

Agricultural Pollution Measures

Introduction

On 14 November 2018 the Cabinet Secretary for Energy, Planning and Rural Affairs issued a statement outlining a whole Wales approach to tackling agricultural pollution. This document provides further information on that announcement.

THE DETAILS OF THE MEASURES PROVIDED IN THIS DOCUMENT ARE FOR INFORMATION PURPOSES ONLY. THE INTENDED REGULATIONS WILL NOT APPLY UNTIL 1 JANUARY 2020.

In making this decision the Welsh Government has sought to ensure a number of issues are addressed, including agricultural pollution, trade in agricultural produce and providing baseline standards above which payments can be made to farmers for public goods outcomes (subject to the Welsh Government's response to the *Brexit and our Land* consultation).

Agricultural pollution is damaging the environment and the reputation of Welsh farming. The regulations will be part of a suite of measures needed to address this issue, including the support already being offered through Farming Connect and the Rural Development Programme for Wales.

The measures will secure our ability to trade with the European Union and internationally based on high standards because they meet our statutory and international obligations. Meeting our obligations is essential if we are to continue to trade effectively and failing to do so would put the future of the Welsh agriculture industry in jeopardy.

The alternative to a whole Wales approach would mean applying different but similar measures in different areas of Wales, which would then need to be reviewed and changed every 4 years. The approach we are taking means the regulations will be the same for all farmers in Wales, providing a level playing field, greater certainty and making the rules easier to understand and comply with.

The measures will be the initial step in forming a comprehensive baseline regulation which will underpin proposed CAP replacement schemes, Brand Wales and Payments for Ecosystem Services. In particular, a clear and coherent regulatory baseline is an important foundation for payments linked to public goods outcomes. It also responds to the need for a level playing field to be applied to all within Wales.

Over time there will no longer be another tier of rules for recipients of farming scheme payments, once cross compliance ceases to exist. The complete regulatory baseline underpinning future schemes will be developed through further consultation. The measures are compatible with the development of CAP replacement schemes and are designed to avoid unintended consequences, achieving key aims including reduced emissions of greenhouse gases and ammonia.

Glastir and RDP contracts will be unaffected in the interim period as payments are based on activities which exceed the new requirements.

The regulations will apply to all holdings from **1 January 2020**, with transitional periods for some elements to allow farmers time to adapt and ensure compliance.

The regulations will replicate good practice measures focussed on good nutrient management, which many farmers across Wales are already implementing routinely, and include the following requirements:

- Nutrient management planning;
- Sustainable fertiliser applications linked to the requirement of the crop;
- Protection of water from pollution related to when, where and how fertilisers are spread; and
- Manure storage standards.

Further information on what will need to be done and by when will be provided in the near future. The Welsh Government will be working with the Wales Land Management Forum sub-group on agricultural pollution on the development of a support package for farmers, including advice services, guidance documents and finance and on communicating the requirements as part of the implementation of the regulations. We will also be working with the sub-group to take advice on the length of the transitional period for the slurry storage requirements and the closed periods which will apply to the spreading of certain fertilisers.

Details of the initial regulations

Guiding Principles

The following measures are centred around nutrient management planning, ensuring fertiliser applications are linked to the requirement of the crop, thereby reducing losses of valuable nutrients to the environment to the detriment of public goods.

The measures related to when, where and how fertilisers are spread are supported by evidence to reduce losses of nitrates, phosphates, greenhouse gases and ammonia. Reducing these losses ensures those nutrients are available to the crop and reduces the need for manufactured fertilisers to be purchased.

Having sufficient storage for livestock manure is one of the most important measures to ensure nutrients can be retained when the crop requirement is reduced over the winter period, when losses to the environment are their highest. This means those nutrients can be retained and applied when they will be taken up by the crop.

The definitions provided in Annex 1 and the tables in Annex 2 should be referred to alongside the information provided below.

Nutrient Management Planning

Nutrient Management Plans (NMP)

You will need to determine the optimum amount of nitrogen that should be spread on the crop (including grassland), taking into account the soil nitrogen supply and produce a plan for the spreading of nitrogen fertiliser for each calendar year.

