

A WORKING LANDSCAPE

FOOD, FARMING & THE RIVER WYE

GROWING CROPS, REARING STOCK AND SAFEGUARDING THE FARMED ENVIRONMENT



WE HEAR FROM THOSE PRODUCING OUR FOOD AND IMPROVING WATER QUALITY



VITAL ROLE

PRODUCERS AND CUSTODIANS

This report showcases some of the important work being done in the Wye catchment

Herefordshire and Powys farmers have shaped the countryside through generations of growing crops and rearing stock.

Alongside food production they play a vital role for species, habitat and resources, like soil, water and air.

In terms of the River Wye and its tributaries, farmers take the industry's contribution to the phosphate issue very seriously.

The NFU continues to engage members and stakeholders and remains measured in its response.

Now, we have galvanised our position and put together farmer case studies that show the impressive amount of work being done to produce food, safeguard the watercourse and enhance habitat.

We have focused on just six farms, although there is scope to do much more, given the huge amount of work being done by NFU members in both Herefordshire and Powys. Many have put measures in place to prevent soil erosion, runoff, and to improve water quality, which ties in with the findings from an NFU and CLA survey released earlier this year. This provided a solid sample of farm businesses with land directly alongside the River Wye.



The River Wye and the farmed landscape at Symonds Yat

There were 45 farm businesses and farmers who took part and they were asked to have their say about the catchment and to respond about how phosphate and diffuse pollution risks are managed.

The questionnaire captured information about steps they have already taken and what needs to be done further to help address some of the issues.

All said they were aware of phosphate issues in the Wye catchment and the majority (85%) had taken advice on environmental or soil management.

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NFU ADVISER'S VIEW:

Our farmers and growers produce safe, affordable, traceable, climate friendly food for us all to eat and they carry out a huge amount of work to enhance the landscape and protect the environment and our natural resources.

They have ambitions to build on the work that has already been done, through stewardship and voluntary schemes, and they recognise that while a clean, reliable source of water is vital to all farms, taking steps to reduce agriculture's impact on water quality is also an essential element of the work they do. Precision technology and nutrient management planning, for example, have come a long way over the years and as shown in our case studies, farmers are taking advice and making positive changes within their businesses using measures just like these.

The industry has a track record of working with others to bring about initiatives that have positive outcomes, Tried & Tested and the Voluntary Initiative, are just two prime examples. Our landscapes are living, working, dynamic spaces but it is a fact that management of them is only possible if it is economically sustainable.



That is why farmers need to be at the heart of environmental policy and delivery as they are in the best position to manage the land for future environmental benefit, that includes the River Wye and its tributaries.

Georgie Hyde
NFU West Midlands environment and land use adviser



HEREFORDSHIRE

Tump Farm, Fownhope

The farm is owned and run by NFU Hereford chairman and Herefordshire NFU deputy chairman Martin Williams, he is also Farm Herefordshire chair

An arable farm that borders the River Wye growing cereals and forage crops.

The grassland is grazed by sheep brought in from other farms and the business has an array of measures and options in place to improve water quality and promote habitat.

Alongside conventional cereal crops Martin also grows early maturing varieties of maize, this allows a crop to be harvested earlier to avoid wet autumn weather and related soil damage. Grass is under sown in the maize to establish a green cover to reduce the risk of soil erosion.

The farm employs two full time staff from the local area, and additional local students in the summer to help with the harvest.

Martin has implemented many Mid and Higher Tier Countryside Stewardship Schemes and measures over the years to promote habitat and species.

Measures include planting six metre vegetated margins (buffer strips) around all his fields for cultivated land and 12m buffer strips along the watercourses on cultivated land, alleviating runoff and erosion.

Additionally, the farm has sediment traps to filter water before it reaches the

river and tree, and hedge planting has taken place.

There is a whole farm nutrient budget, which works out the balance of estimated uptake of nutrients by the crop, compared to nutrients taken into the soil.

