



Llywodraeth Cymru  
Welsh Government

# Enhanced Nutrient Management approach

## Guidance for Farmers and Land Managers



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## Background and Summary

The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 have been introduced to reduce losses of pollutants from agriculture to the environment by setting rules for certain farming practices. The Regulations also set standards for silage making, storage of silage effluent and for slurry storage systems. Livestock manures can also contribute to environmental pollution when they are spread to land when soil and weather conditions are not appropriate or where there is no crop requirement.

The Enhanced Nutrient Management approach was announced on the 10 October 2023 as a one-year scheme to allow a higher rate of nitrogen application from grazing livestock manures. This runs for the calendar year starting 1 January 2024 to 31 December 2024 and allows for the application of grazing livestock manures either by direct deposition or spreading above 170 kilograms of nitrogen per hectare to a maximum of 250 kilograms of nitrogen per hectare subject to certain conditions.

No other measures contained within the Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 are impacted by the Enhanced Nutrient Management approach and are subject to relevant transition period.

This Enhanced Nutrient Management Guidance is to be used in conjunction with the Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021: guidance for farmers and land managers.

## Glossary and Definitions

Certain words and terms have specific meanings in the context of the Regulations. Where words or terms are identified within glossary and definitions of the Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021: guidance for farmers and land managers, they have the same meaning in the Enhanced Nutrient Management Guidance. Additional words or terms relevant to the Enhanced Nutrient Management approach (together with their meanings) are listed below and for ease of reference are highlighted in italic text in this Guidance.

<i>Enhanced nutrient management plan</i>	Means a plan prepared in accordance with the requirements of paragraphs 6 and 7 of Schedule 1A
<i>Precision spreading equipment</i>	Refers to a trailing shoe, dribble bar or injector system
<i>Qualifying grassland holding</i>	Means a holding or part of a holding that was not previously situated within a Nitrate Vulnerable Zone (NVZ) as shown on the NVZ index map, where 80% or more of the <i>agricultural area</i> is sown with <i>grass</i>
<i>Relevant period</i>	Means the period beginning with 1 January 2024 and ending with 31 December 2024

<i>Soil phosphorus index</i>	Means a reference to the index number assigned to the soil in accordance with Table 1 of Schedule 1A, to indicate the level of phosphorus available from the soil.
<i>Soil sampling analysis</i>	Means analysis of a soil sample carried out by a soil testing laboratory to analyse soils for phosphorus

### **Qualifying Grassland Holdings**

Holdings which meet the qualifying criteria to undertake the Enhanced Nutrient Management approach must meet the following requirements.

#### **Maintain the holding as 80% grass**

The holding must be maintained to ensure at least 80% of the *agricultural area* is sown with *grass* during the calendar year 1 January 2024 to 31 December 2024. *Grass* as defined in the Regulations is

- 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) does not include grassland with 50 % or more clover;

The total *agricultural area* and the area of *grass* within the holding must be recorded by 1 March 2024.

Changes to grassland or the size of the holding and resulting change to the percentage of grassland the must be recorded within 1 month of the change occurring.

#### **Holdings or land previously within an NVZ**

Land previously contained within a Nitrate Vulnerable Zone is not eligible to be included in the Enhanced Nutrient Management approach.

#### **Notification to Natural Resources Wales**

Holdings participating in the Enhanced Nutrient Management approach must submit a notification to Natural Resources Wales by 31 March 2024. A notification must contain the following:

- a) the name of the occupier of the qualifying grassland holding.
- b) the address of the qualifying grassland holding.
- c) a written statement that the occupier intends during the *relevant period* to apply to the holding, whether directly by an animal or by *spreading*, a total amount of nitrogen in grazing *livestock* which exceeds 170kg multiplied by the area of the holding in hectares.
- d) a written statement that the occupier will comply with the additional requirements set out in the Enhanced Nutrient Management approach.