The NMP must provide:

- a field reference
- area of the field
- type of crop
- soil type
- previous crop
- the soil nitrogen supply and the method used to establish this figure
- the anticipated month the crop will be planted
- the anticipated yield (if arable)
- the optimum amount of nitrogen that should be spread on the crop taking into account SNS
- Area on which the organic manure will be spread
- Amount of manure to be spread

- Planned date for spreading (month)
- Type of organic manure
- Total N content and available N
- Amount of manufactured fertiliser required
- Total nitrogen spread on a holding

Calculating the amount of nitrogen available for crop uptake from organic manure

Total amount of nitrogen in livestock manure must be determined using standard figures in Table 1 or sampling and analysis.

Sampling and analysis

For liquids, at least five 2 litre samples must be taken and slurry should be thoroughly mixed beforehand. Samples must be taken from different locations. If a tanker used for spreading is fitted with a suitable valve, the samples may be taken while spreading, and each sample must be taken at intervals during the spreading. These samples should be mixed and 2 litres sent for analysis.

For solids, at least ten 1kg samples must be taken from different locations within a manure heap and at least 50cm from the surface.

Amount of N available to crop

To establish the amount of nitrogen from livestock manure which is available for crop uptake the percentages in Table 2 must be used.

Risk Maps

Risk maps must be produced which are designed to enable you to comply with other measures.

Risk maps will need to show each field, with its area in hectares; all surface waters; any boreholes, springs or wells on the holding or within 50 metres of the holding boundary; areas with sandy or shallow soils; land with an incline greater than 12°; land within 10 metres of surface waters; land drains (other than a sealed impermeable pipe); sites suitable for temporary field heaps if this method of storing manure is to be used; land that has a low run-off risk (this is optional if spreading manure on low run-off risk land during the storage period is not intended); and if spreading organic manure using precision spreading equipment up to 6 metres from surface water, land within 6 metres of surface waters.

Fertiliser Applications

Application limits for organic manure

Total amount of nitrogen from livestock manure applied to the spreadable areas of the holding must not exceed 170 kg/ha. Standard figures will apply for N in livestock manure – example figures provided in Table 1.

250kg/N/ha limit for an individual field.

250kg/N/ha limit for the entire holding for grassland farms where additional measures take place to reduce risk of pollution. Additional measures will be to include phosphate in nutrient management plans including soil testing, ensuring 80% of the holding is grassland, ploughing restrictions and seeding in terms of timings and N fixing properties. An application will need to be submitted.

1000 kg/N/ha from PAS 100 compost (not contaminated with animal manure) can be applied in any four-year period as mulch to orchard land (crops listed in Table 3) or 500 kg/N/ha in any two year period if it is applied to any other land.

Crop limits

The total amount of nitrogen from manufactured nitrogen fertiliser and that *available* for crop uptake from organic manure must not exceed the crop limits specified in Table 4.

Spreading fertiliser

Before spreading fertiliser, a field inspection should be carried out to consider the risk of surface water pollution. Fertiliser must not be spread on that land if there is a significant risk of pollution, taking into account in particular the slope of the land, particularly if the slope is more than 12°; any ground cover; the proximity to surface water; the weather conditions; the soil type; and the presence of land drains.

Fertiliser must not be spread if the soil is waterlogged, flooded or snow covered, is frozen or has been frozen for more than 12 hours in the previous 24 hours.

Manufactured nitrogen fertiliser must not be spread within 2 metres of surface water, Organic manure must not be spread within 50 metres of a borehole, spring or well or 10 metres of surface water (6m if precision spreading).

Spreading accuracy

Slurry spreading must be carried out using spreading equipment with a trajectory which is below 4 metres from the ground. Spreading fertiliser must be done in as accurate a manner as possible.

Retaining N within the soil

Poultry manure, slurry and liquid digested sewage sludge applied onto the surface of bare soil or stubble (but not sown) must ensure that it is incorporated into the soil as soon as practicable, and within 24 hours at the latest, unless precision spreading equipment is used. Any other organic manure (other than organic manure spread as a mulch on sandy soil) must be incorporated into the soil as soon as practicable, and within 24 hours at the latest, if the land is within 50 metres of surface water and slopes in such a way that there may be run-off to that water.

