

The Point Plan

**Straightforward guidance for
livestock farmers to minimise
diffuse pollution risks and benefit
your business**

Appendices

Appendix 1 - Finding out more

Table 1.1 Further information sources

Useful information		Link
Alternative Watering Systems	Information on abstraction and pumping systems including videos of various systems in action on Scottish farms.	www.farmingandwaterscotland.org
Constructed Farm Wetland design manual for Scotland and Northern Ireland	Guidelines for design of Constructed Farm Wetlands.	www.sepa.org.uk/media/131412/constructed-farm-wetlands-manual.pdf
Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 (SSAFO).	These regulations require that slurry produced around the steading has to be collected and contained.	www.legislation.gov.uk/ssi/2003/531/contents/made
Controlled Activities Regulations General Binding Rules (CAR GBRs). A practical guide	A guide to the Controlled Activities Regulations which cover diffuse pollution, abstractions, impoundments and engineering authorisations.	www.sepa.org.uk/media/34761/car_a_practical_guide.pdf
Diffuse Pollution Management Advisory Group (DPMAG) and the Rural Diffuse Pollution Plan for Scotland	Partnership focusing on improving Scotland's water environment by reducing rural diffuse pollution risks.	www.sepa.org.uk/environment/water/river-basin-management-planning/who-is-involved-with-rbmp/dpmag/
Diffuse Pollution Priority Catchments	Web pages with information on the location and contact details of those involved in Diffuse Pollution Priority Catchments.	www.sepa.org.uk/environment/water/river-basin-management-planning/actions-to-deliver-rbmp/priority-catchments/
Farmers guide to using and sourcing digestate and compost	A handy guide produced by NFUS and Zero Waste Scotland	www.zerowastescotland.org.uk/sites/default/files/Farmers_guidance_document.PDF
Farming and Water Scotland	Information to help farmers and land managers protect and improve water quality	www.farmingandwaterscotland.org
Farming and Water Scotland Know the Rules booklet	Booklet summarizing the Diffuse Pollution General Binding rules (DP GBRs) as relevant to Agriculture.	www.farmingandwaterscotland.org/know-the-rules/
Farming for a Better Climate	Information on steps farmers can take to reduce losses of greenhouse gases to improve business efficiency.	www.farmingforabetterclimate.org
FAS Farm Management Handbook	Reference for farm business management.	www.fas.scot/downloads/farm-management-handbook-2019-20/
How Green Can you be?	A guide to green technologies and solutions for rural buildings and farm steadings	www.sruc.ac.uk/downloads/file/4413/how-green-can-you-be
LEAF (Linking Environment and Farming)	Initiative focused on helping farmers improve environmental and business performance through a network of demonstration farms.	www.leafuk.org
MANNER NPK	Computer programme used to predict the fertiliser nitrogen value of organic manure on a field specific basis.	www.planet4farmers.co.uk/
Natural Flood Management; A Farmers Guide	Provides information on natural flood management for landowners and farmers in Scotland.	www.sruc.ac.uk/downloads/file/4295/natural-land-management-a-farmers-guide

