



Impacts of Greening Materials and Seed Pretreatment on Vegetation Development at an initial stage

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Slope protection using greening measures as an integral part of soil-bioengineering is characterized by an increasing demand in research and practice. However, successful greening is a very complex issue due to the vast variety in specific slope characteristics such as morphology, soil properties and environmental factors. Because of practical experience in the greening of slopes and the results of further investigations in small-scale tests, it can be stated that the use of appropriate planting techniques, the quality of the materials used and the proper implementation of potential needed auxiliary materials at difficult locations are seen as key success criteria for sustainable vegetation development.

Within this framework small-scale testing series were conducted regarding the influence of specific soil-properties, the use of auxiliary greening materials (fertilizer, mycorrhiza fungi, Bonded fiber matrix (BFM)...), application of different seed-pretreatment methods and influences of specific environmental factors (inclination, seeding depth) on vegetational development in an early phase. The aim of the series is to quantitatively and thus economically optimize the use of different greening-components and seed mixtures for practical application, while ensuring optimal development of vegetation. To quantify the influence of the treatment systems, vegetation cover ratio, biomass production (aboveground and belowground) and the germination of plant seeds served as main criteria for assessing the development in an initial stage. Selected findings for instance show that the admixture of mycorrhiza fungi can increase the cover ratio up to 23 % compared to untreated plots. In addition, pretreatment of seeds showed distinct effects too by shortening germination phase and increasing the capability of producing a higher amount of healthy sprouts. From a bioengineering perspective the results will serve as potential decisive advantage for successful implementation of greening measures.