Closed periods for spreading fertiliser

Organic manure with high readily available nitrogen (30% or more available N – see Table 2 and supporting text) must not be spread on land between dates specified in Table 5. THIS MEASURE WILL BE INCLUDED WITHIN A TRANSITIONAL PERIOD AND WILL NOT APPLY ON 1 JANUARY 2020. THE LENGTH OF THE TRANSITIONAL PERIOD IS STILL TO BE DECIDED BUT IT IS EXPECTED TO BE BETWEEN 2 AND 4 YEARS.

Spreading organic manure with high readily available nitrogen on tillage land with sandy or shallow soil is permitted between 1 August and 15 September inclusive provided that the crop is sown on or before 15 September.

Registered organic producers may spread organic manure with high readily available nitrogen at any time on crops listed in column 1 of table 6 or other crops in accordance with written advice from a person who is a member of the Fertiliser Advisers Certification and Training Scheme, provided that each hectare on which organic manure is spread does not receive more than 150 kg total nitrogen between the start of the closed period and the end of February.

Manufactured nitrogen fertiliser must not be spread on grassland, from 15 September to 15 January, or tillage land, from 1 September to 15 January other than up to the maximum rate in column 2 for crops in table 6. For crops not in the table spreading is permitted on the basis of written advice from a person who is a member of the Fertiliser Advisers Certification and Training Scheme.

From the end of the closed period until the end of February the maximum amount of slurry that may be spread at any one time is 30 cubic metres per hectare and the maximum amount of poultry manure that may be spread at any one time is 8 tonnes per hectare. There must be at least three weeks between each spreading. THIS MEASURE WILL BE INCLUDED WITHIN A TRANSITIONAL PERIOD AND WILL NOT APPLY ON 1 JANUARY 2020. THE LENGTH OF THE TRANSITIONAL PERIOD IS STILL TO BE DECIDED BUT IT IS EXPECTED TO BE BETWEEN 2 AND 4 YEARS.

Storage of slurry and silage

MEASURES RELATING TO THE CAPACITY OF SLURRY STORES AND THE SEPARATION OF SLURRY WILL BE INCLUDED WITHIN A TRANSITIONAL PERIOD AND WILL NOT APPLY ON 1 JANUARY 2020. THE LENGTH OF THE TRANSITIONAL PERIOD IS STILL TO BE DECIDED BUT IT IS EXPECTED TO BE BETWEEN 2 AND 4 YEARS. EXISTING RULES WILL CONTINUE TO APPLY IN THE INTERIM.

Separation of slurry

Separation of slurry into its solid and liquid fractions must either be carried out mechanically or on an impermeable surface where the liquid fraction drains into a suitable receptacle.

Storage of organic manure

Organic manure (other than slurry), or any bedding contaminated with any organic manure, must be stored in a vessel; in a covered building; on an impermeable surface; or in the case of solid manure in a field heap.

Field heaps must not be located in a field liable to flooding or becoming waterlogged, within 50m of a spring, well or borehole or within 10m of surface water or a land drain (other than a sealed impermeable pipe). The heap must not be located in any single position for more than 12 consecutive months or in the same place as an earlier one constructed within the last two years.

Solid poultry manure that does not have bedding mixed into it and is stored in a field heap must be covered with an impermeable material.

Topsoil must not be removed from the ground upon which a field heap is to be constructed. A field heap must not be located within 30m of a watercourse on land identified on the risk map as having an incline of greater than 12° and the surface area should be as small as reasonably practicable to minimise the leaching effect of rainfall.

Slurry storage capacity

Slurry must be stored in a system that satisfies the following requirements, except when it is stored temporarily in a tanker used for transporting slurry.

Storage facilities are not necessary for slurry or poultry manure sent off the holding or spread on land that has a low run-off risk (provided that this is done in accordance with the other measures on spreading). However, storage facilities for an additional one week's manure must be provided as a contingency measure in the event of spreading not being possible on some dates.

Sufficient storage must be provided for pigs and poultry manure produced on the holding between 1 October and 1 April, and, for other manures produced in a yard or building on the holding, 1 October and 1 March. This is referred to as the 'storage period' in this document.

The volume of the manure produced by the animals on the holding must be calculated in accordance with standard figures in Table 1.

The store must also have the capacity to store any rainfall, washings or other liquid which enters the vessel (either directly or indirectly) during the storage period. Average monthly rainfall figures for 1971 to 2000 from the Met Office can be used but more accurate data can be used where available.