Soil testing and soil organic matter testing help Martin avoid applying phosphate to high index soils.

While an on-farm weather station helps plan when applications are most viable.

Poultry litter is only used on farmland where it is needed, rather than bio-solids (sewage cakes), and this also helps reduce the farm's runoff, while muck from the cattle sheds is used as organic manure.

Minimal tillage is used to improve soil structure and control soil erosion, precision technology to reduce track drifts and allow precision fertiliser application, further reducing runoff. Cover crops reduce risky bare soils and compaction is reduced in arable soils through the use of low floatation tyres on the grain trailer and combine.

Grassland subsoiling is done to help distribute vehicle weight and reduce soil compaction. Martin has also put in crushed stone livestock tracks to reduce soil erosion.



Arable reversion has been carried out on a few parcels of land, which requires reverting cultivated land to natural habitat, such as wet grassland.

The farm has a spray shed and concrete flooring to reduce runoff after crop protection products have been applied, this was paid for using a Severn Trent Environmental Protection Scheme grant. Martin also has an agronomist that advises on farm and he has taken guidance from the Environment Agency and the Wye and Usk Foundation, they were instrumental in him planting willows on the riverbanks as well as helping with grant applications.



POWYS

Newmead, Dissertth

Sharon Hammond farms with her family near Builth Wells and is NFU Cymru Brecon and Radnor chairman

A mixed and diversified farm with land alongside the River Ithon a tributary of the River Wye.

The Hammond family are food producers and rural employers who highly value the wildlife, habitat and resources within their farming business.

The farm rears poultry and also has a 1,600-strong ewe flock and Aberdeen Angus cattle.

Newmead Farm plays an active role in nutrient management trials to explore new techniques to further reduce the impact of farming operations.

They have a nutrient management plan and soil management plan in place.

Soil is tested annually, and carbon is measured for Red Tractor, Tesco and Waitrose assurance schemes.

Poultry litter is tested every six months, to ensure that nutrients applied are at a suitable level for optimum soil and crop health. Emission and waste reports are completed annually, meeting Best Available Techniques (BAT) requirements.

The farm produces over 40,000 poultry per year with a permit under The



Environmental Permitting (England and Wales) Regulations 2016.

The permit includes conditions to protect human health and the environment, for example, litter is treated to reduce ammonia emissions and then removed using best practice techniques.

Poultry housing meets industry standards and other measures are in place to decrease emissions and improve bird health.

Some poultry litter is exported off the farm to reduce phosphate application on it.

Newmead is part of Glastir which is a sustainable land management scheme for Wales.

The family business has 10m wide ungrazed riparian buffer strips, stock are excluded from woodland, and hedgerows are lined with double-sided fencing.

