

植被毯措施对黑土农田浅沟侵蚀防护效果的研究

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摘要: 为了探究植被毯在植被恢复早期的浅沟侵蚀防护效果, 并为黑土农田浅沟治理提供科学依据。以黑土耕作层土壤为研究对象, 通过室内模拟汇流冲刷试验, 定量分析了植被毯在不同汇流强度下对农田浅沟侵蚀产流产沙的影响。实验结果显示: 在小于 30 L/min 汇流强度时, 植被毯措施可减少 16.23% 的径流和 80% 以上的产沙。当汇流强度增大到 40 L/min 时, 植被毯措施减沙效益由 82.19% 下降到 26.63%, 而减流效益由 15.74% 减少到 1.63%, 基本无减流效果。继续增加汇流强度达到 50 L/min 时, 植被毯措施的减沙效果进一步下降, 并最终失去防护作用。研究表明植被毯措施在一定汇流强度下能够有较好地减流减沙作用, 且其减沙作用明显高于减流作用。因此, 一定条件下, 可以有效防治浅沟的进一步侵蚀, 且对于改善草被前期生长及生态环境有一定帮助。

关键词: 植被毯; 农田浅沟; 防护效果; 产流产沙

Study on the Protective Effect of Vegetation Blanket on Ephemeral Gullies in Black Soil Farmland

Abstract: In order to explore the protective effect of vegetation blanket on ephemeral gully erosion in the early stage of vegetation restoration. And to provide scientific basis for ephemeral gully control of black soil farmland. This paper takes the typical black soil magnetism of Heilongjiang province as the research object, through the indoor simulated confluence erosion experiment, the effect of vegetation blanket on runoff and sediment yield of farmland ephemeral gully erosion under different confluence intensity was quantitatively analyzed. The experimental results show that when the confluence intensity of 30L/min is less than that of vegetation blanket, the runoff and sediment yield can be reduced by 16.23% and 80% respectively. When the confluence intensity increases to 40L/min, the sediment reduction benefit of vegetation blanket measures decreases from 82.19% to 26.63%, while the flow reduction benefit decreases from 15.74% to 1.63%, which basically has no flow reduction effect. When the confluence intensity continues to increase to reach 50L/min, the vegetation blanket measure has no effect on sediment reduction and loses its protective effect. The study shows that the vegetation blanket measure can have a better effect on runoff and sediment reduction under a certain confluence intensity, and its sediment reduction effect is obviously higher than that of runoff reduction. Under certain conditions, it can effectively prevent the further erosion of ephemeral gully, and it is helpful to improve the early growth of grass cover and ecological environment.

Keywords: vegetation blanket; field ephemeral gully; protective effect; runoff and sediment production