SSAFO 1991 exemption

The construction requirements below will not apply to a store built before 1 March 1991, which was being used for storing slurry or, where it was not in use, it was constructed for that purpose or a contract for its construction, substantial enlargement or substantial reconstruction was entered into before 1 March 1991, or such work was commenced before that date, and in either case the work was completed before 1 September 1991 (the 1991 exemption).

Making or storage of silage

Other than silage stored temporarily in a container, trailer or vehicle in connection with its transport about the farm or elsewhere, a person who has custody or control of silage must ensure that it is kept in a silo that satisfies the following requirements:

The base of the silo must extend beyond any walls of the silo, be provided at its perimeter with channels designed and constructed so as to collect any silage effluent that escapes from the silo, and have adequate provision for the drainage of that effluent from those channels to an effluent tank through a channel or pipe.

The capacity of the effluent tank must not be, in the case of a silo with a capacity of less than 1,500 cubic metres, 20 litres for each cubic metre of silo capacity. Where a silo has a capacity of 1,500 cubic metres or more, the capacity, must be 30 cubic metres plus 6.7 litres for each cubic metre of silo capacity in excess of 1,500 cubic metres.

The base of the silo must be designed in accordance with the code of practice for design of concrete structures for retaining aqueous liquids published by the British Standards Institution and numbered BS 8007: 1987; or constructed using appropriate hot-rolled asphalt in accordance with the code of practice for selection and use of construction materials published by the British Standards Institution and numbered BS 5502: Part 21: 1990.

The base of the silo, the base and walls of its effluent tank and channels and walls of any pipes must be impermeable. The base and walls of the silo, its effluent tank and channels and the walls of any pipes must, so far as reasonably practicable, be resistant to attack by silage effluent.

No part of the silo, its effluent tank or channels or any pipes may be situated within 10 metres of any inland freshwaters or coastal waters into which silage effluent could enter if it were to escape.

OR

The silage is compressed into bales that are wrapped and sealed into impermeable membranes, or enclosed in impermeable bags; and are stored at least 10 metres from any inland freshwaters or coastal waters that effluent escaping from the bales could enter. If the silage is a crop being made into field silage (that is, silage made on open land by a method different from the baling method) or silage that is being stored on open land Natural Resources Wales must be notified of the place where the silage is to be made or stored at least 14 days before the place is first used for that purpose and the place is at least 10 metres from any inland freshwaters or coastal waters, and at least 50 metres from the nearest relevant water abstraction point of any protected water supply source that silage effluent could enter if it escaped.

A person who has custody or control of a silage bale must not open or remove the wrapping of the bale within 10 metres of any inland freshwaters or coastal waters which silage effluent could enter as a result.

Notice requiring works etc.

Natural Resources Wales may serve, on a person who has custody or control of silage or slurry or is responsible for the silo or slurry storage system a notice requiring the person to carry out works, or take precautions or other steps, specified in the notice.

The works, precautions or other steps must be, in the opinion of Natural Resources Wales, appropriate, for reducing to a minimum any significant risk of pollution of controlled waters.

The notice must–

- specify or describe the works, precautions or other steps that the person is required to carry out or take;
- state the period within which any such requirement is to be complied with; and
- inform the person of the right to appeal.

The period for compliance with the notice will be 28 days, or longer if reasonable in the circumstances.

Natural Resources Wales may at any time (including a time after the period for compliance has ended) withdraw the notice, extend the period for compliance with any requirement of the notice or with the consent of the person on whom the notice is served, modify the requirements of the notice.

Appeals against notices

A person served with a notice may, within the period of 28 days beginning on the day after the date on which the notice is served (or such longer period as the Welsh Ministers allow), appeal to the Welsh Ministers against the notice.

An appeal must be made by the appellant serving notice on the Welsh Ministers. The notice must contain or be accompanied by a statement of the grounds of appeal.

Before determining an appeal under this regulation, the Welsh Ministers must, if requested to do so by the appellant or Natural Resources Wales, afford them an opportunity of appearing before and being heard by a person appointed by the Welsh Ministers for the purpose.

