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Comparison of Cotton-based Hydro-mulches and Conventional Wood and Paper Hydro-mulches - Study 1

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Soil erosion from steep slopes, bare soil, or construction sites is a problem that can create on-site gullies, make revegetation difficult, and adversely affect downstream water bodies and aquatic ecosystems. Mulches have been widely used to mitigate the effects of erosion. One common type of mulch, hydro-mulch, uses shredded wood or paper that is mixed with water and applied with an applicator gun. In this study, conventional wood and paper hydro-mulches were compared with cottonseed hulls and three types of processed cotton gin by-products. The mulches were applied at two rates, 1121 and 2242 kg/ha (1000 and 2000 lb/acre). Comparisons were made on the time to runoff, sediment loss, mulch loss, and mulch coverage (C-Factor). The cotton-based mulches (cottonseed hulls and cotton gin by-products) performed equal to or better than conventional wood and paper mulches in reducing soil loss during a simulated 6.35-cm/h (2.5-in/h) rainfall intensity event. Likewise, a lower percentage of the cotton-based mulches were washed-off during the rain event than with the conventional wood and paper hydro-mulches. The coverage factor and the time to runoff associated with the wood and paper mulches were higher than for any of the cotton-based mulches. Overall, the cotton-based mulches showed promise in erosion control applications.