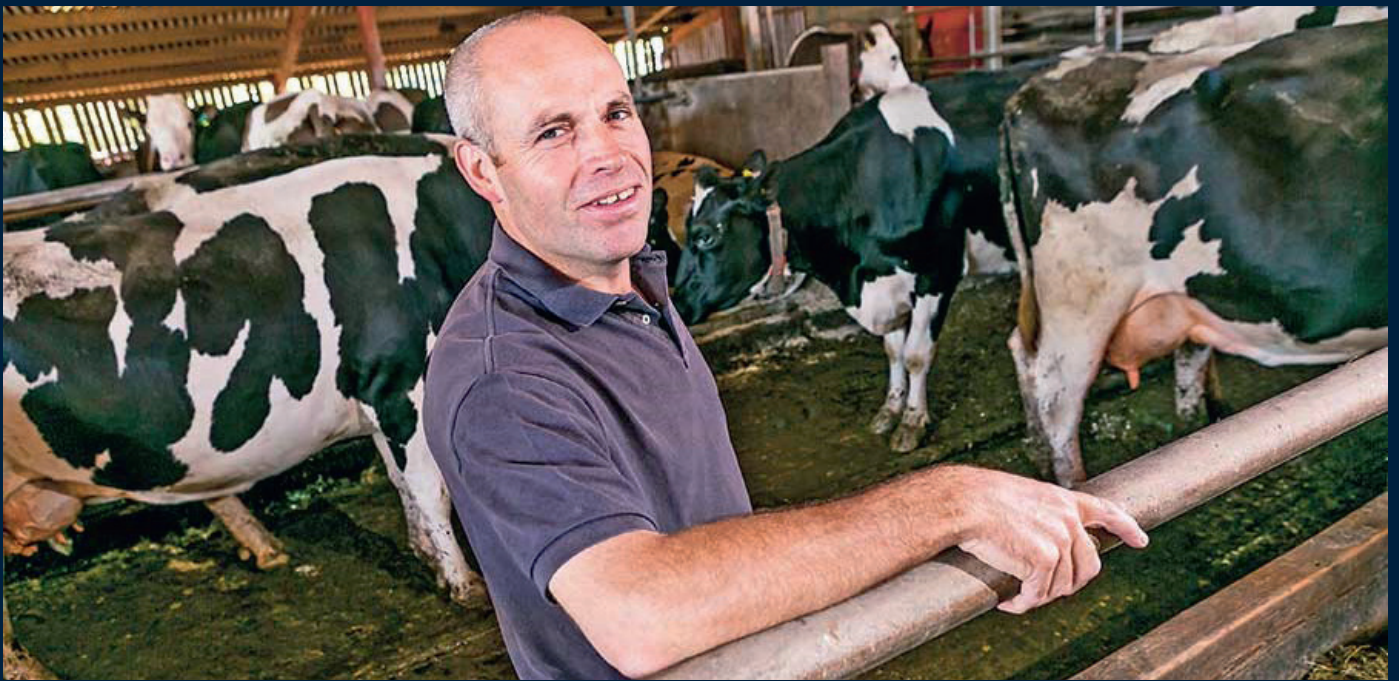
The farm also has a traditional hay meadow, some low input grassland and arable reversion on 30 acres; they have also installed bat boxes and introduced new hedges.

These measures reduce the risk of soil erosion and runoff of nutrients into watercourses, and enhance habitat and wildlife.

Newmead is also embracing renewable technology, reducing its carbon footprint, working towards Net Zero and has biomass boilers and solar panels, which supply energy to the farmhouse and other buildings.

Sharon runs Quackers, a children's indoor and outdoor play barn and cafeteria, which opened in 2004.

The farm has two employees, as well as the four family members, with Quackers employing 12 local staff who are often students and young people.



HEREFORDSHIRE

Hopes Ash, Hope Mansell

Robert Davies runs a mixed farm with his wife Rachel, in partnership with his parents Bryan and Jean, and he is currently NFU West Midlands dairy board chair

This family farm is in the River Wye catchment and has the Bailey Brook tributary running through it at the bottom of the valley.

The business is a mixed dairy, poultry, beef and cereal farm with cider interests and a few sheep.

Robert and Rachel rear poultry and have 350 to 400 cattle, and grow 700 tonnes of cider fruit, with a separate traditional organic orchard. On the arable side, the farm crops 150 arable acres of maize, winter wheat, winter barley, and temporary grass which has a rye grass, red cover, and lucerne grass mixture. The farm also rents 40 acres for spring arable crops, maize and wheat.

To inform the farm's nutrient management plan, soil testing of macronutrients is done to ensure crops receive the right amount. Robert has done enhanced testing to show soil organic carbon, organic matter, and total nitrogen content. This is done to measure the regenerative and sustainable effects his farming management practices are having on soil health, and to inform future practices. Silage store roofing and drainage work was funded by a Catchment Sensitive Farming grant.

Slurry is tested for the composition of nutrients. They are also working with a nutritionist to help tailor their cattle feed to reduce phosphate levels. Following soil testing the farm avoids applying phosphate to high index fields.

