A COMPARISON OF THE RISK OF SURFACE WATER POLLUTION BY E.COLI FROM FAECES FROM GRAZING ANIMALS AND FROM SLURRY DISPOSAL

A.J.A. Vinten[1], M. Aitken[3], D.R. Fenlon[2] and J. Douglas [1].

[1]SAC Land Management Department, Bush Estate, Midlothian EH26 0PH
[2] SAC Centre for Microbiological Research, Craibstone, Aberdeen.
[3] SAC Heartland, Auchincruive, Ayrshire

ABSTRACT

This work presents quantitative information comparing E.coli leaching losses from slurry spreading and from grazing animals. Sheep grazing on drained plots for 70 days in late autumn 2001 (16 lambs per ha) gave drainage water with 100 - 1000 cfu *E.coli* per ml. Drainage water during May-July 2002 from sheep grazed plots (16 sheep+lambs per ha) gave average E.coli concentrations which were lower than observed in autumn (11 cfu/ml); this may be because of lower shedding rates by some of the animals used. Plots treated with slurry (36 m^3/ha on May 29th 2002) had lower average *E. coli* counts (5 cfu/ml) despite the initial *E. coli* input being five times higher than the input from the grazing sheep over the whole grazing period. In catchment studies on the Cessnock Water, a predominantly dairy catchment in Ayrshire, *E. coli* and total coliform concentrations during a storm event were clearly linked to grazing animals, as little slurry spreading occurred in the previous month, due to wet weather. For a 7 mm rainfall event, roughly 20% of the estimated daily input from grazing livestock was transported to the river. Spot sampling of field drains in grazed fields and silage fields confirmed that grazing animals were the principal source of *E. coli* and faecal streptococci. Laboratory runoff studies showed that *E. coli* are more readily transported from fresh wastes than from aged material.