

Slurry technology for farms in development

Power & Water is pioneering the advancement of slurry separation to reduce pollution while also creating savings for cattle farms.



Slurry is a mixture of manure and water, used by farmers as a natural fertiliser for their crops.

Statistics from Natural Resources Wales put the number of pollution incidents caused by Welsh dairy and beef farms at between 85 and 120 for each of the last six years, with over 60 per cent of these incidents occurring within the dairy industry. Poor slurry management can have a serious environmental impact, so it is becoming an increasingly pressing issue for farmers.

Swansea-based company Power & Water is working to develop an economically and environmentally viable slurry management system to address the agricultural industry's impact on the environment. Their technology is designed to improve slurry management, reduce air and water pollution, and produce water that is clean enough to be re-used on the farms or safely discharged back into the watercourse.

Initial trials of the new technology are taking place at Gelli Aur, Coleg Sir Gâr's research farm in Carmarthenshire, which has a 200-cow dairy herd. In its first week of operation, the system managed to separate 90 per cent of liquids from the 35 tonnes of slurry being processed each day, exceeding researchers' expectations.

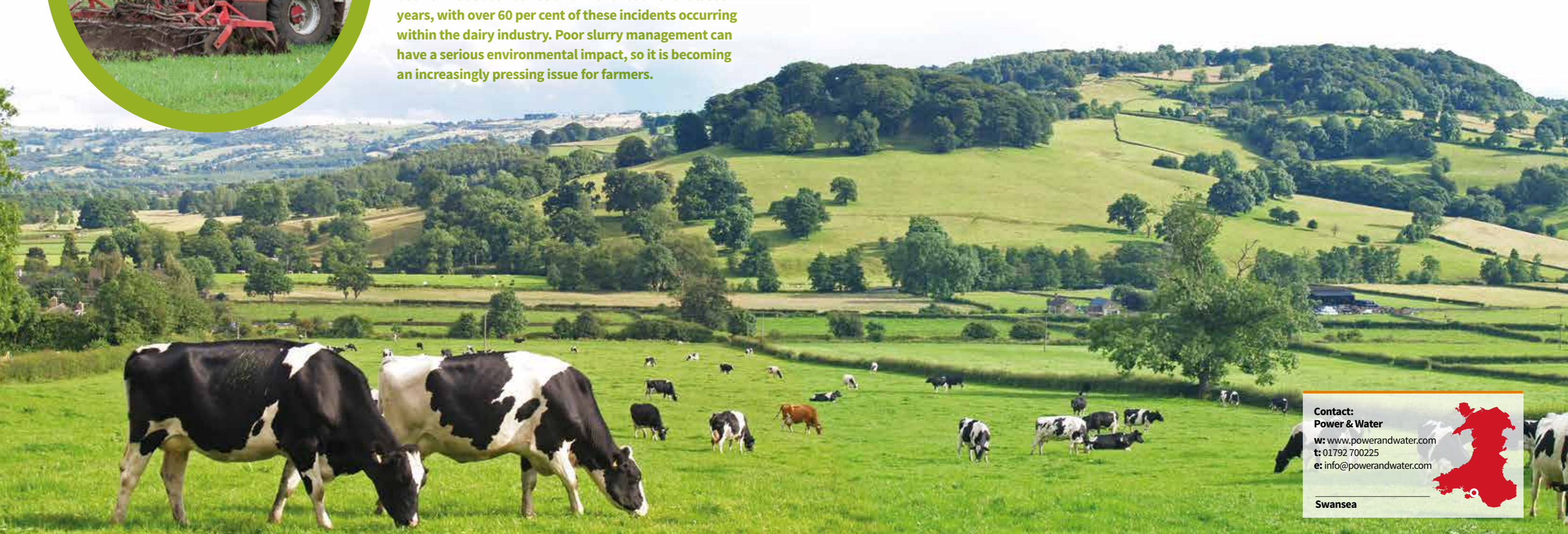
Two different separation systems are being trialled at the farm. One uses

centrifugal force to remove the solids, while the other pushes slurry through a mesh screen. Slurry is pumped into the separators and, once water has been extracted, the residue is a tenth of its original volume. This solid material drops into a storage area before being scooped up and stored in a covered area, ready for spreading.

The filtered liquid, which is around 4-5 per cent dry matter, passes to another treatment area where an oxidation system breaks down the ammonia into nitrogen and hydrogen. It also removes any remaining solids, which are routed back and added to the compressed slurry underneath the separator.

Early results from the trial indicate that substantial savings are possible, especially for a large dairy unit such as Gelli Aur.

It is currently thought that the centrifuge system is more energy intensive but produces more solids, whereas the screw press is cheaper to install but results in less separation. Researchers will ultimately establish which system produces the optimum results, refining the processes along the way. They anticipate a further two years of refinements before the equipment will be ready to be rolled out. They are also working with Natural Resources Wales to determine what quality standards the water should meet before it can be discharged.



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