The Efficacy of Polyacrylamide to Remove Coliform Bacteria from Irrigated Pasture Systems. (A05entry164517-Oral)

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Abstract:

Pollution of surface flow and ground water from animal waste application to soils has been documented. We measured efficacy of PAM dissolved in water and as a patch application to soil to remove total (TC) and fecal (FC) coliform bacteria from surface and soil water in pasture systems and the influence of PAM on survival of TC and FC in surface flow, soil and soil water. Numbers of TC in surface flow did not differ when waste was applied to soil regardless of PAM treatment or day since waste was applied. Numbers of TC in surface flow decreased by 10 fold, 7 days after waste regardless of PAM treatment. Numbers of FC in surface flow decreased by 10 fold, 7 days after waste application and 100 fold 28 days after waste application regardless of PAM treatment. Numbers of TC in soil decreased by 10 fold, 7 days after waste was applied, 100 fold 28 days after waste was applied and 1000 fold 63 days after waste was applied regardless of PAM treatment or soil depth. TC numbers did not differ in control soils and soils receiving waste soil depth or PAM treatment 28 and 63 days after dairy waste was applied. Numbers of FC in soil were higher in the 0-5 and 5-15 cm soil depths when waste was applied to soil regardless of soil PAM treatment. FC numbers in all three soil depths decreased by up to 1000 fold, 28 and 63 days after waste and PAM treatments were applied. In all treatments except the waste application x PAM patch treatment, TC numbers in soil water decreased by over 10 fold 28 and 63 days after waste was applied. PAM may not provide additional protection to surface water from waste applied to pasture systems, but the compound does not enhance survival of TC or FC in soils or water.

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Presentation Information:

Presentation Date: Monday, November 11, 2002 Presentation Time: 10:20 am

Keywords:

fecal coliforms, water quality, pastures