A copy of the *enhanced nutrient Management plan* must be submitted alongside the notification to NRW, details of the requirements of the *enhanced nutrient management plan* are outlined below.

Notifications and associated enhanced nutrient management plans must be submitted via email to [NotificationENMA@cyfoethnaturiolcymru.gov.uk](mailto:NotificationENMA@cyfoethnaturiolcymru.gov.uk)

An example notification email is provided in Annex 1.

Compliance with the requirements of the Enhanced Nutrient Management approach will not be assessed at the point of submission. Assessment of enhanced nutrient management plans will be undertaken during inspections. Any information which is missing or incorrect will automatically be considered a breach of the Enhanced Nutrient Management approach and action will be taken according to the Natural Resources Wales enforcement and prosecution policy and procedures. Compliance with the Enhanced Nutrient Management approach will also form part of the cross-compliance inspection regime. A failure to comply could lead to deductions. It is the occupier's responsibility to ensure correct information is submitted as part of the notification process.

### ***Livestock manure to be applied to the holding during the relevant period***

When planning or undertaking the application of any manure on a *holding* consideration must be given to existing requirements of the Regulations alongside the requirements of the Enhanced Nutrient Management approach.

Only *livestock* manure produced by the *livestock* on the *holding* can be applied, whether directly by animal or by *spreading*, to the *holding* during the *relevant period*.

The amount of nitrogen applied to the *holding* during the *relevant period* from grazing *livestock* manure, whether directly by animal or by *spreading*, must not exceed 250kg/N/ha during the *relevant period*.

The amount of nitrogen applied to the *holding* from non-grazing *livestock* manure, whether directly by animal or by *spreading*, cannot exceed 170kg/N/ha during the *relevant period* (the 2024 calendar year).

Where the occupier intends to apply to the *holding*, whether directly by animal or by *spreading*, grazing *livestock* manure in combination with non-grazing *livestock* manure, the application rates for grazing and non-grazing *livestock* manures are not additive, i.e. you cannot 'top up' above 170kg/N/ha of non-grazing *livestock* manure with any manure from grazing *livestock*.

The application rates must be prorated i.e. a calculation undertaken to demonstrate the proportion of grazing and non-grazing *livestock* and their respective limits to calculate a combined prorated limit for the whole *holding*.

When calculating the following equation must be used

$$A \geq (NgI / 250) + (NngI / 170)$$

*A* is the area of the *holding* (hectares) as existing on 1 January for that calendar year;

*N<sub>gl</sub>* is the total amount of nitrogen (kg) in grazing *livestock* manure applied to the *holding*, whether directly by an animal or by *spreading*, calculated in accordance with table 1 in Schedule 1;

*N<sub>ngl</sub>* is the total amount of nitrogen (kg) in non-grazing *livestock* manure, applied to the *holding*, whether directly by an animal or by *spreading*, calculated in accordance with table 2 in Schedule 1.

Example:

Where 75% of the nitrogen to be applied is from grazing *livestock* and 25% is from non-grazing *livestock* manures, then the maximum application rate applying to each would be as follows:

$0.75 \times 250 = 187.5\text{kg/N/ha/yr}$  from grazing *livestock* manure, and

$0.25 \times 170 = 42.5\text{kg/N/ha/yr}$  from non-grazing *livestock* manure.

For a 100-hectare *holding*, this is equivalent to applying all of the grazing *livestock* manure to 75 hectares, at a rate of 250kg/N/ha/yr, and all of the non-grazing *livestock* manure, at a rate of 170kg/N/ha/yr, to the remaining 25 hectares.

## **Enhanced Nutrient Management Requirements**

The *enhanced nutrient management plan* can be completed in a format of choice but must record the following requirements in addition to the nitrogen requirements contained in the Regulations (see Control of Agricultural Pollution Guidance). Copies of the enhanced nutrient management plans must be made available for inspection if requested.

