

SITE SOLID MANURE HEAPS AWAY FROM WATERCOURSES AND FIELD DRAINS

first DRAFT

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Description

Where solid manure is stacked in the field or outside of buildings, the heap should not be sited over field drains or close to a watercourse (i.e. at least 10 m separation).

Rationale, mechanism of action

Keeping manure heaps away from field drains and watercourses reduces the risk of pollutants from the manure entering surface waters through preferential flow to drains or *via* surface run-off into a watercourse. Siting manure heaps away from drains reduces the risk that preferential flow of effluent through the soil might transport N, P and FIOs to field drains. Similarly, an adequate separation distance between the heap and a watercourse reduces the risk that any effluent from the heap might run over the soil surface directly into the watercourse. There is often an increased risk of run-off from the area immediately surrounding the heap because of damage to the soil structure caused by farm machinery when loading/unloading manure.

Applicability

The method is applicable to all farms that produce or import solid manure and store it in the field. Benefits are likely to be greatest on heavier soils, where there is a greater risk of surface run-off and where drains are more likely to be present.

Effectiveness, including certainty

N: The method will only be effective on the clay loam soil, where a reduction of 0-1 kg N/ha per year is estimated on the fields concerned. The calculation assumes that 20% of manure heaps are at risk (i.e. over a drain, etc), and 2% of total N is leached. Averaged over the farm area, this corresponds to a reduction in loss per unit area of 0.2 kg N/ha.

P: There is no direct equivalent in PE0203 but PE0203 Method 22 'Improved timing windows – manure' was used as the basis for estimating effectiveness. It is difficult to translate these losses, expressed on a field area basis, to the loss from a manure heap, which is effectively a point source. However, on the basis of the expert weighting it was estimated that the manure component of the baseline P loss would be reduced by 4%.

FIOs: 10% reduction on the clay loam soil. The effectiveness is assumed to be zero for the broiler farm because the litter is a relatively dry material and the heap would need to receive an appreciable amount of rain before any seepage occurred. By this time, the temperature in the heap would be expected to have risen sufficiently to kill off most of the FIOs that are present.

Time frame

Environmental side-effects / pollution swapping

The method will also reduce water pollution risks from ammonium-N and elevated levels of BOD. It is unlikely to increase any pollutant losses above those normally arising from manure storage.

Relevance, potential for targeting, administrative handling, control

Costs: investment, labor

For the arable farm, there is assumed to be a cost / ha over 100 ha nominal management cost of changing the location of the manure heap. For the beef and broiler farm, this cost is applied over the whole farm area.

References