PAM Research on Agricultural and Disturbed Soils in Rainfed Areas. (S06-flanagan164805-Poster)

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Abstract:

Use of polyacrylamide (PAM) as an erosion control soil amendment has been studied at the USDA-ARS National Soil Erosion Research Lab since the early 1990's. Field experiments in Indiana using simulated rainfall on a sloping silt loam soil found that 20 kg/ha of PAM could reduce sediment loss by over 60% from the first storm event. Recent experiments have used PAM on areas prone to excessive erosion (highway embankments, landfill caps, etc.) to provide control while vegetation is being established. A simulated rainfall study found that 80 kg/ha PAM application on a 3:1 silt loam soil constructed slope reduced runoff by 86% and soil loss by 99% in a severe storm event (69 mm/hr for 1 hour) on initially dry soil. The PAM continued to be effective at controlling runoff and soil loss through a series of simulated rainfall applications, reducing runoff by an average of 40% and soil loss by an average of 83% over the entire experiment. Two associated natural rainfall studies found similar erosion control benefits as well as improved vegetation establishment. Laboratory experiments in-progress are targeted towards determining the optimal rates of PAM to control erosion and minimize cost.

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