### **Planning the spreading of phosphate fertiliser**

In addition to the production of nitrogen plans required by the 2021 Regulations the occupier must calculate the optimum amount of *phosphate fertiliser* (kg) that should be spread on the crop during the *relevant period*, taking into account the *soil phosphorus index* and produce an 'enhanced nutrient management' plan for the *spreading of phosphate fertiliser* during the *relevant period*.

### **Enhanced nutrient management plan requirements**

A copy of the *enhanced nutrient Management plan* must be submitted alongside the notification to NRW.

The planning of the *spreading* of fertilisers must include a risk map and take into account:

- a) *the soil phosphorus index* for each area of the *holding* with the same cropping regime, nutrient management regime and soil type,

- b) the optimum amount of *phosphate fertiliser* (kg) that should be spread on the crop, taking into account the *soil phosphorus index*,
- c) the amount of nitrogen (kg) likely to be available for uptake by the crop from any *organic manure* intended to be spread for crop uptake in the growing season during the *relevant period*,
- d) the amount of phosphate (kg) likely to be supplied to meet the requirement of the crop from any *organic manure* spread or intended to be spread during the *relevant period*, calculated in accordance with
  - i. tables 1 and 2 (as applicable) of Schedule 1 (annex 2)
  - ii. sampling and an analysis in accordance with Part 2 of Schedule 3, or
  - iii. technical analyses provided by the supplier
- e) the amount of *manufactured nitrogen fertiliser* (kg) required (that is, the optimum amount of nitrogen required by the crop less the amount of nitrogen that will be available for crop uptake from any *organic manure* spread during the *relevant period*), and
- f) the amount of manufactured *phosphate fertiliser* (kg) required (that is, the optimum amount of phosphate required by the crop less the amount of phosphate supplied for crop uptake from any *organic manure* spread for the purpose of fertilising the crop during the *relevant period*).

### **Soil sampling analysis**

The occupier must undertake *soil sampling analysis* of at least every five hectares of the *agricultural area* of the *holding* with the same cropping regime, nutrient management regime and soil type. The results of this analysis must be used for the purposes of determining the *soil phosphorus index* for each area of the *holding* with the same cropping regime, nutrient management regime and soil type.

The results of previous analysis may be used where they meet the requirements above provided the sampling analysis undertaken was carried out between 1 January 2020 and 31 December 2023. They can also be used in combination with additional analysis undertaken before 30 March 2024.

Where phosphorus *soil sampling analysis* of the *agricultural area* of the *holding* with the same cropping regime, nutrient management regime and soil type has not been carried out, such analysis must be undertaken before 30 March 2024.

the *soil phosphorus index* for each area must be determined by using the results from the *soil sampling analysis* and the values in the following table.

<i>Phosphorus index</i>	<i>Phosphorus (P) mg/L</i> <i>Olsen (P)</i>
0	0-9
1	10-15
2	16-25
3	26-45

4	46-70
5	71-100
6	101-140
7	141-200
8	201-280
9	Over 280

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### Total phosphorus spread on a *holding* during the *relevant period*

The total amount of phosphate from both manufactured *phosphate fertiliser* and phosphate from *organic manure* in the growing season in which it is spread must not exceed the values in table 2 and 3 during the *relevant period*.

*Spreading phosphate fertiliser* on grass and other crops above the values in tables 2 and 3 is permitted subject to prior receipt of written advice from a person who is a member of the Fertiliser Advisers Certification and Training Scheme (FACTS).

