tillage without herbicide were 67.2%, 30.3%, 36.8%, 51.2% and 55.1%, respectively, as compared with the sod culture method. It showed that paraquat applications allow to maintain a higher vegetation cover resulting in lower soil erosion, which is a promising measure for soil-water and soil fertility preservation.

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