

# Nutrients Action Programme (NAP) Derogation Fertilisation Account 2019-2022

Year:

Bus ID:

For Northern Ireland farmers operating under the requirements of the Nutrients Action Programme Derogation from the livestock manure limit of 170 kg Nitrogen per hectare per year.



*Sustainability at the heart of a living, working, active landscape valued by everyone.*



Department of  
**Agriculture, Environment  
and Rural Affairs**

[www.daera-ni.gov.uk](http://www.daera-ni.gov.uk)



Northern Ireland  
**Environment  
Agency**



**INVESTORS  
IN PEOPLE**

**This document may be made available in alternative formats; please contact us to discuss your requirements:**

CAFRE Greenmount Campus  
45 Tirgracy Road  
Antrim  
BT41 4PS

Telephone: 0300 200 7842  
Email: [enquiries@cafre.ac.uk](mailto:enquiries@cafre.ac.uk)

DAERA Northern Ireland Environment Agency  
Water Management Unit  
17 Antrim Road  
Tonagh  
Lisburn  
Co Antrim  
BT28 3AL

Telephone: 028 9262 3280  
Email: [derogation@daera-ni.gov.uk](mailto:derogation@daera-ni.gov.uk)

You can download this Fertilisation Account from our website.

Follow this link: [www.daera-ni.gov.uk/nutrientsactionprogramme2019-2022](http://www.daera-ni.gov.uk/nutrientsactionprogramme2019-2022)

# Contents

	<b>Page Number</b>
<b>Introduction</b> .....	.2
1. Area of crops (including grass) .....	.3
2. Livestock numbers .....	.4
3. Imported and exported organic manures (from fertilisation plan) .....	.6
4. Exported organic manures - administrative record details .....	.8
5. Chemical fertiliser stock details .....	.11
6. Dirty water management .....	.13
7. Nitrogen requirement and nitrogen applied to crops (including grass) - (N Balance) .....	.14
8. Example of a calculated N Balance (for a 64 ha, 100 cow dairy farm with 132,000 broilers per year) .....	.20
9. Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) .....	.22
10. Example of a calculated P Balance (for a 64 ha, 100 cow dairy farm with 132,000 broilers per year) .....	.30
<b>Annexes</b>	
<b>Annex A</b> Nitrogen (N) maximum fertiliser application limits .....	.31
<b>Annex B</b> Nitrogen (N) content and availability of organic manures .....	.36
<b>Annex C</b> N Balance Worksheet .....	.38
<b>Annex D</b> Phosphorus (P) content for common agricultural products and feedstuffs .....	.45
<b>Annex E</b> P Balance Worksheet .....	.47
<b>Contact Details</b> .....	.65

# Introduction

All farm businesses operating under a **Derogation from the Nutrients Action Programme (NAP) 2019-2022** must prepare a fertilisation account for each calendar year and this must be **submitted online** to the Northern Ireland Environment Agency (NIEA) using [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices) by **1 March of the following year**.

This is an example format of a fertilisation account which can be used to record information and check compliance with the Derogation requirements. The CAFRE farm nutrient management calculators, available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices), can also be used to check compliance.

To assist in the completing of the fertilisation account, please refer to the **Derogation Guidance Booklet 2019-2022 and the Nutrients Action Programme 2019-2022 Guidance Booklet and Workbook**.

Both guidance booklets are available at:

[www.daera-ni.gov.uk/nutrientsactionprogramme2019-2022](http://www.daera-ni.gov.uk/nutrientsactionprogramme2019-2022)

## Please note:

Failure to submit an account by 1 March is a breach of Cross-Compliance conditions and will result in penalties being applied to Basic Payment Scheme (BPS) and invalidate an application for Derogation in that year.

Inaccuracies or omissions could also lead to a breach of Cross-Compliance and financial penalties.

## Area of crops (including grass)

Complete this table with the areas of crops (including grass) grown in 20XX and their nitrogen (N) requirement.

See **page 70** of the Derogation Guidance Booklet 2019-2022 for a completed example.

Refer to the farm map and list of fields in your fertilisation plan for 20XX noting crop areas.

Crop grown	Area grown (ha)	N requirement/Maximum N application limit* (kg per ha)
Grassland		
Spring barley		
Winter barley		
Spring wheat		
Winter wheat		
Spring oats		
Winter oats		
Spring oilseed rape		
Winter oilseed rape		
Forage Maize		
Potatoes		

\* Nitrogen requirement/Maximum N application limits can be found in **Annex A pages 31-35** and in the **NAP Guidance 2019-2022 Guidance Booklet, Section 6** for grassland and crops.

Complete this table with the average livestock kept/produced in 20XX.

Accurate average cattle numbers can be calculated from herd records, a computer recording system or Aphis online.

\*If keeping calves or lambs for a part year use **either**, the 0-6 and 6-12 months categories **OR** the 0-1 year category.

Stock type	Average number for 20XX
Dairy cows	
Dairy heifer (over 2 years)	
Dairy heifer (1-2 years)	
Dairy breeding bull	
Dairy cattle (0-1 year) *	
Heifer calves (6-12 months)*	
Heifer calves (0-6 months)*	
Suckler cows	
Beef breeding bull	
Bull beef (0-13 months)	
Beef cattle (0-1 year) *	
Bull beef (6-13 months)	
Calves (6-12 months) *	
Calves (0-6 months) *	

Stock type	Average number for 20XX
Ewe over 1 year	
Ram over 1 year	
Lamb (0-1 year)*	
Lamb (6-12 months)*	
Lamb (0-6 months)*	

Stock type	Average number for 20XX
<b>For pig breeding farms only</b>	
Boars	
Maiden gilts	
Lactating sows, dry sows,	
Served gilts	
Sale/transfer weight-18 kg	
Sale/transfer weight-35 kg	
Sale/transfer weight-105 kg	

Stock type	Average number for 20XX
<b>For pig growing and finishing farms only</b>	
Pigs (7-18 kg)	
Pigs (7-35 kg)	
Pigs (7-105 kg)	
Pigs (18-35 kg)	
Pigs (18-105 kg)	
Pigs (35-105 kg)	
Other	

Stock type	Number produced in 20XX
Broilers conventional (1,000's)	
Broilers hot water heating (1,000's)	
Free range broilers (1,000's)	
Turkeys 0-6 weeks (1,000's)	
Turkeys 6 week-kill (1,000's)	
Turkeys 0-kill (1,000's)	
Fattening ducks (1,000's)	

Stock type	Unit capacity	No. of weeks occupancy
Broiler breeders (0-18 wks)		
Broiler breeders (18-60 wks)		
Broiler breeders (0-60 wks)		
Pullets (1,000s)		
Layers (1,000s)		
Free range layers (1'000's)		

Only complete this table if you have imported or exported any organic manure during 20XX.

Remember that administrative details of manure exports must also be completed on **pages 8-10**.

**1 cubic metre (m<sup>3</sup>) = 220 gallons**

Slurry type	Nitrogen (N) content	Phosphorus (P) content	Imported volume (m <sup>3</sup> )	Exported volume (m <sup>3</sup> )
Cattle slurry - 2% DM	1.6	0.26		
<b>Cattle slurry - 6% DM</b>	2.6	0.52		
Cattle slurry - 10% DM	3.6	0.79		
Pig slurry - 2% DM	3.0	0.36		
<b>Pig slurry - 4% DM</b>	3.6	0.65		
Pig slurry - 6% DM	4.4	0.96		
Separated cattle slurry (liquid portion):				
- Strainer box	1.5	0.13		
- Weeping wall	2.0	0.22		
- Mechanical separator	3.0	0.52		
Separated pig slurry (liquid portion)	3.6	0.48		
Other (e.g. digestate) (including N and P content)**				

\*\* Manure type and N and P content of organic manures, excluding livestock manure, must also be provided in accordance with the Waste Management Licensing Regulations (NI) 2003.



