

The voluntary Farmer led approach to 'Nutrient management' project



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Flooding.....



Drought.....



Water quality.....



Sustainable water supplies.....

Why water.....

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Background - Risk

13.12.2017



Lesley Griffiths
Minister for Environment,
Energy and Rural Affairs

**Minded to introduce a whole
Wales approach to tackle
nitrate pollution from
agriculture.**

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Background – Project driver

13.12.2017



Lesley Griffiths
Minister for Environment,
Energy and Rural Affairs

“
Further work with stakeholders
would be undertaken to achieve
the right balance of regulatory
measures, voluntary initiatives
and investment.
”

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Project outline

Aim

Design a blue print for Welsh agriculture to demonstrate improvements on water quality by enabling farmers to utilise their on farm nutrient assets more accurately and efficiently.



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Nitrogen content from RB209

20.2 T Nitrogen
= 58.5 Tonnes Ammonium Nitrate
@ £292/T
= **£17,083 Per annum!**
£85 per cow per year

	Volume of slurry produced per animal per month (m ³)
Dairy Cow 6000 – 9000 litres	1.59 (350 galls.)
Dairy Cow 9000 litres +	1.92 (422 galls)
Heifer 2 – 12 months	0.6 (132 galls)
Heifer 12 months - Calving	1.2 (265 galls)

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Managing risks on farm and in your catchment



Wales water's provide social, environmental and economic benefits to our communities, and culture. The farmer led approach aims to provide a structure to recognising agricultures efforts in protecting this valuable commodity for our environment, drinking water, food production and our tourism industry. Within the 'Water Framework Directive assessments of our waterways, diffuse pollution has been identified as one of the key impacts to our water environment.

Diffuse Pollution – Reducing the Risk

Agricultural pollution can take two forms:

- Point source pollution – from a single identifiable discharging source, such as a pipe or ditch.
- Diffuse pollution - caused by a variety of land management activities that have no specific point of discharge. Sources of diffuse pollution are often individually minor, but collectively can result in significant environmental impacts.



Point source pollutions

Model ref R.3. / R.4.

Point sources of pollution don't just occur on the farm yard, they can be out in the catchment too.

The location of your ring feeder or water trough can have a direct impact on water quality and nutrient levels within your rivers. A clean, reliable source of water is vital to all farms, environment and industries abstracting from our water bodies.

Clean and dirty water separation

Model ref R.1.

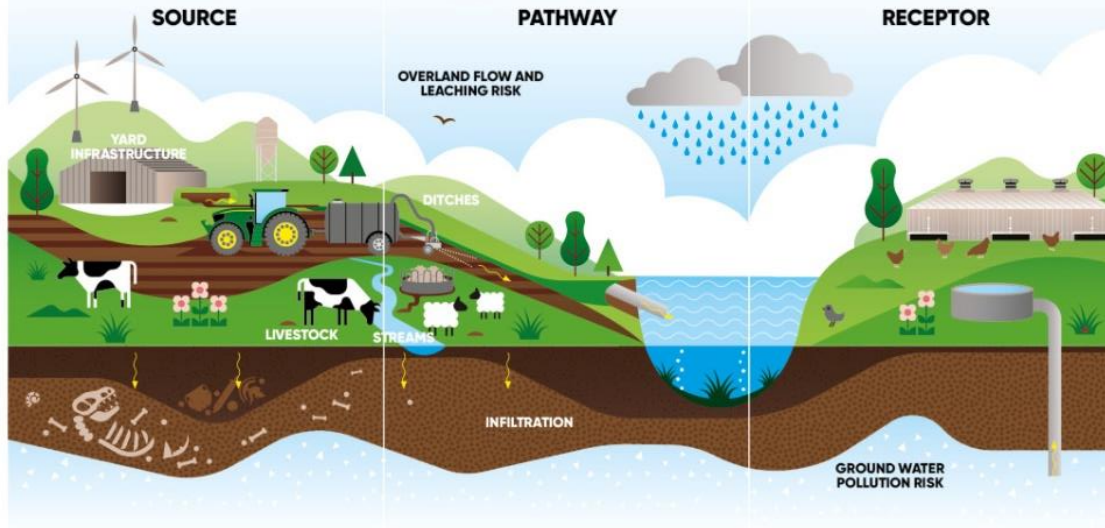
The amount of rainfall entering the slurry/dirty water system has a direct impact on your storage capacity and nutrient management costs. By managing your clean and dirty water systems you can deliver multiple benefits to your business.



Cropping

Model ref R.2.

Seasonal cropping can have a direct impact on water quality by the leaching of nutrients and soil runoff in wet weather.



Soils – Erosion, runoff and leaching of nutrients

Model ref R.5. / R.6. / R.8. / R.9.

The effects of small sources of erosion and/or poaching is cumulative in a catchment. What appears to be small amounts of runoff from one field, when added to all the other sources that also feed into that stream or river can have a big overall effect on water quality within a catchment.

QUICK WINS

Identify erosion risks within your farm, removing these risks can deliver 'quick wins' to reduce pollution risks and improve water quality on farm and within the surrounding rivers.



Nutrient management

Slurry is highly polluting if it ends up in the wrong place like watercourses. Excessive nutrients to land or a leaking slurry store can cause serious pollution.

These nutrient losses into water courses have an environmental and economic impact to your farm business.



FACT

Across the UK it is estimated that 2.9 million tonnes of soil is eroded each year.

FACT

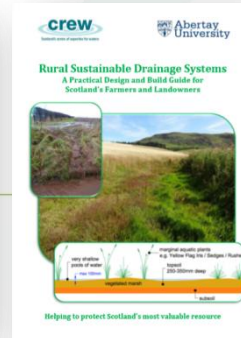
It can take upto 500 years to replace 1 inch of topsoil.