On determining an appeal, the Welsh Ministers may direct Natural Resources Wales to withdraw the notice; modify any of its requirements; extend the period for compliance with any requirement; or dismiss the appeal.

The period for compliance with a notice against which an appeal has been made can be extended so that it expires on the date on which the Welsh Ministers finally determines the appeal.

Notice requiring works etc.

NRW will be able to serve a notice requiring works to be carried out, or take precautions or other steps, which are appropriate for minimising any significant risk of pollution. The notice must specify or describe the works, precautions or other steps that must be carried out and by when. There will be an appeals process.

NRW may at any time withdraw the notice, extend the period for compliance with any requirement of the notice; or with the consent of the person on whom the notice is served, modify the requirements of the notice.

The 1991 exemption will cease to apply where the conditions of a notice have not been met.

14 days notice must be issued to NRW before construction begins.

Other construction standards

The base of the slurry storage tank, the base and walls of any effluent tank, channels and reception pit, and the walls of any pipes, must be impermeable.

The base and walls of the slurry storage tank, any effluent tank, channels and reception pit, and the walls of any pipes, must be protected against corrosion in accordance with paragraph 7 of the code of practice on buildings and structures for agriculture published by the British Standards Institution and numbered BS 5502: Part 50: 1993(9).

The base and walls of the slurry storage tank and of any reception pit must be capable of withstanding characteristic loads calculated on the assumptions and in the manner indicated by paragraph 5 of the code of practice on buildings and

structures for agriculture published by the British Standards Institution and numbered BS 5502: Part 50: 1993.

The slurry storage tank and any effluent tank, channels, pipes and reception pit must be designed and constructed so that with proper maintenance they are likely to continue to satisfy the three preceding paragraphs for at least 20 years.

Any facilities used for the temporary storage of slurry before it is transferred to a slurry storage tank must have adequate capacity to store—

- the maximum quantity of slurry that (disregarding any slurry which will be transferred directly into a slurry storage tank) is likely to be produced on the premises in any two-day period; or
- a lesser capacity that Natural Resources Wales agrees in writing is adequate to avoid any significant risk of pollution of controlled waters.

Where slurry flows into a channel before discharging into a reception pit and the flow of slurry out of the channel is controlled by means of a sluice, the capacity of the reception pit must be adequate to hold the maximum quantity of slurry that can be released by opening the sluice.

At least 750 millimetres of freeboard in the case of a tank with walls made of earth and 300 millimetres of freeboard in all other cases must be provided

No part of the slurry storage tank or any effluent tank, channels or reception pit may be situated within 10 metres of any inland freshwaters or coastal waters into which slurry could enter if it were to escape unless precautions are taken that NRW agrees in writing are adequate to avoid any significant risk of pollution of controlled waters.

If the walls of the slurry storage tank are not impermeable, the base of the tank must:

- extend beyond the walls;
- be provided with channels designed and constructed so as to collect any slurry that escapes from the tank;
- have adequate provision for the drainage of the slurry from those channels to an effluent tank through a channel or pipe.

If the slurry storage tank or any effluent tank or reception pit is fitted with a drainage pipe there must be two valves in series on the pipe with each valve separated from the other by a minimum distance of 1 metre. This does not apply where a slurry storage tank drains through the pipe into another slurry storage tank if the other tank is of equal or greater capacity or if the tops of the tanks are at the same level. Each valve must be capable of shutting off the flow of slurry through the pipe and must be kept shut and locked in that position when not in use.

In the case of a slurry storage tank with walls made of earth the tank must not be filled to a level that allows less than 750 millimetres of freeboard.

Further measures for nutrient management

Details related to the above requirements

A record of the total size of the holding must be made and update any changes within 1 month.

The record must contain the amount of manure that will be produced by the anticipated number of animals that will be kept in a building or on hardstanding during the storage period using standard figures in table 1.

The storage existing storage capacity which is available and the amount of storage capacity needed (slurry vessels and hardstanding) must be recorded, taking into account—

- the amount of manure intended to be exported from the holding;
- the amount of manure intended to be spread on land that has a low run-off risk; and
- in the case of a slurry vessel the amount of liquid other than slurry likely to enter the vessel

If animals are brought onto a holding for the first time adjustments to calculations must be made within 1 month. Storage capacity changes must be recorded within one week.