## Imported and exported organic manures (from fertilisation plan) (continued)

Manure type	Nitrogen (N) content	Phosphorus (P) content	Imported quantity (tonnes)	Exported quantity (tonnes)
Cattle FYM - 25% DM	6.0	1.4		
Sheep manure FYM - 25% DM	7.0	1.4		
Pig FYM - 25% DM	7.0	2.6		
Broiler litter - 66% DM	33	7.0		
Broiler litter hot water heating - 72%DM	33.8	7.0		
Free range broilers - 57% DM	26.4	6.7		
Broiler breeders 0-18 weeks - 55% DM	17.5	11.8		
Broiler breeders 18-60 weeks - 60% DM	20.7	11		
Broiler breeders 0-60 weeks - 59% DM	20.2	11.2		
Pullets - 72% DM	32.7	12		
Layer manure - 30% DM	16	5.7		
Free range layers - 46% DM	18.8	7.5		
Turkey litter 0-6 weeks, 6 weeks-kill & 0-kill - 58% DM	24.8	6.0		
Duck manure - 25% DM	6.5	2.4		
Horse manure FYM - 25% DM	5.0	2.2		
Goat manure FYM - 40% DM	9.5	2.0		
Spent mushroom compost	8.0	1.5		
Separated cattle slurry (solid portion)	4.0	0.87		
Separated pig slurry (solid portion)	5.0	1.6		
Other (including N and P content)**				

\*\* Manure type and N and P content of organic manures, excluding livestock manure, must also be provided in accordance with the Waste Management Licensing Regulations (NI) 2003.

The information provided in **pages 3-7** will be used by the NIEA to calculate the livestock nitrogen loading for your farm for 20XX. You can check compliance with the limit of 250 kg N per ha per year by using the Livestock Manure Nitrogen Loading Calculator which is available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices) or you can use the worksheets in the NAP 2019-2022 Workbook.

Only complete this table if you have exported any organic manure during 20XX.

**Notes:**

- For derogated farms, a record of all manure exports in a calendar year, must be submitted to NIEA annually using DAERA online services available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices) by 1 March of the following year. (Non-derogated farms must submit records by 31 January for the previous calendar year). You will also need to keep a copy of the record on the farm as it may be required during an inspection.
- Under the NAP Regulations and Cross-Compliance it is an offence to provide false or misleading information and penalties can apply, i.e. a fine under NAP or reduced Area-Based Scheme payments under Cross-Compliance.
- Any total nitrogen (kg) exported should be subtracted from the total nitrogen excretion value for the livestock manure nitrogen loading calculation.
- For organic manures other than livestock manure (for example, anaerobic digestate), it is the producer's responsibility to provide the user with a nutrient analysis, so that they can calculate nutrient loadings. If you are exporting organic manures other than livestock manures or anaerobic digestate (for example, sewage sludge), contact NIEA to discuss the type of manure, the rules controlling its use and whether you are required to provide a nutrient analysis and at what frequency.

**Example:**

Exporter's name:		John Smith		Exporter's Business ID:		675256	
Required			Optional		Required		
Date moved	Type of livestock manure	Quantity (tonnes or m <sup>3</sup> ) <sup>(1)</sup> (A)	Nitrogen content of manure kg/m <sup>3</sup> or kg/t (see Annex B) (B)	Total nitrogen kg <sup>(3)</sup> (AxB)	Transporter's name and address	Importer's name and Business ID <sup>(2)</sup>	
01/03/xx	Broiler Litter	141	33	4,653	John Smith 1 Bigfarm Rd, BT2 7AG	John Smith Bus ID:123456	

Table for completion and to be kept on farm:

Exporter's name:		Exporter's Business ID:				
Required			Optional		Required	
Date moved	Type of livestock manure	Quantity (tonnes or m <sup>3</sup> ) <sup>(1)</sup> (A)	Nitrogen content of manure kg/m <sup>3</sup> or kg/t (see Annex B) (B)	Total nitrogen kg <sup>(3)</sup> (AxB)	Transporter's name and address	Importer's name and Business ID <sup>(2)</sup>

<sup>(1)</sup> (1m<sup>3</sup> = 220 gallons).

<sup>(2)</sup> For exports to RoI, importer's Herd No. should be included instead of Business ID.

<sup>(3)</sup> There is no requirement to make this calculation, but it may help you assess your nitrogen loading status.

Table for completion and to be kept on farm:

Exporter's name:			Exporter's Business ID:			
Required			Optional		Required	
Date moved	Type of livestock manure	Quantity (tonnes or m <sup>3</sup> ) <sup>(1)</sup> (A)	Nitrogen content of manure kg/m <sup>3</sup> or kg/t (see Annex B) (B)	Total nitrogen kg <sup>(3)</sup> (AxB)	Transporter's name and address	Importer's name and Business ID <sup>(2)</sup>

<sup>(1)</sup> (1m<sup>3</sup> = 220 gallons).

<sup>(2)</sup> For exports to RoI, importer's Herd No. should be included instead of Business ID.

<sup>(3)</sup> There is no requirement to make this calculation, but it may help you assess your nitrogen loading status.

Complete this table with details of chemical fertiliser stocks, purchases and sales for 20XX.

Record the tonnage and N and P content of all chemical fertiliser stocks on 1 January and 31 December and the tonnage and N and P content of chemical fertiliser imported in and exported off the farm during 20XX. This will allow NIEA to determine if you have complied with the chemical nitrogen restrictions. You can check compliance with this limit by using the N Max for Grassland Calculator for grass and the Crop Nutrient Recommendation Calculator for crops other than grass which are available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices). Alternatively you can check the limits in the NAP 2019-2022 Guidance Booklet **Section 6** for grassland and crops and use the worksheets in the NAP 2019-2022 Workbook.

This fertiliser record will also be used by the NIEA to check compliance with the P Balance.

**Chemical fertilisers held on 1 January 20XX (held from previous year).**

Fertiliser type for example 25:5:5			Quantity (tonnes)
N	P (P <sub>2</sub> O <sub>5</sub> )	K	

Chemical fertilisers (purchased/imported and sold/exported) in 1 January to 31 December 20XX.

Date	N	P (P <sub>2</sub> O <sub>5</sub> )	K	Amount purchased or imported on to farm (tonnes)	Amount sold or exported off farm (tonnes)

Chemical fertilisers held on 31 December 20XX (not used during year and held for following year).

Fertiliser type for example 25:5:5			Quantity (tonnes)
N	P (P <sub>2</sub> O <sub>5</sub> )	K	

# 6 Dirty water management

Complete this page with details of how you manage and store dirty water.

How is your dirty water managed?

Stored with slurry

Stored separately

If other please specify

---

---

---

---

---

Complete this section to calculate the N balance for each crop area (including grass). **Total N applied should not exceed maximum N fertiliser application limits.**

A N Balance should be calculated to demonstrate compliance with the nitrogen limits. You can also check compliance with these limits using the N Balance worksheet at **Annex C**, alternatively, use the N Max for Grassland Calculator for grass and the Crop Nutrient Recommendation Calculator for crops other than grass which are available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices).

N Balance is the difference in kg per ha between the maximum N fertiliser application limit and the N applied to each crop area (including grass)

$$\begin{array}{l} \mathbf{N\ Balance} \\ \text{for the calendar year} \end{array} = \text{Maximum N fertiliser application limit} - \text{N applied}$$



## Step 1 - N APPLIED

### N Applied includes:

- N in organic manures applied to grassland and crops. For grassland record the total organic manure (excluding livestock manure) (Examples of organic manures other than livestock manures include spent mushroom compost, sewage sludge, abattoir waste and anaerobic digestate not containing any livestock manure). For all other crops record the total organic manure (including livestock manure) and N applied to each crop area
- N in chemical fertilisers applied to grassland and crops (already entered in table at **page 11**).

## Step 2 - Maximum N fertiliser application limits

### N fertiliser application limits include:

- The maximum N fertiliser application limit for grassland is 272 kg per ha per year for dairy farms and 222 kg per ha per year for other livestock farms.
- The maximum N fertiliser application limit for other crops must be in compliance with crop nitrogen requirement (refer to **section 6** in the NAP 2019-2022 Guidance Booklet or **Annex A pages 31-35**)

### Please note:

The maximum N fertiliser application limit for grassland refers to the maximum amounts of available nitrogen from organic manures (excluding livestock manures) and chemical fertiliser that can be applied to the whole grassland area. Livestock manure nitrogen has already been taken into consideration in the N fertiliser application limits for grassland.