To achieve this some poultry litter is exported off farm and the application of artificial fertiliser has been reduced.

The farm has two agronomists, one for arable and the other for fruit production, they help plan nutrient application for soil and crop health.

The maize, which previously had stubble turnips as a winter cover crop now has a green cover, which has shorter roots and will be grazed by sheep from other farms for less time, to keep the soil covered, reduce runoff, and give soil microbes a habitat. Lucerne is grown in the grassland as it takes up higher amounts of phosphate and potash.

GPS precision farming systems including automatic steering in their tractors, funded by a Severn Trent Environmental Protection Scheme grant (STEPS), to reduce soil compaction, fuel use and optimise nutrient application.

The farm is in Mid Tier Countryside Stewardship with winter bird food mixes, buffer strips between the watercourse



and either arable or more intensive grassland, to reduce soil erosion and intercept nutrients.

Cultivated arable headlands are uncropped and provide a rich habitat for insects and plants. Some sections of the watercourses have been fenced off to reduce soil erosion and sediment runoff when accessed by cattle.

The farm also has low-input varied species grasslands, managed with minimal nutrient applications creating biodiverse habitats.

The farm currently has solar panels with further renewable technology planned and Robert has voluntarily planted oak trees on the riverbank around his low input grassland field as part of the Queen's Green Canopy initiative.



POWYS

Maesllwch Home Farm

Dairy and arable farmer Andrew Giles farms 900 acres at Glasbury-on-Wye and is committed to food production alongside nutrient and soil management.

The 900 acre dairy and arable farm sits on the River Wye, and Andrew has 550 cross-bred dairy cattle and grows 50 acres of maize, 80 acres of cereal crops and the remainder is grassland.

Andrew has implemented several measures and management practices to reduce the risk of over application of nutrients to the crops and therefore risk of nutrient runoff.

The herd is on a grass-based system and they live outside from February to November, when the herd is rotated around 42 paddocks every 12 hours.

Andrew practices on-off grazing, this reduces the time cows spend outdoors to no more than three hours in wet weather to avoid soil erosion and runoff through livestock poaching.

Soil testing has been carried out for the past 20 years including for phosphate and organic matter levels, and is used to inform the business' nutrient management plan. An independent agronomist is also used

to help plan crop and soil health management. The farm team uses a rising plate meter to monitor grass growth, this helps to inform nutrition.

Crop and soil records show nitrogen application levels are decreasing, organic matter is stable and phosphate levels are sustainable. Each year the farm reduces artificial fertiliser application, in the future Andrew plans to make better use of the farmyard manure and cattle slurry produced on the farm to improve crop health. Cattle slurry has naturally low phosphate, medium nitrogen and potash content.

The farm has a spring-fed water supply and that is used to pre-cool the milk, it is then reclaimed and used to wash down the parlour. In order to protect watercourses, rainwater is harvested from roofs and is separated from any dirty water.

The arable operation has moved away from ploughing, fields are now power harrowed, and the seed is direct drilled, to reduce soil erosion and the loss of nutrients. While the maize crop is



under-sown with Italian ryegrass, under sowing the crop decreases the risk of bare ground over winter. Maintaining green cover in winter decreases sediment runoff.

The farm has moved from a splash plate slurry spreader to a new trailing shoe spreader that reduces ammonia emissions, odour, and contamination to plant leaves when it is in use.

The farm uses a GPS precision farming system to increase the accuracy of application, reduce labour, input costs and nutrient use and the risk of runoff.

Andrew is also part of a local grazing discussion group, who talk about improvements in grass production and animal health.



HEREFORDSHIRE

Howton Farm, Pontrilas

Bill Quan is a first-generation tenant farmer and is also Herefordshire NFU chairman

The farm, part of the Kentchurch Estate, is in the River Wye catchment on the banks of the River Monnow.