Before 30 April each year, for the previous storage period, the number and category of animals in a building or on a hardstanding during the storage period must be recorded.

Sites used for field heaps and the dates of use must be recorded.

Before 30 April every year the amount of nitrogen in the manure produced by the animals on the holding during that year must be recorded along with the number and category of animals on the holding during the previous calendar year, and the number of days that each animal spent on the holding.

Alternatively, in the case of permanently housed pigs or poultry, software approved by the Welsh Ministers can be used; or in the case of a system of keeping livestock that only produces solid manure, sampling and analysis.

If software approved by the Welsh Ministers has been used a printout of the result must be kept.

Imported and exported livestock manure

If livestock manure is imported, if the nitrogen content is known, it should be within one week, alongside:

- the type and amount of livestock manure;
- the date it is brought on to the holding;

- the nitrogen content; and
- the name and address of the supplier.

If the nitrogen content is not known, it must be determined as soon as possible and recorded within 1 week using standard figures or sampling and analysis.

If livestock manure is exported the following should be recorded within 1 week:

- the type and amount of livestock manure;
- the date it is sent off the holding;
- the nitrogen content;
- the name and address of the recipient; and
- details of a contingency plan to be used in the event that an agreement for a person to accept the livestock manure fails.

Details of crops sown

Where spreading of nitrogen fertiliser is intended within one week of sowing a crop the crop sown and the date of sowing must be recorded.

Details of spreading nitrogen fertiliser

Within one week of spreading organic manure the following must be recorded:

- the area on which organic manure is spread;
- the quantity of organic manure spread;
- the date or dates;
- the methods of spreading;
- the type of organic manure;
- the total nitrogen content; and
- the amount of nitrogen that was available to the crop.

Within one week of spreading manufactured nitrogen fertiliser the date of spreading and the amount of nitrogen spread must be recorded.

Fertiliser spreading records do not need to be made for holdings in which 80% of the agricultural area of a holding is sown with grass, and the total amount of nitrogen in organic manure applied to the holding, whether directly by animal or a result of spreading, is no more than 100 kg per hectare and the total amount of nitrogen in manufactured nitrogen fertiliser applied to the holding is no more than 90 kg per hectare and organic manure is not brought onto the holding.

Where nitrogen fertiliser is used the yield achieved by an arable crop must be recorded within one week of ascertaining it.

Before 30 April each year how any grassland was managed in the previous calendar year must be recorded.

Keeping of information and advice

Records and advice from a person who is a member of the Fertiliser Advisers Certification and Training Scheme that is relied on for any purpose in relation to the above requirements must be kept for five years.

Enforcement

Offences and penalties

Any person who breaches the Regulations will be guilty of an offence and liable on summary conviction, to a fine not exceeding the statutory maximum, or on conviction on indictment, to a fine.

Where a body corporate is guilty of an offence under these Regulations, and that offence is proved to have been committed with the consent or connivance of, or to have been attributable to any neglect on the part of any director, manager, secretary or other similar person of the body corporate, or any person who was purporting to act in any such capacity, that person, as well as the body corporate, is guilty of the offence and liable to be proceeded against and punished accordingly.

Revocations

Regulations to be repealed:

Nitrate Pollution Prevention (Wales) Regulations 2013

Control of Pollution (Water Resources) (Silage, Slurry and Agricultural Fuel Oil) (Wales) Regulations 2010

Cross compliance requirements over time

Definitions

Agricultural area - means any agricultural land used for agricultural purposes;

Agriculture - has the same meaning as in section 109(3) of the Agriculture Act 1947;

Crop with high nitrogen demand - includes, but not limited to, grass, potatoes, sugar beet, maize, wheat, oilseed rape, barley, brassicas, rye and triticale;

Grass – means:

- (a) permanent grassland or temporary grassland (temporary means for less than four years);
- (b) that exists between the sowing and ploughing of the grass; and
- (c) includes crops under-sown with grass,
- (d) but does not include grassland with 50% or more clover;

Holding - means all the land and its associated which are used for the growing of crops in soil or rearing of livestock for agricultural purposes;

Land that has a low run-off risk - means land that:

- (a) has an average slope of less than 3° (3 degrees);
- (b) does not have land drains (other than a sealed impermeable pipe); and
- (c) is at least 50 metres from a watercourse or conduit leading to a watercourse;