Where N Max-cereal crops are grown an additional 20 kg N per ha is permitted for every tonne that the expected yield exceeds the standard yield.

**N APPLIED - Nitrogen application details grassland**

Complete these tables with details of organic manure and chemical fertiliser applied to your grassland area and crops during 20XX.

Record the type and quantity of organic manure (excluding livestock manure) and chemical fertiliser applied to your grassland area. (Examples of organic manures other than livestock manures include spent mushroom compost, sewage sludge, abattoir waste and anaerobic digestate not containing any livestock manure). This will help NIEA to determine if you have complied with the maximum N fertiliser application limit for grassland.

	Nitrogen (N) application for all grassland			
Crop type	Organic manure N (excluding livestock manure) applied		Chemical N fertiliser applied	
	Type	Quantity (tonnes or m <sup>3</sup> )	Type	Quantity (kg)
Grassland				

**N APPLIED - Nitrogen application details arable crops**

Record the quantity of organic manure (including livestock manure) and chemical fertiliser applied to each crop area. This will help NIEA to determine if you have complied with the maximum N fertiliser application limit for other crops.

Crop type	Nitrogen (N) application for all arable crops (including N-max crops)			
	Organic manure N (excluding livestock manure) applied		Chemical N fertiliser applied	
	Type	Quantity (tonnes or m <sup>3</sup> )	Type	Quantity (kg)

**N APPLIED - Nitrogen application details arable crops**

Record the quantity of organic manure (including livestock manure) and chemical fertiliser applied to each crop area. This will help NIEA to determine if you have complied with the maximum N fertiliser application limit for other crops.

Crop type	Nitrogen (N) application for all arable crops (including N-max crops)			
	Organic manure N (excluding livestock manure) applied		Chemical N fertiliser applied	
	Type	Quantity (tonnes or m <sup>3</sup> )	Type	Quantity (kg)

**Recommended record sources of N applications.**

Agricultural product	Recommended record source
Manure & fertiliser applications	Fertilisation plan
N content of non-livestock organic manures	N content from a lab report
Fertiliser analysis	Fertiliser invoices/fertiliser account.

Refer to **page 20-21** (column K), **23-24** (column L) & **26-27** (column M) of your fertilisation plan for total N applied per hectare; to grassland, N-max crops and other crops.

For further information on maximum N fertiliser application limits refer to NAP 2019-2022 Guidance Booklet, **Section 6** for grassland and other crop. A list of maximum fertiliser N application limits for crops and N content of organic manures can be found in **Annex A & B, pages 31-37**.

A N Balance does not have to be calculated but doing so will help you ensure you have complied with the limit. A worked example of how a N Balance is calculated is outlined on **pages 20-21** and a blank N Balance worksheet is included at **Annex C**.

In addition a N Max for Grassland and Crop Nutrient Calculator are available on the website [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices).

## Example of a calculated N Balance (for a 64 ha, 100 cow dairy farm with 132,000 broilers per year)

This is a worked example of a N Balance calculations. To calculate the N Balance yourself you can complete the N Balance worksheet at **Annex C** or use the N Max for Grassland calculator and Crop Nutrient Calculator at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices)

Grassland area (ha)	kg N applied			
	Organic manure type	Amount applied (tonnes or m <sup>3</sup> )	N content	Quantity N (kg)
56.78	None			
	Chemical fertiliser type	Amount applied (kg)	% N content	
	Fertiliser 27.0.0	25,000	27%	25,000x27% = 6,750
	27.6.12	1,600	27%	1,600x27% = 432
	46.0.0	10,000	46%	10,000x46% = 4,600
	<b>Total N Applied</b>			<b>11,782 kg N</b>
	<b>Maximum N fertiliser application limit</b>	<b>272 kg N/ha(A)</b>	-	<b>N Applied per ha</b>
<b>N Balance (A-B)</b>				<b>64 kg N</b>

For grassland N applied is less than the maximum N fertiliser application limit, therefore, compliant with this aspect of the Derogation.

## Example of a calculated N Balance (for a 64 ha, 100 cow dairy farm with 132,000 broilers per year) (continued)

Crop type & area (ha)	N applied			
Wheat 4.22 ha	Organic manure type	Amount applied (tonnes or m <sup>3</sup> )	N content	Quantity N (kg)
	Broiler litter	9.1 t	9.9	9x9.9 = 89.1
	Chemical fertiliser type	Amount applied (kg)	% N content	+
	Fertiliser 46.0.0	400	46%	400x46% = 184
	27.6.12	300	27%	300x27% = 81
	Total N Applied			354.1 kg N
Maximum N fertiliser application limit	220 N-Max limit (A)	-	N Applied per ha	354.1/4.22 = 83.9 kg N/ha (B)
N Balance (A-B)				136.4 kg N

Crop type & area (ha)	N applied			
Forage maize 3 ha	Organic manure type	Amount applied (tonnes or m <sup>3</sup> )	N content	Quantity N (kg)
	Cattle slurry	111 m <sup>3</sup>	1.0	111x1.0 = 111
	Chemical fertiliser type	Amount applied (kg)	% N content	+
	Fertiliser 25.0.5	600	25%	600x25% = 150
	Total N Applied			261 kg N
Maximum N fertiliser application limit	100 (A)	-	N Applied per ha	261/3 = 87 kg N/ha (B)
N Balance (A-B)				13 kg N

For each crop N applied is less than the maximum N fertiliser application limit, therefore, compliant with this aspect of the Derogation.

## Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance)

Complete this section to calculate the P Balance for your holding and check if you have complied with the **10 kg P per ha per year limit for 20XX**.

A P balance should be calculated to demonstrate compliance with the 10 kg P per ha per year limit. You can also check compliance with these limits using the P balance worksheet at Annex E, Alternatively, you can use the P Balance Calculator available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices)

P Balance is the difference in kg per ha in agricultural products containing phosphorus (P) that are purchased/imported onto the farm (inputs) and those sold/exported off the farm (outputs):

$$\text{P Balance for the calendar year} = \frac{\text{Inputs} - \text{Outputs}}{\text{Eligible agricultural area controlled}}$$



## Step 1 - P INPUTS.

### Inputs include:

- P in chemical fertiliser purchased/imported (quantity and P content) (already entered in table on **page 11 Section 5**).
- P in any organic manure imported onto farm (quantity and P content) (already entered in table at **page 6 Section 3**).
- P in feedstuffs (including concentrates/straights/silage/straw/hay) purchased/imported onto farm (quantity and P content) (enter into table on **page 24**).
- P in livestock bought in (enter into table on **page 26**).

## Step 2 - P OUTPUTS

### Outputs include:

- P exported in organic manures (quantity and P content) (already entered in table at **page 6 Section 3**).
- P in produce sold/exported off the farm, e.g. meat, milk or crops (enter into table on **page 27**).
- P in livestock sold/exported off the farm (enter into table on **page 28**).

### Please note:

Standard P contents of common agricultural feedstuffs and products are shown in **Annex D**.

For concentrates, if you wish to use lower P contents than those shown you must submit documentation from your feed supplier with your fertilisation account showing the P content of the feeds used. Failure to submit will mean that the standard value will be used. Evidence should include a letter/invoice from the meal supplier containing:

- Your name and address;
- The P content and tonnage of the feed;
- Date supplied; and
- In the absence of a letterhead the note should be signed by the supplier together with their contact details.  
(See example note, **page 25**).

## Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) (continued)

### P INPUTS - Purchased feedstuffs including concentrates/straights/silage/straw/hay.

Complete this table with all feedstuffs purchased during 20XX (do not include home grown feedstuffs).

Feedstuff type*	Amount purchased per year (t)	Phosphorus (P) content** (kg per t)***

\* The P content of feedstuffs, including different types of concentrates are listed in **Annex D**.

