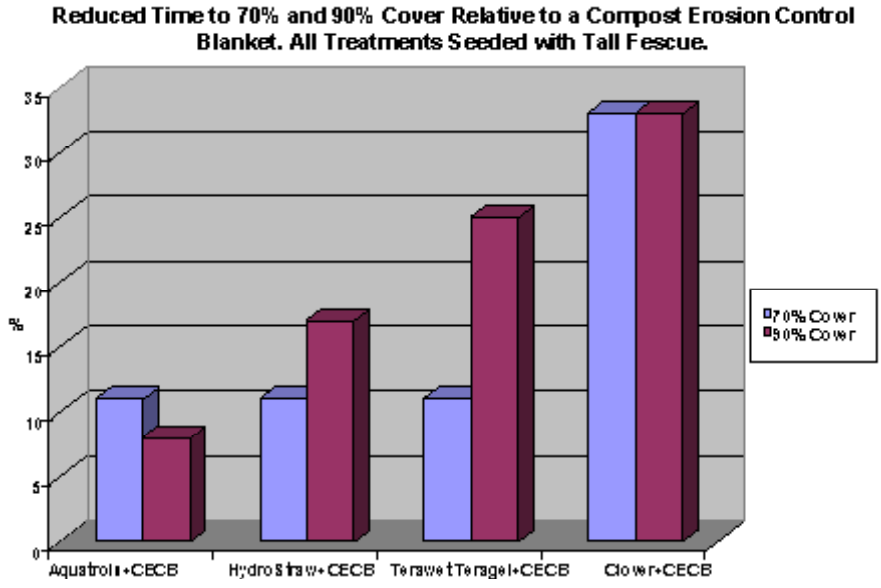
TechLink Research Summary #3315

Vegetation Enhancement for Filtrexx® Slope Protection

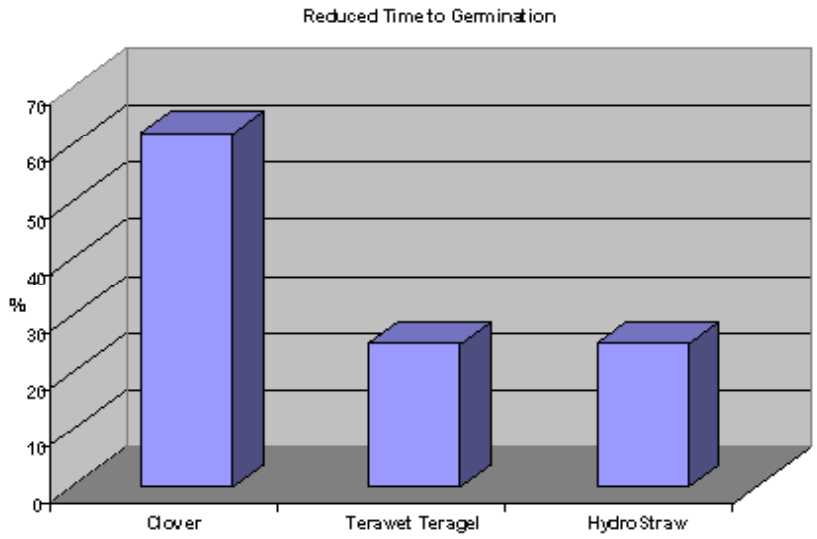
Construction and land disturbing activities where topsoil is cleared of vegetation are particularly subject to accelerated soil erosion. These areas often create a significant challenge to vegetation establishment for erosion control due to reduced soil quality and fertility. Arguably the best way to reduce runoff and stabilize soil is to establish permanent vegetation as quickly as possible. According to Brady and Weil (1996) densely grassed areas are nearly equal to forest ecosystems in preventing soil loss, which is why grasses are typically specified for soil stabilization for land disturbing activities (GA SWCC, 2002). Vegetation with dense foliage and cover can intercept between 5% and 40% of the total rainfall, thereby preventing it from contacting the soil surface and reducing splash erosion and runoff potential (Brady and Weil, 1996). Typically, construction sites must achieve a 70% uniform vegetative cover to pass post-construction close out requirements (Kentucky Erosion Prevention and Sediment Control Field Guide, 2005).

Although Filtrexx® Slope protection has been used effectively for permanent slope stabilization and vegetation establishment, this vegetation establishment practice can be challenging to keep moist in a drought prone summer season as well as arid and semi-arid regions. The dark color of the Filtrexx® Slope protection may contribute to increased evaporation during hot and dry conditions. Although Slope protection is high in organic matter and humus content, which are known to have high water holding capacities, a Filtrexx Support Practice™ that could further increase water holding capacity and water plant availability during peak hot and dry seasons may increase the survival and establishment potential of seeding applications, as well as potentially reduce irrigation requirements - particularly during the critical stage of plant establishment.

The following Filtrexx Support Practices™ can be added to Filtrexx® Slope protection to decrease the time to seed germination and time to 70% and 90% uniform vegetation cover, and above ground biomass of the mature vegetation. These Support Practices may also be used with any Filtrexx BMP where Filtrexx® GrowingMedia™ is specified, including Filtrexx® Temporary seeding, Storm water blankets, Runoff diversion, Channel protection, Bank stabilization, Engineered soils, Filter strips, Severe slope stabilization, and Vegetated retaining wall systems. The addition of one or a combination of these Support Practices™ can be critical if: 1. Rapid stabilization and/or vegetation establishment is important; 2. Contract and/or construction close-out phase is rapidly approaching or requires immediate completion; 3. A lush and healthy vegetation cover is important for aesthetics, stabilization, or sustainable erosion control.



*Evaluations performed at The University of Georgia Plant Pathology Greenhouse Complex. For the complete study see Vegetation Growth Evaluation with Compost, Mulch, and Support Practice™ Additives in the Appendix of the Filtrexx Design Manual.



References

Brady, N.C., and R.R. Weil. 1996. The Nature and Properties of Soils: 11th Edition. Prentice Hall, Inc. Upper Saddle River, New Jersey.

Georgia Soil and Water Conservation Commission (GA SWCC). 2002. Erosion and Sediment Control Course Manual. Georgia Soil and Water Conservation Commission, Atlanta, Georgia.

Kentucky Erosion Prevention and Sediment Control Field Guide. 2005. Kentucky Erosion Prevention and Sediment Control Field Guide. Kentucky Environmental and Public Protection Cabinet and Tetra Tech, Fairfax, Virginia.

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