**Table 2 - Maximum phosphate for grass**

	<b>Soil Phosphorus index (kg P2O5/ha)</b>				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4+</b>
At grass establishment	120	80	50	30	0
Grazing	80	50	20	0	0
Hay	80	55	30	0	0
<b>Silage</b>					
First cut	100	70	40	20	0
Second Cut	25	25	25	0	0
Third Cut	15	15	15	0	0
Fourth Cut	10	10	10	0	0

**Table 3 - Maximum phosphate for other crops**

<b>P-index</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5+</b>
<b>Crop</b>	<b>Phosphate (kg/ha)</b>					
<b>Forage crops</b>						
Forage maize	115	85	55	20	0	0
Wholecrop cereals	115	85	55	0	0	0
Forage swedes and turnips (lifted)	105	75	45	0	0	0
Fodder beet (lifted)	120	90	60	0	0	0
Forage rape, swedes and stubble turnips (grazed)	85	55	25	0	0	0
Kale (grazed)	80	50	20	0	0	0
Rye-grass sown for seed	90	60	30	0	0	0



<b>Arable crops (Straw incorporated)</b>						
Winter wheat	110	80	50	0	0	0
Winter triticale	125	95	65	0	0	0
Winter Barley	110	80	50	0	0	0
Spring barley	105	75	45	0	0	0
Spring wheat/spring triticale/rye/oats	110	80	50	0	0	0
<b>Arable crops (Straw removed)</b>						
Winter wheat	115	85	55	0	0	0
Winter triticale	130	100	70	0	0	0
Winter barley	115	85	55	0	0	0
Spring barley	105	75	45	0	0	0
Spring wheat	110	80	50	0	0	0
Spring triticale/rye	110	80	50	0	0	0
Oats	115	85	55	0	0	0
<b>Oilseeds</b>						
Winter oilseed rape	110	80	50	0	0	0
Spring oilseed rape or linseed	90	60	30	0	0	0
Peas (dried and vining) and beans	100	70	40	0	0	0
Sugar Beet	110	80	50	0	0	0
Potatoes	250	210	170	100	0	0
<b>Vegetables and bulbs</b>						
Asparagus (establishment)	175	150	125	100	75	0
Asparagus (subsequent years following establishment)	75	75	50	50	25	0
Brussels sprouts, storage cabbage, head cabbage and collards	200	150	100	50	0	0
Cauliflower and calabrese	200	150	100	50	0	0
Celery	250	200	150	100	50	0
Peas (market pick)	185	135	85	35	0	0
Broad beans, dwarf and runner beans	200	150	100	50	0	0
Radish and sweetcorn	175	125	75	25	0	0
Lettuce and wild rocket	250	200	150	100	60 <sup>(a)</sup>	60 <sup>(a)</sup>

Onions and leeks	200	150	100	50	60 <sup>(a)</sup>	60 <sup>(a)</sup>
Beetroot, Swedes, Turnips, parsnips and carrots	200	150	100	50	0	0
Bulbs and bulb flowers	200	150	100	50	0	0
Coriander and mint	175	125	75	25	0	0
Courgettes	175	125	75	25	0	0
Fruit and vines before planting	200	100	50	50	0	0
Hops before planting	250	175	125	100	50	0
Established top fruit	80	40	20	20	0	0
Blackcurrants, redcurrants, gooseberries, raspberries, loganberries, tayberries, Blackberries, strawberries and vines	110	70	40	40	0	0
Established Hops	250	200	150	100	50	0

<sup>(a)</sup> At P Index 4 and 5, up to 60 kg P2 O5/ha can be used as a starter fertiliser, close to the seed. The amount of phosphate applied as a starter dose, together with the amount added in the base dressing, should not exceed the amount of phosphate required to replace that removed by the previous crop.

### **Nitrogen and Phosphate produced by animals during the *relevant period***

A record must be made of the expected number and category (in accordance with the categories in Tables 1 and 2 of Schedule 1 (annex 2)) of *livestock* to be kept on the *holding* during the *relevant period*. The total amount of nitrogen and phosphate (kg) in manure expected to be produced by the *livestock* on the *holding* during the *relevant period* must be calculated in accordance with the categories in Tables 1 and 2 of Schedule 1 (annex 2). These must be made before 1 March 2024.