\*\* If you purchased a concentrate with a lower P content you must submit documentation from your feed supplier with your fertilisation account to show the P content in the feed.

\*\*\* To convert from % P to kg per t multiply the % by 10.

**P INPUTS - An example of a note from a meal supplier if you are deviating from the standard phosphorus (P) figures per tonne of concentrates.**

	Inshalleen Mills Ballymills Co. Tyrone BT2 9ZZ
	4/1/2020
John Smith 1 Bigfarm Road Ballyhome BT2 7AG	
<b>Deliveries for the period 1 January 2020 to 31 December 2020</b>	
250 tonnes of supreme dairy mix feed with a P content of 0.55%	
30 tonnes of heifer concentrates with a P content of 0.53%	
475 tonnes of broiler concentrates with a P content of 0.47%	

(To convert from % P to kg per t multiply the % by 10).

# Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) (continued)

## P INPUTS - Livestock bought in.

Complete this table with all livestock bought in during 20XX (all columns must be completed).

Livestock type	Number bought in year	Average live weight of livestock (kg)	Total live weight of livestock (kg)
Dropped calves (50 kg)		Weight not required	
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Pigs			
Pigs			
Pigs			
Pigs			
Other please specify			

## Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) (continued)

### P OUTPUTS - Crop produce sold/exported off farm.

Complete this table with all crop products sold/exported during 20XX.

Crop produce type	Amount sold per year (t)
Silage	
Hay	
Straw	
Barley	
Potatoes	
Wheat	
Oats	
Other - please specify	

### P OUTPUTS - Livestock produce sold/exported off farm.

Complete this table with all livestock products sold/exported during 20XX.

Livestock produce type	Amount/number sold
Milk (litres)	
Wool (tonnes)	
1,000 broilers - conventional	
1,000 broilers - hot water heating	
1,000 free range broilers	
1,000 broiler breeders 0-18 weeks	
1,000 broiler breeders 18-60 weeks (including eggs)	
1,000 broiler breeders 0-60 weeks (including eggs)	
1,000 layers (including eggs)	
1,000 pullets	
1,000 free range layers (including eggs)	
1,000 turkeys 0-6 weeks	
1,000 turkeys 6 weeks-kill	
1,000 turkeys 0-kill	
1,000 ducks	
Other	

# Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) (continued)

## P OUTPUTS - Livestock leaving the farm.

Complete this table with all livestock sold/removed during 20XX (all columns must be completed).

Livestock type	Number sold in year	Average live weight of livestock (kg)	Total live weight of livestock (kg)
Dropped calves (50 kg)		Weight not required	
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Cattle			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Sheep/lambs			
Pigs			
Pigs			
Pigs			
Pigs			
Other please specify			

\* Include fallen animals.

## Agricultural products that contain phosphorus imported on (inputs) and exported off (outputs) the farm (P Balance) (continued)

### Recommended record sources of agricultural products.

Agricultural product	Recommended record source
Milk	Milk cheque details.
Livestock cattle	Herd record details.
Livestock sheep	Flock record details.
Livestock pig	Herd register/management records.
Livestock poultry	Industry flock records.
Fertiliser	Fertiliser invoices/fertiliser account.
Concentrates	Invoices. (Documentation showing phosphorus (P) content if deviating from standard figures must be submitted with your fertiliser account).
Imported/exported manures	Amounts and P content of manures imported and exported.
Crop products such as hay, straw or potatoes	Invoices from seller or purchaser.

A list of agricultural products and their P contents may be found on **Annex D**.

A P Balance does not have to be calculated but doing so will help you ensure you have complied with the limit.

A worked example of how a P Balance is calculated is outlined on **page 30** and a blank P Balance worksheet is included at **Annex E**.

In addition a Phosphorus Balance Calculator is available on the website [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices)

## Example of a calculated P Balance (for a 64 ha, 100 cow dairy farm with 132,000 broilers per year)

This is a worked example of a P Balance calculation. To calculate the P Balance yourself you can complete the P Balance worksheet at **Annex E**, or use the P Balance Calculator at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices)

	Amount	Phosphorus (P) content (kg per unit)	Kg P in (P bought or imported)	Kg P out (P sold or exported)
Chemical fertiliser type*				
Fertiliser 27:6*:12	1.9 t	(6 x 4.36) <b>26.16</b>	(1.9 x 26.16) = <b>49.7 kg</b>	-
Concentrates**				
Concentrates dairy cow	250 t	5.5	(250 x 5.5) = <b>1,375 kg</b>	-
Concentrates heifer	30 t	5.3	(30 x 5.3) = <b>159 kg</b>	-
Concentrates broilers	475 t	4.7	(475 x 4.7) = <b>2,232.5 kg</b>	-
Other products				
Litres of milk sold	650,000	0.001	-	(650,000 x 0.001) = <b>650 kg</b>
Dropped calves sold	50	0.33	-	(50 x 0.33) = <b>16.5 kg</b>
Cattle sold	15,000	0.0066	-	(15,000 x 0.0066) = <b>99 kg</b>
Cattle bought	3,000	0.0066	(3,000 x 0.0066) = <b>19.8 kg</b>	-
Broilers (1,000)	132	12	-	(132 x 12) = <b>1,584 kg</b>
Exported broiler litter	141 t	7	-	(141 x 7) = <b>987 kg</b>
		<b>Totals</b>	<b>3,836 kg A</b>	<b>3,336.5 kg B</b>
		<b>P Balance ( A-B)</b>	(3,836 kg - 3,336.5 kg) = <b>+ 499.5 kg</b>	
		<b>P Balance/(eligible agricultural area)</b>	(499.5 kg per 64 ha ) = <b>+ 7.80 kg per ha</b>	

\* (multiply P<sub>2</sub>O<sub>5</sub> % level on fertiliser bag by 4.36 to convert to kg P in 1 tonne).

\*\* (every 0.1% P in a ration equates to 1 kg P per t).

This is below the P Balance limit of + 10 kg per ha per year, therefore, compliant with this aspect of the Derogation.



Maximum nitrogen fertiliser application limits (kg N per ha) for arable and forage crops.

Crop	Previous crop		
	Cereals; sugar beet; peas; beans; oilseed rape; potatoes; Low/Medium N vegetables; forage crops (cut); uncropped land; all leys with 2 or more cuts annually receiving little or no manure; 1-2 year leys, Low N; 1-2 year leys, 1 or more cuts; 3-5 year leys, Low N, 1 or more cuts.	High N vegetables; 1-2 year leys, High N, grazed; 3-5 year leys, low N, grazed; 3-5 year leys, High N, 1 cut then grazed.	3-5 year leys, High N, grazed.
	SNS 1	SNS 2	SNS 3
Winter wheat, winter triticale*	220	190	160
Winter barley	170	140	110
Winter oats	160	130	100
Winter rye	120	90	60
Spring wheat	180	150	120
Spring barley	140	110	70
Spring oats, spring rye, triticale	110	70	40
Winter oilseed rape	190 (+30 seedbed)	160 (+30 seedbed)	120
Spring oilseed rape	120	80	50
Spring linseed	80	50	0-40
Forage maize	100	50	20
Peas (dried & vining) and beans	0	0	0
Sugar beet	120	100	80

Crop	Previous crop		
	Cereals; sugar beet; peas; beans; oilseed rape; potatoes; Low/Medium N vegetables; forage crops (cut); uncropped land; all leys with 2 or more cuts annually receiving little or no manure; 1-2 year leys, Low N; 1-2 year leys, 1 or more cuts; 3-5 year leys, Low N, 1 or more cuts.	High N vegetables; 1-2 year leys, High N, grazed; 3-5 year leys, low N, grazed; 3-5 year leys, High N, 1 cut then grazed.	3-5 year leys, High N, grazed.
	SNS 1	SNS 2	SNS 3
Forage swedes and turnips (65 t per ha roots removed)	80	60	40
Fodder beet (85 t per ha roots removed)	120	110	90
Forage rape, swedes and stubble turnips (grazed)	80	60	40
Kale (grazed)	120	110	90

\*Winter forage triticale is generally harvested earlier than winter triticale grown for grain. Nitrogen recommendations are therefore 50 kg N per ha lower than for winter triticale grown for grain.