The Water Standard



No.	Item	Outcome	Benefits						
			COGAP	SSAFO	S.O.L	P.G & S	Social	Economic	Environmental
3.1	Nutrient and manure management planning: If you have already produced a nutrient management plan you may wish to check it is clearly set out and includes the steps in the following paragraphs. The "Tried and Tested" plan will meet all the advice and criteria set out below (reference 55).	1. Undertake soil analysis for pH, P, K, and Mg every three to five years depending on the cropping system.				●		●	●
		2. Undertake an 'active' NMP by adjusting inputs of lime and phosphate, potash and magnesium nutrients and evidencing on field record sheets / programme.	●		●	●		●	●
		3. Assess the nutrient requirement of the crop using a recognised fertilizer recommendation system.	●					●	●
		4. Receive professional NMP advice from a current FACTS (Fertiliser Advisers Certification and Training Scheme) qualified person (See 32 Environmental Permitting Regulations (England and Wales) 2010).	●					●	●
		5. Assess the nutrient supply from organic manure. This can be through a laboratory or on-farm analysis. – Ensure you make sure you obtain representative samples of manure for analysis. This can be done by thoroughly mixing the contents of slurry stores before the sample is taken.			●	●		●	●
		6. Undertake a fertiliser nutrient needs calculation by deducting the contribution from organic manures from the crop nutrient requirement. This needs to be evidenced within your NMP.			●				



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The 5 Step plan...

**STEP 1:
GATHER AND UNDERSTAND**



STEP 3: IMPLIMENT

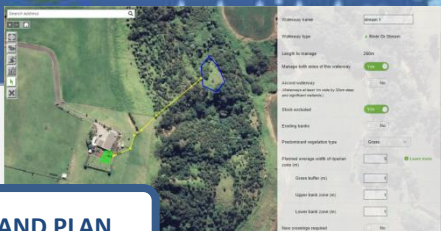


STEP 4: EVALUATE



**STEP 5:
COMMUNICATE & DISCLOSE**

STEP 2: COMMIT AND PLAN



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The farmer led approach...Opportunities.



Managing your nutrients well.

Understanding the soil and the nutrient value of your farming system is vital to understanding your impacts on the environment and improving your business efficiency whilst reducing risks to water quality across Wales.

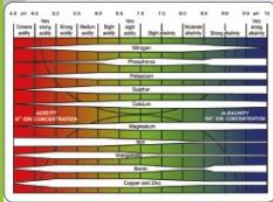
Farmers wishing to maximise crop yield potentials, while also streamlining costs should look at matching nutrient inputs (fertilisers and organic manures) to crop demand so;

- yield is optimised
- nutrient use is minimised
- minimises N, P, and soil losses to the environment

Know your soils

Model ref B.1.

Only 30% of the soils in Wales are thought to be where they should be in terms of pH. Knowing your soils enables you to manage nutrients more effectively.



APPT

Apply the right
Amount
Using the right
Product
In the right
Place
At the right
Time

Checklist

- soil sampling
- soil compaction tests
- nutrient management plans
- Risk maps
- Knowledge sharing

Including soil supply + organic manures (livestock manures, sewage sludge, digestate, compost and industrial waste) residual nitrogen in your soil

Know your catchment

Where a water body is failing due to diffuse rural pollution you can find out from the Natural Resources Wales's online Water Watch Map Gallery. This is a web application to help explore and obtain detailed information about local catchments and individual bodies of water.

Access Water Watch Wales at <https://waterwatchwales.naturalresourceswales.gov.uk/>

Measuring the cumulative effects of managing nutrients on farm and changing behaviours within the industry demonstrates the value water quality has to our sector. This allows agriculture to benchmark its performance against other potential polluters and capture the multiple benefits good farming practices deliver, on farm, and within our water courses.



Environment

Model ref. B.2. / B.3. / B.5. / B.6.

Maximising environment within your farm can deliver multiple benefits to water quality and provide opportunities in the future for accessing public goods and services. Consider some of these environmental solutions to help you manage your nutrient risks, such as:

- Habitat corridors
- Buffer strips
- Wetland areas
- Field margins
- Tree planting and habitat creation
- Soil health
- Water quality



Why focus on nutrients....

Model ref B.1.

$$\text{Fertilizer needed} = \text{Crop requirement} + \text{Nutrients from other sources}$$

By working with nutrient management on your farm multiple benefits can be delivered to your business and the environment. Understanding the soil and nutrient needs of your farm enables you to match nutrient inputs (fertilisers and organic manures) to crop demand. This increases flexibility and resilience for your business allowing you to spread slurry and manure at the best times and have peace of mind that your farm is not at risk of polluting your land and the wider environment.

Benefits....

- Reduced environmental risks due to field losses of excess nutrients
- Best value from fertilisers and organic manures used
- Enhanced crop yield and quality
- Potential cost savings when all nutrient inputs are accounted for
- Improved crop and livestock performance from a balanced supply of nutrients

FACT

Rivers drain nearly **75%** of the earth's land surface.



MAN — DESPITE HIS ARTISTIC PRETENSIONS,
HIS SOPHISTICATION, AND HIS MANY
ACCOMPLISHMENTS — OWES HIS EXISTENCE
TO A SIX INCH LAYER OF *topsoil*
AND THE FACT THAT IT

rains.

- UNKNOWN

*Thank you
for listening.*

A green combine harvester is shown in the lower right portion of the image, harvesting a field of golden grain. The sky is dark and filled with heavy, grey clouds, creating a dramatic and somewhat somber atmosphere. The harvester is moving from right to left, leaving a trail of harvested grain behind it.