### ***Livestock* manure intended to be sent off the *holding***

A record must be made of the type and amount of *livestock* manure (tonnes or cubic metres as applicable) that is intended to be sent off the *holding* during the *relevant period*. The nitrogen content in kilogrammes of the manure must be assessed using parts 1 and 2 of Schedule 3 and recorded by 1 March 2024.

### **Risk maps**

In addition to the risk mapping existing requirements of the Regulations, risk maps must also show each field marked with a reference number or identifying number to enable cross referencing to the fields recorded in the *enhanced nutrient management plan* within the *agricultural area* of the *holding* and be updated by 31 March 2024.

Changes to risk map and the field references must be updated on the risk map within one month of the change.

## **Additional Environmental Requirements**

The following additional requirements must be followed by the occupier during the *relevant period*.

- a) Before *spreading organic manure*, the total phosphate content (kg) of the *organic manure* must be recorded.
- b) Before *spreading* manufactured *phosphate fertiliser*, record the amount of phosphate (kg) required, and the planned month for *spreading*. The amount of phosphate required from *phosphate fertiliser* should be equal to the optimum amount of phosphate required by the crop less the amount of phosphate that will be supplied for crop uptake from the *spreading* of any *organic manure*.

### ***Spreading of slurry during the relevant period***

*Precision spreading equipment* must be used for the *spreading* of *slurry*, except where it would not be reasonably practicable to do so. This may include where operation of such equipment would be unsafe or increase risk to the environment when compared to other *spreading* means.

### **Closed period for ploughing grass on the holding**

Grass on the *holding* must not be ploughed if it is

- a) temporary grassland on *sandy soils* between 1 July 2024 and 31 December 2024;
- b) *grass* on *sandy soils* before 16 January 2024 where *livestock* manure has been spread on that *grass* between 1 September 2023 and 31 December 2023, and
- c) *grass* on soils that are not *sandy soils* before 16 January 2024 where *livestock* manure has been spread on that *grass* between 15 October 2023 and 15 January 2024.

### **Sowing of crops following grass on the holding**

Where any *grass* on the *holding* is ploughed during the *relevant period*, the land must be sown with a crop of high nitrogen demand within four weeks or sown with *grass* within six weeks, beginning with the day after the date of ploughing *grass*.

### **Crop rotation on the holding**

Crop rotation on the *holding* during the *relevant period* must not include leguminous or other plants fixing atmospheric nitrogen except for *grass* with less than 50% clover, or any other leguminous plants that are under-sown with *grass*.

### **Soil protection measures**

All soil must be protected by ensuring that all land is covered by crops, stubbles, residues or other vegetation at all times, except where establishing such cover would

create a significant risk of soil erosion and significant risk of nitrogen and phosphorus getting into surface water.

Where land has been harvested using a combine harvester, forage harvester or mower, the occupier must ensure that, throughout the *relevant period* beginning with the first day after harvest and ending with 31 December 2024, one of the following conditions is met on that land at all times.

- a) The stubble of the harvested crop remains in the land, or
- b) the land is prepared as a seedbed for a crop or temporary cover crop within 14 days of harvest, beginning with the first day after harvest, and
  - i. the crop, or temporary cover crop, is sown within a period of 10 days beginning with the day after final seedbed preparation, or
  - ii. if sowing within that 10-day period would lead to significant risk of soil erosion and nitrogen or phosphorus entering a surface water, the crop, or temporary cover crop, is sown as soon as is practicable after the land ceases to be waterlogged.

### **Locations of supplementary feeding and drinking sites for *livestock***

Supplementary feeding locations for *livestock* must not be located within 20 metres of a *watercourse* and supplementary drinking locations for *livestock* must not be located within 10 metres of a *watercourse* on any land.

### ***Spreading organic manure near surface water***

No *organic manure* can be spread within 15 metres of surface water unless using *precision spreading equipment* in which case no *organic manure* can be spread within 10 metres of surface water.