Nitrogen requirements for all other wholecrop cereals are the same as those for cereals grown for grain.

**N Max limits for cereal crops.**

Crop type	Maximum permitted N (kg N per ha)*	Standard yield (t per ha)**
Winter wheat	220	8.0
Spring wheat	180	6.0
Winter barley	170	6.5
Spring barley	140	5.5
Winter oats	140	6.0
Spring oats	110	6.0

\* For all crops in the table, an additional 20 kg N per ha is permitted for every tonne that the expected yield exceeds the standard yield. Evidence of this must be demonstrated by overall farm crop yield in any of the previous three years.

\*\* Standard yield (t per ha) as per AHDB Nutrient Management Guide (Feb 2020 edition).

## Maximum nitrogen fertiliser application limits (kg N per ha) for potatoes.

Length of growing season (50% emergence to haulm death)	Variety group*	Previous crop	
		SNS 1	SNS 2 and 3
		Cereals; sugar beet; peas; beans; oilseed rape; potatoes; Low/Medium N vegetables; forage crops (cut); uncropped land; all leys with 2 or more cuts annually receiving little or no manure; 1-2 year leys, Low N; 1-2 year leys, 1 or more cuts; 3-5 year leys, Low N, 1 or more cuts	High N vegetables; 1-2 year leys, High N, grazed; 3-5 year leys, low N, grazed; 3-5 year leys, High N, 1 cut then grazed; 3-5 year leys, High N, grazed
<60 days	Variety group 1	140	110
	Variety group 2	120	80
	Variety group 3	100	70
60 - 90 days	Variety group 1	210	160
	Variety group 2	160	120
	Variety group 3	140	100
	Variety group 4	80	40
90 - 120 days	Variety group 1	270	220
	Variety group 2	220	160
	Variety group 3	180	100
	Variety group 4	140	60
>120 days	Variety group 2	250	180
	Variety group 3	210	140
	Variety group 4	180	80

\* Examples of varieties in each variety group are as follows:

Group 1	Short haulm longevity (Determinate varieties)	Accord, Annabelle, Anya, Colmo, Estima, Inovator, Maris Bard, Minerva, Premiere, Rocket, Vales Emerald and Winston.
Group 2	Medium haulm longevity (Partially determinate varieties)	Atlantic, Amanda, Arcade, Carlingford, Charlotte, Courage, Dundrod, Endeavour, Harmony, Juliette, Kestrel, Lady Claire, Lady Rosetta, Marfona, Maris Peer, Maritiema, Melody, Miranda, Mozart, Nadine, Nicola, Orchestra, Orlan, Osprey, Pentland Javelin, Rembrandt, Romano, Saxon, Shannon, Shepody, Vivaldi and Wilja.
Group 3	Long haulm longevity (Indeterminate varieties)	Maincrop varieties such a Agria, Ambo, Amora, Cabaret, Ceasar, Cosmos, Cultra, Daisy, Desiree, Eos, Fambo, Fianna, Hermes, Kerr's Pinks, King Edward, Lady Christi, Lady Valora, Maris Piper, Morene, Navan, Pentland Dell, Pentland Squire, Picasso, Record, Rooster, Russet Burbank, Sante,Sassy, Saturna, Slaney, Stemster, Valor and Victoria.
Group 4	Very long haulm longevity	Asterix, Cara, Lady Balfour, Markies, Royal, Vales Everest, Vales Sovereign.

Nitrogen (N) content and availability values for organic manures (all on a fresh weight basis).

Slurry type	Nitrogen (N) content	Available N (kg per m <sup>3</sup> )
Cattle slurry - 2% DM	1.6	0.64
<b>Cattle slurry - 6% DM</b>	2.6	1.0
Cattle slurry - 10% DM	3.6	1.4
Pig slurry - 2% DM	3.0	1.5
<b>Pig slurry - 4% DM</b>	3.6	1.8
Pig slurry - 6% DM	4.4	2.2
<b>Separated cattle slurry (liquid portion)</b>		
- Strainer box	1.5	0.6
- Weeping wall	2.0	0.8
- Mechanical separator	3.0	1.2
<b>Separated pig slurry (liquid portion)</b>	3.6	1.8
Other e.g. digestate		

Nitrogen (N) content and availability values for organic manures (all on a fresh weight basis).

Manure type	Nitrogen (N) content	Available N (kg per m <sup>3</sup> )
Cattle FYM - 25% DM	6.0	1.8
Sheep manure FYM - 25% DM	7.0	2.1
Pig manure FYM - 25% DM	7.0	2.1
Broiler litter - conventional - 66% DM	33	9.9
Broiler litter - hot water heating - 72% DM	33.8	10.1
Free range broilers - 57% DM	26.4	7.9
Broiler Breeders 0-18 weeks - 55% DM	17.5	5.3
Broiler Breeders 18-60 weeks - 60% DM	20.7	6.2
Broiler Breeders 0-60 weeks - 59% DM	20.2	6.1
Turkeys 0-6 weeks - 58% DM	24.8	7.4
Turkeys 6 weeks - kill - 58% DM	24.8	7.4
Turkeys 0-kill - 58% DM	24.8	7.4
Pullets - 72% DM	32.7	9.8
Layer manure - 30% DM	16	4.8
Free range laying hens - 46% DM	18.8	5.6
Duck manure - 25% DM	6.5	2.0
Horse manure FYM - 25% DM	5.0	2.1
Goat manure FYM - 40% DM	9.5	2.9
Spent mushroom compost	8.0	1.6
Separated cattle slurry (solid portion)	4.0	1.2
Separated pig slurry (solid portion)	5.0	1.5
Other		

For 1st January 20XX to 31st December 20XX.

This worksheet will assist you to comply with the N Balance limit. Alternatively you can use the N Max for Grassland Calculator for grass and the Crop Nutrient Calculator for crops other than grass both are available at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices).

### Calculating N Balance - Step 1 - N APPLIED

#### N APPLIED - Grassland.

1. Enter the manure type (excluding livestock manure) and the amount applied to grassland. Multiply the amount applied by the available N content.
2. Enter the fertiliser type and the amount applied to each crop. Multiply the amount applied by the N % and divide by 100.
3. Total the quantity of N from organic manures and chemical fertilisers applied to each crop.
4. For each crop divide by the total area of crop grown.
5. Enter the quantity of nitrogen applied per ha.

#### Example:

	N applied* (kg)												
	Organic manure type	Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)		
Grassland	None		x		=		11,782	÷	56.78	=	207.5 (A)		
			x		=								
			x		=								
	Chemical fertiliser	Amount applied (kg)	x	% N content	÷ 100	=						+	
	N	P <sub>2</sub> O <sub>5</sub>	K										
	27	0	0	25,000 kg	x	27%						÷ 100 =	6,750
	27	6	12	1,600 kg	x	27%						÷ 100 =	432
	46	0	0	10,000 kg	x	46%						÷ 100 =	4,600

\* For grassland record the total organic manure (excluding livestock manure) and chemical fertiliser N applied. (Examples of organic manures other than livestock manures include spent mushroom compost, sewage sludge, abattoir waste and anaerobic digestate not containing any livestock manure).

\*\* The Nitrogen (N) content and availability of manures, are listed in **Annex B**.



### N INPUTS - Grassland.

	N applied* (kg)													
	Organic manure type			Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)	
Grassland					x		=						(A)	
					x		=							
					x		=							
					x		=							
					x		=							
		Chemical fertiliser			Amount applied (kg)	x	% N content	÷ 100	=	+				(A)
		N	P <sub>2</sub> O <sub>5</sub>	K		x		÷ 100	=					
						x		÷ 100	=					
						x		÷ 100	=					
						x		÷ 100	=					
					x		÷ 100	=						
					x		÷ 100	=						

\* For grassland record the total organic manure (excluding livestock manure) and chemical fertiliser N applied. (Examples of organic manures other than livestock manures include spent mushroom compost, sewage sludge, abattoir waste and anaerobic digestate not containing any livestock manure).

