

## Best Practice Information Sheet

# Organic by-products

## Sheet 6.0a

## Dirty water separation

### Why change?

Dealing with dirty water is often an area where considerable savings can be made. It also substantially reduces the risks of water pollution for which it is a common cause. By taking action to review dirty water management you can:

- lessen handling costs
- minimise disposal costs
- reduce labour and worry
- decrease the risk of water pollution.



*Dirty water adds to costs*

## Steps to success

- 1. Review your current situation** by checking the sources of the dirty water in your yard, the system for separating clean and dirty water, the storage and transfer system, and land application equipment and areas.
- 2. Identify potential opportunities** including:
  - all the sources and pathways of clean water on the farm arising from roofs, clean yards, land adjacent to the yards, tracks and access roads during wet weather. Decide what can be done to avoid clean water from these sources from entering the dirty water system. List the guttering, downspouts, drains or ditches that need installing or repairing. Consider whether roofing any manure storage would be possible
  - establish the potential to reduce washing water and calculate the area of dirty yards and collection zones. Consider whether keeping additional working areas clean or roofing them to exclude rain would reduce dirty water production
  - reduce risk of potential leaks, e.g. from faulty or frost prone pipelines
  - improve land applications.
- 3. Calculate the cost-benefit of the opportunities** you have identified. For example, compare the cost of re-directing clean water with the benefit of lower waste water disposal costs (low water rate irrigation is £1.50/m<sup>3</sup>), reduced energy and labour costs. You can then calculate your payback period.
- 4. Develop an action plan to:**
  - ensure that guttering and downspouts are repaired or fitted; clean water yard drains are enclosed; and fields, tracks and access roads drain separately to a ditch, stream or storage. All clean water should be drained away from dirty yards, manure storage and stock gathering areas
  - establish if the clean water is of a quality that could be recycled directly for other purposes, including irrigation and washing yards
  - avoid unnecessary contamination of water supplies in supply, storage or after initial use by avoiding back siphoning, and protecting ground and surface water sources during farm operations.
- 5. Carry out** routine inspection and/or maintenance of pipes, pumps and application areas and adjacent watercourses for signs of pollution. Rectify as and when necessary.

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### Sheet 6.0b

## Dirty water separation - Practical examples

#### Dairy farm

In this example, a dairy farm with 120 cows has 1500m<sup>2</sup> of open yard area and silos. The parlour is washed down with a pressure hose. Some roof water also mixes with the dirty water and drains into the collection system of a low rate travelling irrigator.

A review of dirty water sources found that repairing gutters and downspouts, diverting some clean yard water and careful use of the pressure hose could reduce the quantity of dirty water by 1000m<sup>3</sup> (37%).

Savings resulted from reduced costs of water, electricity and labour, as well as from wear and tear on the irrigation system.

The total saving was estimated as £700/year. In addition the risk of water pollution was significantly reduced.



#### Hill farm

A hill farm with an annual rainfall of 1200mm on a roof of 600m<sup>2</sup> produced 720m<sup>3</sup> (160,000 gallons) of clean water that drained into dirty water and slurry systems.

The cost of diverting this water included renewing 30m of guttering and two downspouts @ £7.17/m = £215, 30m of clean water drainage @ £5/m = £150; a total of £565 using farm labour.

Half the total (360m<sup>3</sup>) was mixed with dirty water and was irrigated to land @ £0.5/m<sup>3</sup>. Diverting the water saved £180/year. A similar quantity was collected in the slurry system and spread to land @ £1.80/m<sup>3</sup>. Diverting this water saved £648/year.

The total saving was £828/year with a payback of less than one year. Since the cost and solutions are site-specific, it is essential to use your own figures when calculating cost effectiveness.



*Minimise sources of dirty water by reducing dirty yard areas and roofing where cost-effective*

## Remember

- By taking action to review dirty water management you can reduce handling and disposal costs.
- Reducing dirty water helps take the pressure off your storage and reduces the risk of causing water pollution.
- You may be able to make further savings by using the clean water from roofs for some purposes such as washing yards.

For further information: Defra ([www.defra.gov.uk](http://www.defra.gov.uk)), Environment Agency ([www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)), ECSFDI (<http://www.defra.gov.uk/foodfarm/landmanage/water/csf/delivery-initiative.htm>), Natural England ([www.naturalengland.org.uk](http://www.naturalengland.org.uk)), Cross Compliance Helpline 0845 345 1302 ([www.crosscompliance.org.uk](http://www.crosscompliance.org.uk)) and ART ([www.associationofrivertrusts.org.uk](http://www.associationofrivertrusts.org.uk))



This information sheet is part of a series providing farmers with advice on land management practices to protect water bodies, produced by Association of Rivers Trusts with support from the England Catchment Sensitive Farming Delivery Initiative. The advice will also enable farmers to use farm resources more efficiently and help meet Nitrate Vulnerable Zone and Soil Protection Review requirements under Cross Compliance and environmental regulation.



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