### **Record Keeping Requirements**

The following additional records must be kept during the *relevant period* in addition to the record keeping requirements of the Control of Agricultural Pollution Regulations.

### **Recording the phosphorus content of *organic manures* and manufactured *phosphate fertilisers***

Before *spreading organic manure* during the *relevant period*, the total phosphate content in kilograms of the *organic manure* must be recorded.

Before the *spreading* of any manufactured *phosphate fertiliser* the amount of phosphate (kg) required (the optimum amount of fertiliser required by the crop less the amount of phosphate that will be supplied for crop uptake from any *organic manure* spread) and the planned month for *spreading*.

## Records of crops sown

If *phosphate fertiliser* is intended to be spread during the *relevant period*, the occupier must record with 1 week the crop sown and the date of sowing.

## Records of spreading phosphate fertilisers

In addition to the requirements for the *spreading of nitrogen fertilisers* the following must be recorded within one week

- a) when *spreading organic manure* the total phosphorus content (kg), and
- b) when *spreading manufactured phosphate fertiliser* the date of *spreading* and the amount of phosphate spread (kg)

## Recording the date of ploughing

The date of ploughing of *grass* on the *holding* during the *relevant period* must be recorded within 1 week of the ploughing occurring.

## Fertilisation accounts to be submitted to NRW

The following information in the form of a fertilisation account must be submitted to NRW by email to [NotificationENMA@cyfoethnaturiolcymru.gov.uk](mailto:NotificationENMA@cyfoethnaturiolcymru.gov.uk) by 31 March 2025.

There is no standardised format for the submission of a fertilisation account, however, it must contain the following information:

1. The total *agricultural area* of the *holding* in hectares
2. The area of the *holding* in hectares covered by the following crops:
  - a. *Grass*
  - b. *Winter wheat*
  - c. *Spring wheat*
  - d. *Winter barley*
  - e. *Spring barley*
  - f. *Winter oilseed rape*
  - g. *Sugar beet*
  - h. *Potatoes*
  - i. *Forage maize*
  - j. *Other crops*
3. The number and category of animals kept on the *holding* during the *relevant period*, in accordance with the categories described in tables 1 and 2 of Schedule 1 (annex 2).
4. The amount of nitrogen and phosphate in kilograms (kg) in the manure produced on the *holding* during the *relevant period* using tables 1 and 2 of Schedule 1 (annex 2).

5. The amount (in tonnes or cubic metres), type and characteristics of *livestock manure* sent off the *holding* during the *relevant period*.
6. The amount of nitrogen and phosphate (kg) in the manure sent off the *holding*, calculated using the values in schedule 1 (annex 2).
7. The weight (tonnes) and nitrogen content (kg) of all *manufactured nitrogen fertiliser* stocks kept on the *holding* during the *relevant period*.
8. The weight (tonnes) and phosphate content (kg) of all *manufactured phosphate fertiliser* stocks kept on the *holding* during the *relevant period*.
9. The weight (tonnes) and nitrogen content (kg) of all *manufactured nitrogen fertiliser* brought on to and sent off the *holding* during the *relevant period*.
10. The weight (tonnes) and phosphate content (kg) of all *manufactured phosphate fertiliser* brought on to and sent off the *holding* during the *relevant period*.

## Annex 1 – Draft Email Template

Subject Line: [Insert CRN] Enhanced Nutrient Management approach

Email Text

Name:

Trading Name:

CRN:

Holding Address:

CPH(s):

I as [occupier/Individual acting on the occupier's behalf] of the *qualifying grassland holding* listed confirm the following:

- a) [I/the occupier] intend to apply to the *holding*, whether directly by animal or by *spreading*, a total amount of nitrogen from grazing *livestock* manure which exceeds 170kg multiplied by the area of the *holding* (kg/ha).
- b) [I/the occupier] will comply with the additional requirements set out in Schedule 1A of the Water Resources (Control of Agricultural Pollution) (Wales) Regulation 2021 – The Enhanced Nutrient Management approach.
- c) Attached a copy of an *enhanced nutrient management plan* for the *qualifying grassland holding*