\*\*The Nitrogen (N) content and availability of organic manures, are listed in **Annex B**.

### N INPUTS - Crops.

1. Enter the manure type (including livestock manure) and the amount applied to each crop. Multiply the amount applied by the available N content.
2. Enter the fertiliser type and the amount applied to each crop. Multiply the amount applied by the N % and divide by 100.
3. Total the quantity of N from organic manures and chemical fertilisers applied to each crop.
4. For each crop divide by the total area of crop grown.
5. Enter the quantity of N applied per ha.

#### Example:

		N applied* (kg)										
		Organic manure type	Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)
Winter wheat	Broiler litter	9 t	x	9.9	=	89.1	354.1	÷	4.22	=	83.9 (B)	
		x		=								
	Chemical fertiliser	Amount applied (kg)	x	% N content	÷ 100	=						+
	N	P <sub>2</sub> O <sub>5</sub>	K									
	46	0	0	400 kg	x	46%						÷ 100 = 184
	27	6	12	300 kg	x	27%						÷ 100 = 81

		N applied* (kg)										
		Organic manure type	Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)
Winter wheat	Cattle slurry	111 m <sup>3</sup>	x	1.0	=	111	261	÷	3	=	87 (C)	
		x		=								
	Chemical fertiliser	Amount applied (kg)	x	% N content	÷ 100	=						+
	N	P <sub>2</sub> O <sub>5</sub>	K									
	25	0	5	600 kg	x	25%						÷ 100 = 150

\*For all other crops record the total organic manure (including livestock manure) and chemical fertiliser N applied to each crop area.

\*\* The Nitrogen (N) content and availability of manures, are listed in Annex B.

### N INPUTS - Crops.

Crop Type	N applied* (kg)												
	Organic manure type			Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)
					x		=						
					x		=						
					x		=						
					x		=						
	<b>Chemical fertiliser</b>			<b>Amount applied (kg)</b>	x	<b>% N content</b>	÷ 100	=	+	÷		=	<b>(B)</b>
	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K</b>										
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						

\*For all other crops record the total organic manure (including livestock manure) and chemical fertiliser N applied to each crop area.

\*\*The Nitrogen (N) content and availability of organic manures, are listed in **Annex B**.

### N INPUTS - Crops.

Crop Type	N applied* (kg)												
	Organic manure type			Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)
					x		=						
					x		=						
					x		=						
					x		=						
	<b>Chemical fertiliser</b>			<b>Amount applied (kg)</b>	x	<b>% N content</b>	÷ 100	=	+	÷		=	<b>(C)</b>
	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K</b>										
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						

\*For all other crops record the total organic manure (including livestock manure) and chemical fertiliser N applied to each crop area.

\*\*The Nitrogen (N) content and availability of organic manures, are listed in **Annex B**.

## N INPUTS - Crops.

Crop Type	N applied* (kg)												
	Organic manure type			Amount applied (tonne or m <sup>3</sup> )	x	Available N content**	=	kg N	Total N applied (kg N)	÷	Crop area (ha)	=	Total N applied per ha (kg N/ha)
					x		=						
					x		=						
					x		=						
					x		=						
	Chemical fertiliser			Amount applied (kg)	x	% N content	÷ 100	=	+	÷		=	(D)
	N	P <sub>2</sub> O <sub>5</sub>	K										
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						
				x		÷ 100	=						

\*For all other crops record the total organic manure (including livestock manure) and chemical fertiliser N applied to each crop area.

\*\*The Nitrogen (N) content and availability of organic manures, are listed in **Annex B**.

**Step 2 - Maximum N fertiliser application limits - N Balance.**

Enter the relevant maximum N fertiliser application limits for each crop and transfer the N inputs from the relevant sections. Calculate the N Balance by subtracting the N applied from the maximum N fertiliser application limit.

Crop Type	Maximum N fertiliser application limit*	-	N Applied per ha	=	N Balance	Is N applied less than maximum N fertiliser application limit
Grassland		-	(A from page 39)	=		
		-	(B from page 41)	=		
		-	(C from page 42)	=		
		-	(D from page 43)	=		
		-		=		

**N applied should be less than the maximum N fertiliser application limit to be compliant with this aspect of the Derogation**

\* The maximum N fertiliser application limit (272 kg/ha/year dairy, 222 kg/ha/year other farms), refers to the maximum amounts of available nitrogen from organic manures (excluding livestock manures) and chemical fertiliser that can be applied to the whole grassland area. Livestock manure nitrogen has already been taken into consideration in the N fertiliser application limits for grassland. Where N Max - cereal crops are grown an additional 20 kg N/ha is permitted for every tonne that the expected yield exceeds the standard yield.

Product	Phosphorus (P) content (kg per unit)
<b>Concentrates</b>	
1 t poultry concentrate (or use actual declared figures)	5
1 t pig concentrate (or use actual declared figures)	4.8
1 t ruminant concentrate (or use actual declared figures)	5.5
1 t other concentrates (or use actual declared figures)	5.8
<b>Livestock</b>	
Dropped calf (50 kg)	0.33
Cattle 1 kg	0.0066
Pigs/sows per 100 kg	0.5
Lambs/sheep per 100 kg	0.54
Kids/goats per 100 kg	0.54
*1,000 broilers - conventional	13.1
*1,000 broilers - hot water heating	13.1
*1,000 free range broilers	12.5
*1,000 broiler breeders 0-18 weeks	12.8
*1,000 broiler breeders 18-60 weeks (eggs included)	34
*1,000 broiler breeders 0-60 weeks (eggs Included)	46.8
*1,000 turkeys 0-6 weeks	11.1
*1,000 turkeys 6 weeks-kill	25.5

Product	Phosphorus (P) content (kg per unit)
<b>Livestock</b>	
*1,000 turkey 0-kill	36.6
*1,000 ducks	11.4
*1,000 pullets	7.5
<b>Produce from livestock</b>	
Eggs from 1,000 layers (including eggs)	46.6
Eggs from 1,000 free range layers (including eggs)	43.2
1 litre milk	0.001
Wool per tonne	0.4
<b>Crop products</b>	
1 t straw	1.0
1 t silage	0.6
1 t hay	3.0
1 t potatoes	0.4
1 t oats	2.9
1 t barley	3.0
1 t wheat	2.6
1 t maize	2.5
1 t full fat soya	4.5
1 t linseed	8.1
1 t rape	11.0
1 t soya	6.8
1 t sunflower	9.3

Product	Phosphorus (P) content (kg per unit)
<b>Crop products</b>	
1 t gluten	9.6
1 t citrus	1.0
1 t wheat distillers	7.7
1 t corn distillers	7.7
1 t peas	4.4
1 t palm kernel	6.3
1 t pollard	10.0
1 t soya hulls	1.4
1 t sugar beet	1.0
1 t grass fresh	0.6
1 t whole crop wheat fresh	0.9
1 t whole crop wheat silage	0.9
1 t forage maize fresh	0.7
1 t forage maize silage	0.7
<b>Slurries</b>	
1 m <sup>3</sup> cattle slurry 2% DM	0.26
1 m <sup>3</sup> cattle slurry 6% DM (typical)	0.52
1 m <sup>3</sup> cattle slurry 10% DM	0.79
1 m <sup>3</sup> pig slurry 2% DM	0.36
1 m <sup>3</sup> pig slurry 4% DM (typical )	0.65
1 m <sup>3</sup> pig slurry 6% DM	0.96
Separated pig slurry (liquid portion)	0.48

Product	Phosphorus (P) content (kg per unit)
<b>Separated cattle slurries (liquid portion)</b>	
Strainer box	0.13
Weeping wall	0.22
Mechanical separator	0.52
<b>Solid Manures</b>	
1 t broiler litter	7.0
1 t layer manure	5.7
1 t turkey litter	6.0
1 t duck manure	2.4
1 t cattle FYM	1.4
1 t sheep FYM	1.4
1 t goat manure	2.0
1 t pig FYM	2.6
1 t horse manure	2.2
Spent mushroom compost	1.5
Separated cattle slurry (solid portion)	0.87
Separated pig slurry (solid portion)	1.6
<b>Chemical fertiliser</b>	
1 t fertiliser	Multiply the %P <sub>2</sub> O <sub>5</sub> content by 4.36



For 1st January 20XX to 31st December 20XX.

