FARMING connect
cyswllt FFERMIO

08456 000 813

Slurry separation

Why should I be thinking about it?

If you're farming in a sector where your livestock produce slurry, be that dairy, beef or pigs then you'll probably need to store it and spread it on land to grow crops (unless it's going into an anaerobic digester). Does the way you store slurry and the way you spread it meet regulatory standards? Are you making the most of all the valuable organic matter and nutrients that are in the slurry?

In November 2018 Welsh Government announced that new regulations to tackle agricultural pollution will come into force from 1 January 2020. They include measures to protect water from pollution related to when, where and how slurry is spread and manure storage standards.

Where does Slurry Separation fit in?

Separating the solids from the liquid means that slurry can be managed more easily- the solid portion can be heaped up, stored and transported easily and the liquid portion is then much lower in volume which saves slurry storage requirement. Solids contain the majority of the valuable nutrients that the crop needs; therefore, due to separation the pollution risks from storing and spreading the liquid are reduced. There are measures that can be put in place to reduce the storage required for slurry e.g. covered yards, covered slurry stores and separating clean and dirty water which all reduce the volumes that need to be stored, and mitigate pollution to the environment that can occur due to ammonia emissions. Slurry separation is an additional measure that can benefit the farm's nutrient management and environmental impact.

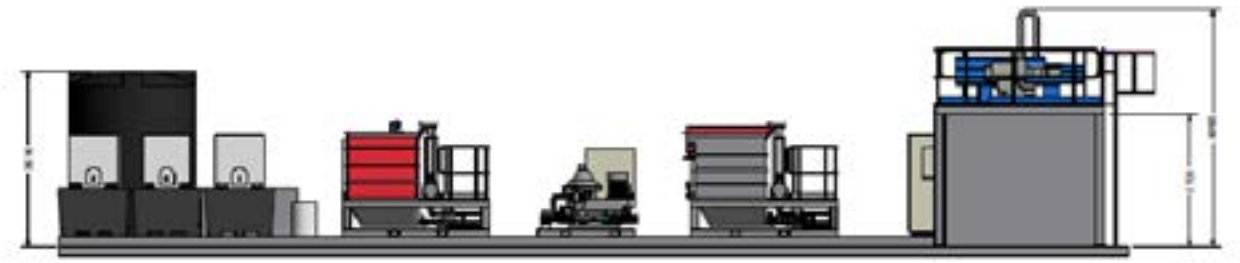
Slurry Separation Technology

The main methods are mechanical but there are new methods emerging. Mechanical methods mainly use presses (rollers, belts, screws or filters) that de-water by mechanical pressure; or screens (stationary, inclined, rotating or conveyor types) that de-water by gravity, pressure or vibration. These methods take out upwards of 75% of total solids, are efficient and cost effective.

New approaches however have the advantage of separating up to 90% of the total solids and giving more control over the composition of the separated components. With microfiltration or electrolysis even nitrogen and phosphorus can be captured and the separated liquid is almost pure water.

An interesting new project at Gelli Aur, Coleg Sir Gar in Carmarthenshire uses a de-watering and purification system that removes the water from slurry and treats the water until it is clean enough for reuse or safe discharge. The system will also utilise nutrients from the slurry to produce good quality fertiliser. They aim to significantly reduce the risk of air and water pollution at the same time as maximizing the recycling nutrient value. The development process will reduce storage of slurry on farms considerably as well as handling costs. Extracting nutrients from manures efficiently could save on the cost of commercial fertilisers and reduce serious environmental impact. The project aims to design, develop and validate economically viable systems that will be made available commercially to be used on farms.

More on ProsiectSlyri Project website, Facebook and Twitter or prosiectslyriproject@colegsirgar.ac.uk



Other resources:

Free software developed by **ADAS**; MANNER NPK which will do nutrient management calculations and the AHDB Nutrient Management Guide (RB209) which provides fertiliser recommendations for all key crops.

Further information:

Farming Connect Technical Article by Dr Steve Chapman, IBERS
Use of membrane filtration technology to reduce agricultural pollution

Farming Connect Technical Article by Dr Will Stiles, IBERS
Improving Slurry Management using separation technology

Farming Connect New technology at Welsh farm shown to extract 90% of water from slurry

Farmers Weekly article "New slurry purification system starts operating at Welsh college"

The potential contribution of separation technologies to the management of livestock manure

Solid–Liquid Separation of Animal Slurry in Theory and Practice

Solid–liquid separation of livestock slurry: efficiency and cost

Farming Connect Clean and Dirty Water case studies