The business is mainly arable but Bill grows a small amount of potatoes, has 500 breeding sheep and a 40-strong suckler cattle herd. Howton Farm is also a rural employer, with permanent staff and some seasonal labour. A soil management plan is in place using soil nutrient information collected over the last 15 years. Planning has reduced soil phosphate and potassium, this has been achieved by SOYL through GPS sampling, analysis and mapping, which picks up variations in field nutrients.

Two fields have had further in-depth tests done to include pH, lime and soil organic matter.

Bill uses precision application techniques through targeted input application, which decreases emissions and avoids the application of nutrients to high index soils.

Two of his farmyards have had improvements to cattle handling areas, they have been covered with roofs to exclude rainwater and collect dirty water, thereby reducing nutrient runoff.

Dirty water collection facilities have been improved through new yard drainage and the concreting

of yards to prevent run-off. Buffer zones are located along every watercourse to intercept runoff and sediment. Riparian habitat strips have been allowed to develop natural vegetation, to further enhance the interception of water runoff and increase bank stability.

Bill is actively reducing the phosphate application to his land by using organic cattle manure to fertilise arable crops as it has a lower phosphate content than some alternatives. Involving livestock in the arable rotation has been hugely beneficial and the farm is decreasing the amount of imported biosolids from water companies.

Cultivation techniques at Howton Farm have moved from plough based systems to minimum-tillage, and now strip tillage. Fuel savings from adopting this tillage system will saved 26 tonnes of carbon. While leaving cropped straw on arable fields and cultivating it back into the soil, helps to reduce soil nutrient depletion and increase soil organic matter, aiding water infiltration and storage. Only suitable fields are used for growing potatoes to provide optimum soil conditions and reduce runoff.



A manure management plan is used to ensure the application of nutrients occurs at the correct time and place, through testing of cattle manure and soils.

Almost all of the watercourses are fenced from livestock to reduce bank access and soil erosion.

Bill takes advice from agronomists and other advisers; the Catchment Sensitive Farming scheme has helped him with water management infrastructure grants.

He has also attended farm water quality management events with Farm Herefordshire and participated in a project with the Wye and Usk Foundation to improve his farming businesses.



HEREFORDSHIRE

Little Froome Farm

David Watts, his wife Sue and their sons produce eggs, beef and crops at Bromyard and he is a former NFU county chairman and sits on the regional poultry board

A mixed poultry, livestock and cereal farm with the River Frome running across the business.

Sheep from other farms are used to graze on the herbal lays, banks, and grass seed fields and this increases organic matter and reduces fuel use. They also have diversifications and are rural employers.

The Wye and Usk Foundation has created two report booklets for the farm and Catchment Sensitive Farming (CSF) has produced a Farm Plan. To do this they completed assessment reports after sampling and analysing soils, water, the business and production.

This document recommends beneficial practices all of which have been put into place as part of a Mid Tier Countryside Stewardship Scheme. The farm's fields are all fenced off from watercourses to reduce poaching (soil erosion by livestock) and nutrient run-off. A six metre watercourse riparian buffer strip is in place between the watercourse and productive agricultural land to reduce erosion and disturbance

of soil, sediment, and phosphate runoff and to provide habitat.

An agronomist has advised on autumn cover crops, which are used in all fields to prevent bare soils. The 48 hours between cutting and planting prevents the ground water and nutrients drying up as the time frame is so short. As part of the CSF report, David's farm was water sampled over 24 months to measure the impact of his poultry on the river.

Due to the number of birds he keeps this was required for an Environment Permit and the results showed the farm was not causing an increase in the phosphate levels in the River Frome.

In addition, David soil tests each field every two years to inform a whole farm nutrient budget.

This allows him to plan nutrient applications and where water management practices should be best sited. Soil tests show the fields have sufficient nutrients and therefore all poultry litter is exported off farm to benefit water quality, but this has had an impact on crop yields.

All poultry litter buyers need to provide soil analysis for the locations where they plan to spread it before it is sold.