This worksheet will assist you to comply with the P Balance limit of 10 kg P per ha per year.

Alternatively you can use the P Balance Calculator at [www.daera-ni.gov.uk/onlineservices](http://www.daera-ni.gov.uk/onlineservices).

### Step 1 - P Inputs

#### P INPUTS - Chemical Fertilisers

1. Enter the fertiliser type and the amount purchased per year.
2. Multiply the amount purchased per year by the  $P_2O_5$  % and then by 4.36 (to convert to kg P in 1 tonne).
3. Total the P content of fertilisers purchased and insert in **Box A**.

#### Example:

Fertiliser type			Amount purchased or imported (t)	x	% $P_2O_5$	X 4.36	=	Quantity of phosphorus (kg)
N	P $P_2O_5$	K						
27	6	12	1.9	x	6	x 4.36	=	49.7
Total P content of chemical fertilisers (kg P/year)							=	49.7

Fertiliser type			Amount purchased or imported (t)	x	% P <sub>2</sub> O <sub>5</sub>	X 4.36	=	Quantity of phosphorus (kg)
N	P P <sub>2</sub> O <sub>5</sub>	K						
				x		x 4.36	=	
				x		x 4.36	=	
				x		x 4.36	=	
				x		x 4.36	=	
				x		x 4.36	=	
				x		x 4.36	=	
				x		x 4.36	=	
<b>Total P content of chemical fertilisers (kg P/year)</b>							<b>=</b>	<b>(A)</b>

**P INPUTS - Imported Organic Manures.**

1. Select the organic manure type and enter the amount imported per year. If 'Other' also enter the P content from the lab report.
2. Multiply the amount imported per year by the P content.
3. Total the P content of imported organic manures and insert in **Box B**.

**Example:**

Organic manure type	Amount imported (m <sup>3</sup> or t)	x	P content (kg P/m <sup>3</sup> or t)	=	Quantity of phosphorus (kg)
Cattle slurry - 2% DM		x	0.26	=	
<b>Cattle slurry - 6% DM</b>		x	0.52	=	
Cattle slurry - 10% DM		x	0.79	=	
Pig slurry - 2% DM		x	0.36	=	
<b>Pig slurry - 4% DM</b>		x	0.65	=	
Pig slurry - 6% DM		x	0.96	=	
Separated cattle slurry (liquid portion):					
- Strainer box		x	0.13	=	
- Weeping wall		x	0.22	=	
- Mechanical separator		x	0.52	=	
Separated pig slurry (liquid portion)		x	0.48	=	
Cattle FYM - 25% DM		x	1.4	=	
Sheep manure FYM - 25% DM		x	1.4	=	
Pig FYM - 25% DM		x	2.6	=	
Broiler litter - conventional - 66% DM		x	7.0	=	
Broiler - hot water heating - 72% DM		x	7.0	=	
Free range broilers - 57% DM		x	6.7	=	
Broiler breeders 0-6 weeks 55% DM		x	11.8	=	
Broiler breeders 6-18 weeks 60% DM		x	11.0	=	

Table continued from page 49.

Organic manure type	Amount imported (m <sup>3</sup> or t)	x	P content (kg P/m <sup>3</sup> or t)	=	Quantity of phosphorus (kg)
Broiler breeders 0-60 weeks 59% DM		x	11.2	=	
Turkeys 0-6 weeks 58% DM		x	6.0	=	
Turkeys 6-18 weeks 58% DM		x	6.0	=	
Turkeys 0- kill 58% DM		x	6.0	=	
Pullets - 72% DM		x	12.0	=	
Layer manure - 30% DM		x	5.7	=	
Free range layers - 46% DM		x	7.5	=	
Duck manure - 25% DM		x	2.4	=	
Horse manure FYM - 25% DM		x	2.2	=	
Goat manure FYM - 40% DM		x	2.0	=	
Spent mushroom compost		x	1.5	=	
Separated cattle slurry (solid portion)		x	0.87	=	
Separated pig slurry (solid portion)		x	2.0	=	
Other		x	P content from analysis	=	
<b>Total P content of imported organic manures (kg/year)</b>				<b>=</b>	<b>(B)</b>

**P INPUTS - Purchased feedstuffs including concentrates/straights/silage/straw/hay (Do not include home grown feedstuffs).**

1. Enter the feedstuff type and amount purchased per year.
2. Multiply the amount purchased per year by the P content of the feed, (or use the actual declared P content figure if known). Standard P contents are:
  - Unspecified concentrates is taken as 5.8 kg per tonne or 0.58%.
  - Ruminant concentrates is taken as 5.5 kg per tonne or 0.55%.
  - Poultry concentrates is taken as 5.0 kg per tonne or 0.50%.
  - Pig concentrates is taken as 4.8 kg per tonne or 0.48%.

If you purchased a concentrate with a lower P content you must supply documentation to demonstrate the P content. Evidence must include a letter/invoice from the feed supplier containing your name, address, the P content in the meal and dated. In the absence of a letterhead the note should be signed by the supplier together with their contact details.

3. Total the P content of feedstuffs used and insert in **Box C**.

**Example:**

Feedstuff type	Amount purchased per year (t)	x	P content (kg/t)	=	Quantity of phosphorus (kg)
Dairy cow winter meal	250	x	5.5	=	1,375
Broiler concentrates	475	x	4.7	=	2,232.5
Heifer concentrates	30	x	5.3	=	159
<b>Total P content of feedstuffs purchased/imported (kg P/year)</b>				=	<b>3,766.5</b>

Feedstuff type	Amount purchased per year (t)	x	P content (kg/t)	=	Quantity of phosphorus (kg)
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	
<b>Total P content of feedstuffs purchased/imported (kg P/year)</b>				=	<b>(C)</b>

For the P content of a range of feedstuffs please see **Annex D**.

**P INPUTS - Livestock bought in.**

1. Enter the number of livestock purchased and total live weight of these livestock.
2. Multiply the total live weight by the P Content.
3. Total the P content of all livestock bought in and insert in **Box D**.

**Note:** Poultry numbers are not required here as P inputs are accounted for in livestock produce in P outputs.

**Example:**

Livestock type	Number brought in per year	x	Average live weight (kg)	x	P content (kg/unit)	=	Quantity of phosphorus (kg)
Cattle	5	x	650	x	0.0066	=	21.45
<b>Total P content of livestock purchased/imported in kg P/year</b>						<b>=</b>	<b>21.45</b>

Livestock type	Number brought in per year	x	Average live weight (kg)	x	P content (kg/unit)	=	Quantity of phosphorus (kg)
Dropped calves (50 kg)*				x	0.33	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Sheep/lambs		x		x	0.0054	=	
Sheep/lambs		x		x	0.0054	=	
Sheep/lambs		x		x	0.0054	=	
Pigs		x		x	0.0050	=	
Pigs		x		x	0.0050	=	
Pigs		x		x	0.0050	=	
Other please specify		x		x		=	
<b>Total P content of livestock purchased/imported in kg P/year</b>						<b>=</b>	<b>(D)</b>

\*For dropped calves the weight is not needed.



**Step 2 - P Outputs.****P OUTPUTS - Crop Produce.**

1. Select the crop produce type and enter the amount sold off the farm per year.
2. Multiply the amount sold per year by the P content.
3. Total the P content of crop produce sold and insert in **Box E**.

Crop produce type	Amount sold per year (t)	x	P content (kg/t)	=	Quantity of phosphorus (kg)
Silage		x	0.6	=	
Hay		x	3.0	=	
Straw		x	1.0	=	
Barley		x	3.0	=	
Potatoes		x	0.4	=	
Wheat		x	2.6	=	
Oats		x	2.9	=	
Other please specify		x		=	
		x		=	
<b>Total P content of crop produce sold (kg P/year)</b>				<b>=</b>	<b>(E)</b>

**P OUTPUTS - Exported Organic Manures.**

1. Select the organic manure type and enter the amount exported per year. If 'Other' also enter the P content from the lab report.
2. Multiply the amount exported per year by the P content.
3. Total the P content of exported organic manures and insert in **Box F**.

