Agriculture

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CLEAR FLOW CONSULTING INC.
SOIL SOLIDIFICATION · EROSION CONTROL · WATER CLARIFICATION

Canadian Distributor

Erosion has the potential to greatly affect agricultural productivity through the loss of quality topsoil and nutrients. The presence of suspended particulate matter and high nutrient loads within the runoff negatively impacts downstream water quality. A number of different techniques or products are currently being used to help reduce agricultural soil erosion; however, many of them are time consuming, expensive or simply do not work effectively.

Anionic polyacrylamide (PAM) is used in many regions of the world to effectively and efficiently control agricultural erosion, reduce soil crusting, and to increase water infiltration into soils. Anionic PAMs supplied by Clear Flow Consulting are safe for the environment and non-toxic to plant and animal life when used at recommended rates. Importantly, anionic PAMs are not absorbed by plant or animal tissue[1].

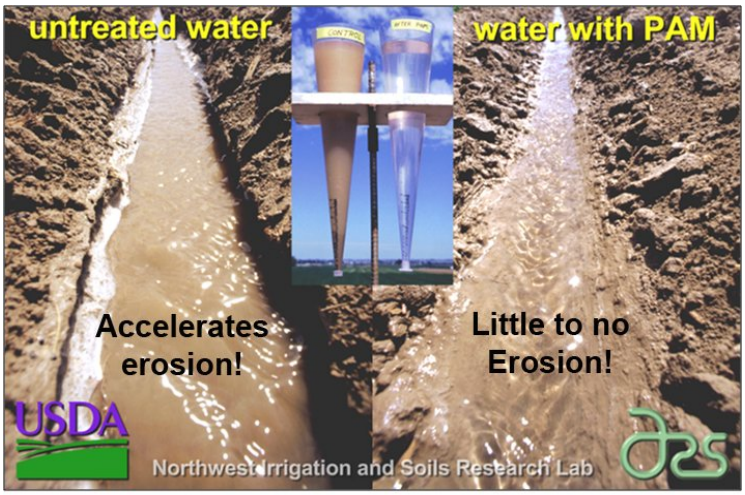
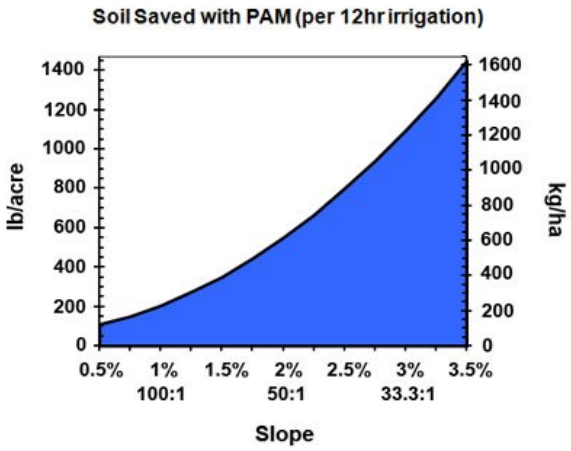


Photo courtesy of http://kimberly.ars.usda.gov/pampage.shtml

Clear Flow Consulting offers free soil and water testing of samples to best match them to our wide range of different polymer blends. This specificity results in greatly improved anionic PAM binding to the soil type, ensuring that not only will the chosen polymer blend work effectively on the sample, but also that no more polymer is applied to the environment than needed.



Reduce Soil Erosion

Silt Stop® anionic PAM powder helps to stabilize the soil structure by causing surface attractions to occur between soil particles and the PAM molecule, acting as a sort of 'soil-glue'. Because of these attractions, less soil is transported away from the field in runoff water due to erosion. Scientific studies have found that when anionic PAM was applied to irrigation furrows by furrow advance treatment, subsequent irrigation resulted in a 93% reduction in soil loss and a corresponding increase in the water infiltration rate into the soil[2]. Less soil erosion results in fewer nutrients, pesticides, and planted seed lost into the environment.

Improve Runoff Water Quality

Since soil erosion is reduced, the amount of suspended soil particles in runoff water is also reduced. Significant improvements can be seen in the quality of tailings water discharge, as seen by reductions in sediment load, phosphates, nitrates and biological oxygen demand[2]. Any remaining turbidity in the runoff water can then be treated with Floc Logs®, a solid co-polymer blended block that can be easily placed into flowing water. The polymer molecules in the Floc Logs® dissolve into the water and bind soil particles, clays and other colloids into large flocculated masses that then easily drop out of the water column.

Reduce Seed Migration

The use of PAM powder, such as Silt Stop®, on irrigation furrows can help to hold weed seeds in the furrows, and thus reduce seed migration across neighbouring fields[3], reducing pesticide use. This would help save the farmer money as well as reducing the farm's environmental impact. Similarly, anionic PAMs can reduce the number of bacteria in field runoff water[4]. Since many agricultural crops are fertilized using animal manure, use of PAMs may offer possible water safety advantages in receiving waters downstream by reducing bacteria migration from the fields.

[1]Bologna *et al,* 1999. Journal of Chromatographic Science 37: 240-244; [2]Lentz and Sojka 1994. Soil Science 158: 274-282; [3]Sojka *et al.* 2003. Journal of Soil and Water Conservation 58: 319-236; [4]Sojka and Entry 2000. Environmental Pollution 108(3): 405-412.