## Annex 2 – Schedule 1, tables 1 and 2

### SCHEDULE 1

Amount of manure, nitrogen and phosphate produced by grazing  
*livestock and non-grazing livestock*

**Table 1**

**Grazing livestock**

Category	Daily manure produced by each animal (litres)	Daily nitrogen produced by each animal (grams)	Daily phosphate produced by each animal (grams)
<b>Cattle</b>			
Calves (all categories except veal) up to 3 months:	7	23	12.7
Dairy cows—			
from 3 months and less than 13 months:	20	95	34
from 13 months up to first calf:	40	167	34
After first calf and—			
annual milk yield more than 9000 litres:	64	315	142
annual milk yield between 6000 and 9000 litres:	53	276	121
annual milk yield less than 6000 litres:	42	211	93
Beef cows or steers <sup>(a)</sup> —			
from 3 months and less than 13 months:	20	91	33
from 13 months and less than 25 months:	26	137	43
From 25 months—			
females or steers for slaughter:	31	137	60
females for breeding—			
weighing 500 kg or less:	32	167	65
weighing more than 500 kg:	45	227	86
Bulls			
Non-breeding, 3 months and over:	26	148	24
Breeding—			
from 3 months and less than 25 months:	26	137	43



from 25 months:	26	132	60
<b>Sheep</b>			
From 6 months up to 9 months old:	1.8	5.5	0.76
From 9 months old to first lambing, first tuppung or slaughter:	1.8	3.9	2.1
After lambing or tuppung <sup>(b)</sup> —			
weight less than 60 kg:	3.3	21	8.8
weight from 60 kg:	5	3	10.0
<b>Goats, deer and horses</b>			
Goats:	3.5	41	18.8
Deer—			
breeding:	5	42	17.6
other:	3.5	33	11.7
Horses:	24	58	56

(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.

**Table 2**

**Non-grazing livestock**

Category	Daily manure produced by each animal (litres)	Daily nitrogen produced by each animal (grams)	Daily phosphate produced by each animal (grams)
<b>Cattle</b>			
Veal calves:	7	23	12.7
<b>Poultry<sup>(a)</sup></b>			
Chickens used for production of eggs for human consumption—			
less than 17 weeks:	0.04	0.64	0.47
from 17 weeks (caged):	0.12	1.13	1.0
from 17 weeks (not caged)	0.12	1.5	1.1
Chickens raised for meat:	0.06	1.06	0.72
Chickens raised for breeding—			
less than 25 weeks:	0.04	0.86	0.78
from 25 weeks:	0.12	2.02	1.5
Turkeys—			
male:	0.16	3.74	3.1
female:	0.12	2.83	2.3
Ducks:	0.10	2.48	2.4

Ostriches:	1.6	3.83	18.5
<b>Pigs</b>			
Weight from 7 kg and less than 13 kg:	1.3	4.1	1.3
Weight from 13 kg and less than 31 kg:	2	14.2	6.0
Weight from 31 kg and less than 66 kg—			
dry fed:	3.7	24	12.1
liquid fed:	7.1	24	12.1
Weight from 66 kg and—			
Intended for slaughter—			
dry fed:	5.1	33	17.9
liquid fed:	10	33	17.9
sows intended for breeding that have not yet had their first litter:	5.6	38	20
sows (including their litters up to a weight of 7 kg per piglet) fed on a diet supplemented with synthetic amino acids:	10.9	44	37
sows (including their litters up to a weight of 7 kg per piglet) fed on a diet without synthetic amino acids:	10.9	49	37
breeding boars from 66 kg up to 150 kg:	5.1	33	17.9
breeding boars, from 150 kg	8.7	48	28

<sup>(a)</sup> Note: all figures for *poultry* include litter.