NetRegs	Environmental guidance for all businesses in Scotland and Northern Ireland	www.netregs.org.uk/
NFU Scotland	Provides political representation for Scottish farmers.	www.nfus.org.uk
Nitrate Vulnerable Zones (NVZ) Action Programme Guidance Notes	Guidance for farmers within NVZs. Tables showing how to calculate nutrient requirements. Includes NMax calculator.	www.gov.scot/publications/nitrate-vulnerable-zones-guidance-for-farmers/
PEPFAA Code.	Prevention of environmental pollution from agricultural activities code of good practice.	www.gov.scot/publications/prevention-environmental-pollution-agricultural-activity-guidance/
PLANET Scotland	Planning Land Applications of Nutrients for Efficiency and the Environment. Free field level planning and record keeping software to predict fertiliser requirements and assist in compliance with NVZ rules.	www.planet4farmers.co.uk
Ponds, pools and lochans	Guidance on good practice in the management and creation of small water bodies in Scotland.	www.sepa.org.uk/media/151336/ponds_pools_lochans.pdf
Priority Catchments	Web pages with information on the location and contact details of those involved in Diffuse Pollution Priority Catchments.	www.sepa.org.uk/environment/water/river-basin-management-planning/actions-to-deliver-rbmp/priority-catchments/
Rural Sustainable Drainage Systems: A practical design and build guide for Scotland's farmers and landowners	This Design and Build guide can be used by farmers and land managers to reduce diffuse pollution risks.	www.crew.ac.uk/publication/rural-sustainable-drainage-systems-practical-design-and-build-guide-scotlands-farmers
SAC and FAS Technical notes	Provide detailed information on a range of topics including soil specific P&K recommendations; optimising the application of bulky organic fertilisers; and fertiliser recommendations for grass and target crops.	www.fas.scot/publication/technical-notes/
Slurry lagoon information	Information from FAS slurry lagoon events carried out in 2019.	www.fas.scot/slurry-lagoons
SAC Consulting	Advisory and consultancy services to the agricultural sector.	www.sruc.ac.uk/info/20005/sac_consulting
Scotland Rural Development Programme (2014-2020)	Main vehicle for Government funding and support for farmers in Scotland.	www.gov.scot/policies/agriculture-payments/scottish-rural-development-programme-srdp/
Scotland's Farm Advisory Service (FAS)	Part of the Scottish Rural Development Programme (SRDP) co-funded by the EU and Scottish Government. Provides information and resources aimed at increasing the profitability and sustainability of farms and crofts.	https://www.fas.scot/ Contact the advice line on 0300 323 0161 or email advice@fas.scot
Scottish Environment Protection Agency (SEPA)	Environmental Regulator, Enforces environmental legislation in Scotland.	www.sepa.org.uk
Scottish Forestry	Support the delivery of the Scottish Government's priorities for Scotland's forests, through guidance, advice, incentives and regulations, and by advising Ministers on forestry policy.	https://forestry.gov.scot/

Scottish Government Rural Payments and Inspections Directorate (SGRPID)	Government department responsible for legal and technical matters relating to agriculture and rural development.	www.scotland.gov.uk/Topics/farming_rural/Agriculture/AOcontacts/contacts
NatureScot (formerly Scottish Natural Heritage (SNH))	Works in partnership with land owners to maintain and preserve landscapes and ecosystems.	www.nature.scot/
SEPA Short and long term rainfall data	SEPA provide a comprehensive guide to short and longer term rainfall data across Scotland.	See https://apps.sepa.org.uk/rainfall/ ; select a point from the map nearest your farm and display values.
SEPA Water Environment Fund	Funding towards measures to restore Scotland's catchments.	www.sepa.org.uk/water/restoration_fund.aspx
Septic tanks (small scale sewage discharges)	Information on septic tanks.	www.sepa.org.uk/regulations/water/small-scale-sewage-discharges/
Valuing your Soils Booklet	Suggests measures to enhance and protect agricultural soils in Scotland. Contains information on identifying farm soil types.	www.farmingandwaterscotland.org/oil-nutrients/valuing-your-soils/
VESS – Visual Evaluation of Soil Structure	A copy of the Vess chart is also included within the Valuing Your Soils booklet.	www.sruc.ac.uk/info/120625/visual_evaluation_of_soil_structure
Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) Practical Guide	Often referred to as 'The CAR Practical Guide' this document provides an overview of the levels of authorization under the regulations including the General Binding Rules.	www.sepa.org.uk/media/34761/car_a_practical_guide.pdf
Water Environment (Diffuse Pollution) (Scotland) Regulations 2008	Amends previous regulations to allow lightly contaminated water from some areas of the farm stading(which would have previously been classed as slurry), to be treated through a Constructed Farm Wetland	www.legislation.gov.uk/ssi/2008/54/pdfs/ssi_20080054_en.pdf

Appendix 2 - Glossary of terms used in the plan

CAR GBRs

Controlled Activity Regulations General Binding Rules; diffuse pollution rules often referred to as DP GBRs

DP GBRs

Diffuse Pollution General Binding Rules

FMP

Fixed Monetary Penalty – on the spot fines issued by SEPA for non-compliance with regulations

Groundwater

Water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil

IACS

Integrated Administration and Control System

FSMMP

Farm Slurry and Manure Management Plan – previously known as a Farm Waste Management Plan

PEPFAA Code

Scottish Executive Code of Good Practice for the Prevention of Environmental Pollution from Agricultural Activity

RAMS

Risk Assessment for Manure and Slurry

SRDP

Scotland Rural Development Programme

SSSI

Site of Special Scientific Interest

Surface water

Inland water (other than groundwater), transitional water and coastal water

Water environment

All surface water, groundwater and wetlands.