Livestock - means any animal (including poultry) specified in Table 1

Manufactured nitrogen fertiliser - means any nitrogen fertiliser (other than organic manure) manufactured by an industrial process;

Manufactured phosphate fertiliser - means any phosphate fertiliser (other than organic manure) manufactured by an industrial process;

Nitrogen fertiliser - means any substance containing one or more nitrogen compounds used on land to enhance growth of vegetation and includes organic manure;

Non-grazing livestock - means any animal specified in Table 1

Organic manure - means any nitrogen fertiliser or phosphate fertiliser derived from animal, plant or human sources and includes livestock manure;

Phosphate fertiliser - means any substance containing one or more phosphorus compounds used on land to enhance growth of vegetation and includes organic manure;

Poultry - means poultry specified in Table 1

Sandy soil - means any soil over sandstone, and any other soil where—

(a) in the layer up to 40 cm deep, there are—

- (i) more than 50 % by weight of particles from 0.06 to 2 mm in diameter,
- (ii) less than 18 % by weight of particles less than 0.02 mm diameter, and
- (iii) less than 5 % by weight of organic carbon, and

(b) in the layer from 40 to 80 cm deep, there are—

- (i) more than 70 % by weight of particles from 0.06 to 2 mm in diameter;
- (ii) less than 15 % by weight of particles less than 0.02 mm diameter;
- (iii) less than 5 % by weight of organic carbon;

Shallow soil - is soil that is less than 40 cm deep;

Slurry - means excreta produced by livestock (other than poultry) while in a yard or building (including any bedding, rainwater or washings mixed with it) that has a consistency that allows it to be pumped or discharged by gravity (in the case of excreta separated into its liquid and solid fractions, the slurry is the liquid fraction);

Spreading - includes application to the surface of the land, injection into the land or mixing with the surface layers of the land but does not include the direct deposit of excreta on to land by animals.

Annex 2

Tables

Table 1

Amount of manure and nitrogen produced by grazing livestock and non-grazing livestock

Grazing livestock			
<i>Category</i>		<i>Daily manure produced by each animal (litres)</i>	<i>Daily nitrogen produced by each animal (grams)</i>
Cattle			
	Calves (all categories except veal) up to 3 months:	7	23
Dairy cows—	From 3 months and less than 13 months:	20	95
	From 13 months up to first calf:	40	167
	annual milk yield more than 9000 litres:	64	315

	After first calf and—	annual milk yield more than 9000 litres:		53	276
		annual milk yield between 6000 and 9000 litres		42	211
		annual milk yield less than 6000 litres:		20	91
Beef cows or steers ^(a)		From 3 months and less than 13 months:		26	137
		From 13 months and less than 25 months:		32	137
	From 25 months—	females or steers for slaughter:		32	167
		females for breeding—	weighing 500kg or less:	45	227
			weighing more than 500kg:	26	148
Bulls		Non-breeding, 3 months and over:		26	137
		Breeding—	from 3 months and less than 25 months:	26	132

Sheep					
	From 6 months up to 9 months old:			1.8	5.5
	From 9 months old to first lambing, first tugging or slaughter:			1.8	3.9
	After lambing or tugging ^(b) —	weight less than 60kg:		3.3	21
		weight from 60kg:		5	33
Goats, deer and horses					
Goats:				3.5	41
Deer—	breeding:			5	42
	other:			3.5	33
Horses:				24	58
Non-grazing livestock					
<i>Category</i>			<i>Daily manure produced by each animal(litres)</i>		<i>Daily nitrogen produced by each animal (grams)</i>
Cattle					
Veal calves:			7		23
Poultry(a)					