After analysing the soil organic matter test results he uses a strip tillage system, this prepares the land for planting with minimal disturbance of the soil to increase soil organic matter.

Seeds are sown (drilled) across slopes to prevent run-off down the valley.

Poultry feed content is being examined by a nutritionist to reduce phosphate brought in with the poultry diet. The family are also playing their part in Net Zero by investing in a feed mill.

To reduce nutrient runoff, farmyards have been concreted and there is new guttering and drainage to collect dirty water. While rainwater is harvested off roofs, dirty and clean water is separated, collected, and covered. An anaerobic digester uses organic materials, such as maize and animal waste, to create green renewable energy and digestate. The energy powers the business and the digestate, a natural bio-fertiliser rich in nutrients, is sold.

COMMENT

NFU position on the River Wye

The Wye is home to a wide range of farming sectors who have varying impacts on water quality.

Agricultural businesses have a key role to play in the reduction of rural diffuse phosphate emissions in the catchment.

Working together with other contributing sectors we are keen to identify solutions that will help farming businesses to reduce their phosphate losses. In order to achieve this we will need access to accurate, up-to-date science on the issue from the appropriate regulatory bodies. For too long the debate in the Wye has been about the impact of single sectors, we now need to move forward together. Positive engagement is required to understand the actions that have already been implemented and the opportunities to deliver further reductions within the context of a sustainable farming business.

Farms are heavily regulated, manure and soil management plans are in place and food production, alongside environmental protection, remains a priority.



Farmers and growers operate to high environmental and animal welfare standards, as well as stringent regulation and planning requirements, and they do this to produce high quality, traceable food for our nation. Our view remains that approaches to water quality must consider the full range of issues and sectors influencing water quality, be evidence-based, provide local solutions to local problems, and be developed working in

partnership with the farming industry.

We are clear there is no one single solution and we should be coming together to manage these issues collectively.

A range of support is required including the provision of advice and guidance and well-resourced investment support, alongside enabling innovation and the application of the latest technologies all underpinned by a backstop of proportionate regulation as last resort.

DRIVING CHANGE

NFU farmers are producers, they are business people, they are community-minded, they are innovators and they are resilient when times are tough.

They are also passionate about where they live and work, about growing crops and rearing livestock as well as the wildlife and biodiversity on their farms.

They want to leave the farmed environment in a better condition for the next generation. Agriculture occupies more than 70% of the UK's landmass and no one does more to benefit soil, water and habitat than farmers and growers.

This is also adding to the NFU's ambitious goal of reaching Net Zero greenhouse gas emissions across the whole of agriculture in England and Wales by 2040.

A lot has been said about the Wye and Herefordshire and Powys farming that does not accurately reflect work being done on the ground.

Our farmers are driving change and, as the people working the land and managing the landscape, they embrace the challenge to feed us and ensure our countryside is truly green. We stand united behind the need to have profitable, efficient farms and a thriving natural world.

Sarah Faulkner

NFU West Midlands and East Midlands policy manager

TAKING ACTION

Welsh farming occupies over 80% of Welsh landmass.

As a result they play a unique role in looking after our cherished natural environment alongside their core role as food producers.

Over the past 25 to 30 years, they have reduced the negative impact they have on water quality through a variety of approaches including the use of precision technology, nutrient management planning and ensuring the right nutrients are applied in the right conditions to meet crop needs. Overall water quality in Wales continues to show general improvement.

However, as farmers we appreciate increasing levels of public concern in catchments such as the Wye and we recognise there is more that we can and must do to contribute to further improvements going forward. Farmers take their environmental responsibilities seriously and NFU Cymru continues to work tirelessly with partners on the development and implementation of a framework that supports farmers to take action to reduce incidences of agricultural point source and diffuse pollution where this is needed. We are strong advocates of appropriate interventions where poor practices are responsible.

Rachel Lewis Davies

NFU Cymru National Environment and Land Use Adviser