Wetland

An area of ground the ecological, chemical and hydrological characteristics of which are attributable to frequent inundation or saturation by water and which is directly dependent, with regard to its water needs, on a body of groundwater or a body of surface water

Appendix 3 - Conversion Factors

Table 3.1 Areas, weights and volumes

Metric	Imperial
1 hectare (ha)	= 2.47 acres
1 kilogram (kg)	= 2.205 pounds
1 tonne (t)	= 0.984 ton
1 litre (l)	= 0.22 gallons
1 cubic metre (m ³) = 1000 litres	= 220 gallons
1 kg (fertiliser)	= 1.97 units

Table 3.2 N, P₂O₅ and K₂O content

Metric	Imperial
1 kg/tonne (manure)	= 2.0 units/ton
1 kg/m ³ (slurry)	= 8.9 units/1000 gallons

Table 3.3 Application rates

Metric	Imperial
1 kg/ha (N, P ₂ O ₅ or K ₂ O)	= 0.8 units/acre
1t/ha (manure)	= 0.4 tons/acre
1m ³ /ha (slurry)	= 89 gallons/acre

Appendix 4 - Farm Slurry and Manure Management Plan

Ideally, all farms should have a Farm Slurry and Manure Management Plan (FSMMP) in place that is regularly reviewed and adhered to. An FSMMP was previously referred to as a Farm Waste Management Plan (FWMP).

All storage facilities should have a minimum of 6 months slurry storage capacity, unless it can be demonstrated to SEPA's satisfaction through an FSMMP that 6 months is not necessary. Crop requirements must also be taken into this calculation. Note statutory minimum periods apply in areas designated as NVZs (22 weeks storage for cattle slurry and 26 weeks for pig slurry).

Using the 4 Point Plan as a starting point, a FSMMP is relatively simple to draw up and includes the following;

- 1. RAMS assessment/Land availability schedule**
Map with the available spreading areas on the farm with risk areas clearly identified as high, medium or low. See section 3
- 2. Slurry and manure production schedule**
Amount of organic manure and contaminated water produced on a monthly basis, matched to RAMS assessment. See sections 1 and 2
- 3. Description of the systems in place for**
Collection, storage, transport and land application of slurry, farmyard manure and contaminated water.
- 4. Information about each system, including**
Storage capacity, how it is operated, how those operations are recorded and how the system is monitored and maintained.
- 5. Details of available spreading days**
Take account of average monthly rainfall, dry days and frost days and crop requirement. See Appendix 1 for links to further information.
- 6. Calculations to demonstrate that the systems in place are adequate to deal with the quantities of slurry and/or manure produced.**

Depending on the complexity of the farm, you may need help from an agricultural consultant or other specialist. If this is the case, preparing the majority of these data yourself could cut down the time spent by a specialist and therefore reduce the end cost of the plan.

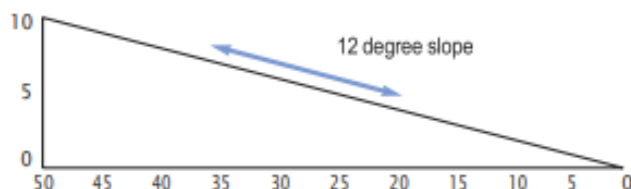
To be effective, an FSMMP needs to be used and updated. Contractors should be made aware of the risk areas and ensure the FSMMP is followed. In addition to jeopardizing farm payments through causing pollution, Fixed Monetary Penalties are now in place for non-compliance with GBRs.

Appendix 5 – Assessment of slope

Assessment of Slope – what is 12 degrees and how do I assess a slope?

The NVZ Regulations specify that you must “clearly show on your Risk Assessment Map any area of land with a slope of 12 degrees or more” and provide a ruling that “Nitrogen fertiliser must not be applied to any land if there is a significant risk of nitrogen entering surface water, taking into account – the slope of the land, particularly if greater than 12 degrees”.

A 12 degree slope can also be expressed as 1 in 5 or 20%, you should use the scale that you are most familiar with.



From the diagram above you can see that a 12 degree slope provides a 1 metre rise for every 5 metres travelled on the horizontal plain.

It may be clear from a visual assessment that a slope is either above or below 12 degrees. In a case where you cannot determine the inclination of a slope or believe it to be a border line case, you can easily determine the slope incline using the following method.