Chickens used for production of eggs for human consumption—	less than 17 weeks:	0.04	0.64
	from 17 weeks (caged):	0.12	1.13
	from 17 weeks (not caged):	0.12	1.5
Chickens raised for meat: Chickens raised for breeding—	less than 25 weeks:	0.026	1.06
	from 25 weeks:	0.04	0.86
Turkeys—	male:	0.16	3.74
	female:	0.12	2.83
Ducks:		0.10	2.48
Ostriches:		1.6	3.83
Pigs			
Weight from 7kg and less than 13kg:		1.3	4.1
Weight from 13kg and less than 31kg:		2	14.2
Weight from 31kg and less than 66kg	dry fed:	3.7	24
	liquid fed:	7.1	24
Weight from 66kg and—	Intended for slaughter—	5.1	33

	liquid fed:	10	33
sows intended for breeding that have not yet had their first litter:		5.6	38
sows (including their litters up to a weight of 7kg per piglet) fed on a diet supplemented with synthetic amino acids:		10.9	44
sows (including their litters up to a weight of 7kg per piglet) fed on a diet without synthetic amino acids:		10.9	49
breeding boars from 66kg up to 150kg:		5.1	33
breeding boars from 150kg:		8.7	48

(a) Castrated male.

(b) In the case of a ewe, this figure includes one or more suckled lambs until the lambs are aged six months.

Note: all figures for poultry include litter.

Table 2:

<i>Type of livestock manure*</i>	<i>Amount of nitrogen available for crop uptake</i>
Cattle slurry	40%
Pig slurry	50%
Poultry manure	30%
Other livestock manure	10%

*For all other organic manures technical analyses provided by the supplier, RB209 values or sampling and analysis (same methodology as above) can be used.

Table 3:

Botanical Name	Common Name
Cydonia oblonga	Quince
Malus domestica	Apple
Mespilus germanica	Medlar
Morus spp.	Mulberry
Prunus armenaica	Apricot
Prunus avium	Sweet cherry
Prunus cerasus	Sour (cooking) cherry
Prunus ceracifera	Cherry plum
Prunus domestica	Plum
Prunus domestica subsp. insititia	Damson, Bullace
Prunus persica	Peach
Prunus persica var. nectarina	Nectarine
Prunus x gondouinii	Duke cherry
Prunus spinosa	Sloe
Pyrus communis	Pear
Pyrus pyrifolia	Asian pear

Table 4:

<i>Crop</i>	<i>Permitted amount of nitrogen (kg)(a)</i>	<i>Standard yield(tonne/ha)</i>
Asparagus	150	n/a
Autumn or early winter sown wheat	220 (b)(c)(d)	8.0
Beetroot	350	n/a
Brussels sprouts	350	n/a
Cabbage	350	n/a
Calabrese	350	n/a
Cauliflower	350	n/a
Carrots	150	n/a
Celery	250	n/a
Courgettes	250	n/a
Dwarf bean	250	n/a
Field beans	0	n/a
Forage maize	150	n/a
Grass	300 (f)	n/a
Leeks	350	n/a
Lettuce	250	n/a
Onions	250	n/a
Parsnips	250	n/a
Peas	0	n/a
Potatoes	270	n/a
Radish	150	n/a
Runner beans	250	n/a

(a) An additional 80 kg per hectare is permitted to all crops grown in fields if the current or previous crop has had straw or paper sludge applied to it. **(b)** An additional 20 kg per hectare is permitted on fields with shallow soil (other than shallow soils over sandstone). **(c)** An additional 20 kg per hectare is permitted for every tonne that the expected yield exceeds the standard yield. **(d)** An additional 40 kg per hectare is permitted to milling wheat varieties. **(e)** This is inclusive of any nitrogen that is applied as an exemption to the closed period for manufactured nitrogen fertiliser. The permitted amount may be increased by up to 30 kg per hectare for every half tonne that expected yield exceeds the standard yield. **(f)** An additional 40 kg per hectare is permitted to grass that is cut at least three times a year.

Table 5:

<i>Soil type</i>	<i>Grassland</i>	<i>Tillage land</i>
Sandy or shallow soil	1 September to 31December	1 August to 31December
All other soils	1 October to 15January	1 October to 31January

Table 6:

<i>Crop</i>	<i>Maximum nitrogen rate (kg/hectare)</i>
Oilseed rape, winter (a)	30
Asparagus	50
Brassica (b)	100
Grass (a)(c)	80
Over-wintered salad onions	40
Parsley	40
Bulb onions	40

(a) Nitrogen must not be spread on these crops after 31 October.

(b) An additional 50kg of nitrogen per hectare may be spread every four weeks during the closed period up to the date of harvest.

(c) A maximum of 40kg of nitrogen per hectare may be spread at any one time.