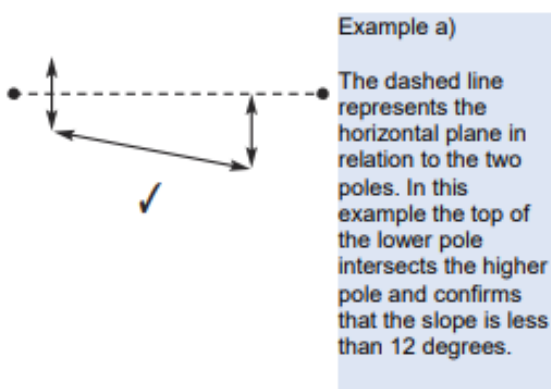
Method of assessment

You will need 2 straight poles approx 1.3 metres in length, clearly marked at the point where they are exactly 1 metre long (the remaining length is to allow you to place the pole securely in the ground), and a measuring tape.

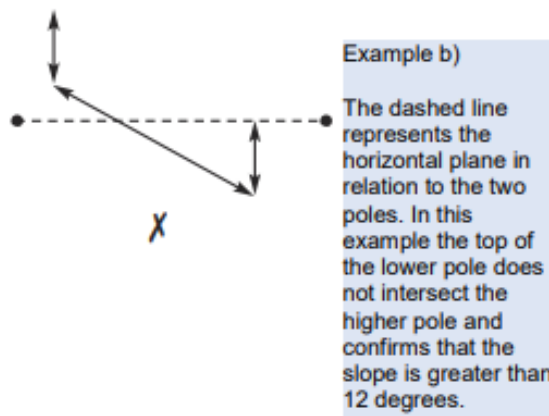
At the slope you wish to measure select a safe site that is representative of the overall aspect of the slope, be sure that you have sufficient space available around you that you are able to step back to safely assess the inclination.

Drive the poles into the ground 5 metres apart so that only 1 metre is showing above ground. Step back to a distance where you can assess the poles in relation to each other. If the top of the lower slope pole is above the bottom of the higher slope pole then the slope is less than 12 degrees, consequently if the top of the lower slope pole is below the bottom of the higher slope pole then the slope is greater than 12 degrees.

Example a): (not to scale)



Example b): (not to scale)



Taken from the NVZ Action Programme guidelines, Booklet 4 at www.gov.scot/publications/nitrate-vulnerable-zones-guidance-for-farmers/

Appendix 6 - Data for pig and poultry calculations

Adapted from the NVZ Action Programme Regulations 2008.

Table 6.1 Typical volumes of excreta produced by housed pigs per week

Pig type (per animal)	Typical volume of slurry/manure (m ³ /week)
1 sow place (including litter up to 7kg) fed on a diet supplemented with synthetic amino acids	0.08
1 sow place (including litter up to 7kg) fed on a diet without synthetic amino acids	0.08
1 maiden gilt place	0.04
1 breeding boar (66kg to 150kg)	0.04
1 breeding boar (over 150kg)	0.06
1 weaner place (7 to 13 kg)	0.01
1 weaner place (13 to 31 kg)	0.01
1 grower place (31 to 66 kg) (dry fed)	0.03
1 grower place (31 to 66 kg) (liquid fed)	0.05
1 finisher place (66 kg to slaughter) (dry fed)	0.04
1 finisher place (66 kg to slaughter) (liquid fed)	0.07

Table 6.2 Typical values of total NPK and available PK in pig slurry and manure

Pig	% dry matter	Total nutrients			Available nutrients	
		N	P ₂ O ₅	K ₂ O	P ₂ O ₅	K ₂ O
Slurry (kg/m ³)	4	3.6	1.8	2.4	0.9	2.2
Fresh manure (kg/tonne)	25	7	6	8	3.6	7.2

Table 6.3 Typical volumes of poultry manure produced per 1000 birds per week

Poultry type	Volume per poultry type per week (tonnes)
1000 laying chickens up to 17 weeks	0.28
1000 laying chickens (caged) over 17 weeks	0.84
1000 laying chickens (free range) over 17 weeks	0.64
1000 broiler chickens (table)	0.42
1000 broiler chickens (breeder) up to 25 weeks	0.28
1000 broiler chickens (breeder) 25 weeks and over	0.84
1000 turkeys (male)	1.12
1000 turkeys (female)	0.84
1000 ducks	0.70

Table 6.4 Typical values of total NPK and available PK contained in poultry manure

Poultry	% dry matter	Total nutrients			Available nutrients	
		N	P ₂ O ₅	K ₂ O	P ₂ O ₅	K ₂ O
Layer	35	19	14	9.5	8.4	8.6
Broiler/turkey litter	60	30	25	18	15	16.2