**Example:**

Organic manure type	Amount exported (m <sup>3</sup> or t)	x	P content (kg P/m <sup>3</sup> or t)	=	Quantity of phosphorus (kg)
Broiler Litter (66% DM)	100	x	7.00	=	1,091
<b>Total P content of exported organic manures (kg/year)</b>				<b>=</b>	<b>1,091</b>

Organic manure type	Amount exported (m <sup>3</sup> or t)	x	P content (kg P/m <sup>3</sup> or t)	=	Quantity of phosphorus (kg)
Cattle slurry - 2% DM		x	0.26	=	
<b>Cattle slurry - 6% DM</b>		x	0.52	=	
Cattle slurry - 10% DM		x	0.79	=	
Pig slurry - 2% DM		x	0.36	=	
<b>Pig slurry - 4% DM</b>		x	0.65	=	
Pig slurry - 6% DM		x	0.96	=	
Separated cattle slurry (liquid portion):					
- Strainer box		x	0.13	=	
- Weeping wall		x	0.22	=	
- Mechanical separator		x	0.52	=	
Separated pig slurry (liquid portion)		x	0.48	=	
Cattle FYM - 25% DM		x	1.4	=	
Sheep manure FYM - 25% DM		x	1.4	=	
Pig FYM - 25% DM		x	2.6	=	
Broiler litter conventional - 66% DM		x	7.0	=	
Broiler hot water heating - 72% DM		x	7.0	=	
Free range broilers - 57% DM		x	6.7	=	
Broiler breeders 0-6 weeks 55% DM		x	11.8	=	
Broiler breeders 6-18 weeks 60% DM		x	11.0	=	
Broiler breeders 0-60 weeks 59% DM		x	11.2	=	
Turkeys 0-6 weeks 58% DM		x	6.0	=	
Turkeys 6-18 weeks 58% DM		x	6.0	=	
Turkeys 0- kill 58% DM		x	6.0	=	
Pullets - 72% DM		x	12.0	=	

Organic manure type	Amount exported (m <sup>3</sup> or t)	x	P content (kg P/m <sup>3</sup> or t)	=	Quantity of phosphorus (kg)
Layer manure - 30% DM		x	5.7	=	
Free range layers - 46% DM		x	7.5	=	
Duck manure - 25% DM		x	2.4	=	
Horse manure FYM - 25% DM		x	2.2	=	
Goat manure FYM - 40% DM		x	2.0	=	
Spent mushroom compost		x	1.5	=	
Separated cattle slurry (solid portion)		x	0.87	=	
Separated pig slurry (solid portion)		x	1.6	=	
Other		x	P content from analysis	=	
<b>Total P content of imported organic manures (kg P/year)</b>				<b>=</b>	<b>(F)</b>

**P OUTPUTS - Livestock Produce Sold/Exported Off Farm.**

1. Select the livestock produce and enter the amount/number sold per year.
2. Multiply the amount/number sold per year by the P content.
3. Total the P content of livestock produce sold and insert in **Box G**.

**Example:**

Livestock produce type	Amount/number sold	x	P content (kg/unit year)	=	Quantity of phosphorus (kg)
Milk (litres)	650,000	x	0.001	=	<b>650</b>
1,000 Broilers	132	x	12	=	<b>1,584</b>
<b>Total P content of livestock produce sold (kg P/year)</b>				<b>=</b>	<b>2,234</b>

Livestock produce type	Amount/number sold	x	P content (kg/unit year)	=	Quantity of phosphorus (kg)
Milk (litres)		x	0.001	=	
Wool (tonnes)		x	0.4	=	
1,000 Broilers - conventional		x	12	=	
1,000 Broilers - hot water heating		x	7.0	=	
1,000 Free range broilers		x	6.7	=	
1,000 Broiler breeders 0-18 weeks		x	11.4	=	
1,000 Broiler breeders 18-60 weeks (including eggs)		x	33.5	=	
1,000 Broiler breeders 0-60 weeks (including eggs)		x	44.9	=	
1,000 Layers (including eggs)		x	42.5	=	
1,000 Pullets		x	7.9	=	
1,000 Free range layers (including eggs)		x	7.5	=	
1,000 Turkeys 0-6 weeks		x	6.0	=	
1,000 Turkeys 6 weeks-kill		x	6.0	=	
1,000 Turkeys 0-kill		x	6.0	=	
1,000 Ducks		x	11.4	=	
Other		x		=	
<b>Total P content of livestock produce sold (kg P/year)</b>				<b>=</b>	<b>(G)</b>

**P OUTPUTS - Livestock Leaving the Farm.**

1. Select the livestock type and enter the number leaving the farm and the total live weight of the animals.
2. Multiply the total weight by the P content.
3. Total the P content of all livestock moved off the farm and insert in **Box H**.

**Note:** The P outputs for poultry are already accounted for in animal produce P outputs.

**Example:**

Livestock type	Number Sold	x	Average live weight (kg)	x	P content (kg/unit)	=	Quantity of phosphorus (kg)
Cattle	30	x	500	x	0.0066	=	99
<b>Total P content of livestock sold/exported in kg P/year</b>						<b>=</b>	<b>99</b>

Livestock type	Number Sold	x	Average live weight (kg)	x	P content (kg/unit)	=	Quantity of phosphorus (kg)
Dropped calves (50 kg)*				x	0.33	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Cattle		x		x	0.0066	=	
Sheep/lambs		x		x	0.0054	=	
Sheep/lambs		x		x	0.0054	=	
Sheep/lambs		x		x	0.0054	=	
Pigs		x		x	0.0050	=	
Pigs		x		x	0.0050	=	
Pigs		x		x	0.0050	=	
Other please specify		x		x		=	
<b>Total P content of livestock purchased/imported in kg P/year</b>						<b>=</b>	<b>(H)</b>

Remember to include fallen animals.

\*For dropped calves the weight is not needed.



**Step 3 - Total P Inputs and Outputs.**

Transfer the answers from the relevant sections and enter the amount of P inputs and P outputs on your farm.

<b>P inputs</b>		<b>P outputs</b>	
Chemical fertilisers (A from page 48)		Crop produce (E from page 55)	
<b>add</b>	<b>+</b>	<b>add</b>	<b>+</b>
Imported organic manures (B from page 50)		Exported organic manures (F from page 58)	
<b>add</b>	<b>+</b>	<b>add</b>	<b>+</b>
Purchased feedstuffs (C from page 52)		Livestock produce (G from page 60)	
<b>add</b>	<b>+</b>	<b>add</b>	<b>+</b>
Livestock bought in (D from page 54)		Livestock moved off farm (H from page 62)	
<b>equals</b>	<b>=</b>	<b>equals</b>	<b>=</b>
<b>Total P inputs (I)</b>		<b>Total P outputs (J)</b>	

**Step 4 - Land Area Controlled.**

Calculate the total land area (ha) which you control. Exclude non-agricultural areas, including farm roads, paths, buildings, woodland, river, ponds and quarries.

<b>Total eligible agricultural area (ha)</b>	<b>N</b>	
--	----------	--

**Step 5 - P Balance.**

Calculate the P Balance by subtracting the P output from the P input and dividing it by the land area controlled.

<b>Total P inputs</b>	<b>I</b>	
	<b>less</b>	<b>-</b>
<b>Total P outputs</b>	<b>J</b>	
	<b>divided by</b>	<b>÷</b>
<b>Total eligible agricultural area</b>	<b>N</b>	
	<b>equals</b>	<b>=</b>
<b>P Balance</b>		

**P Balance should be below 10 kg per ha per year to be compliant with this aspect of the Derogation.**

# Contact Details

## Northern Ireland Environment Agency (NIEA).

Water Management Unit, 17 Antrim Road, Lisburn BT28 3AL - <https://www.daera-ni.gov.uk/northern-ireland-environment-agency>

## Useful NIEA telephone numbers.

<b>Agriculture Regulation Team:</b> Nutrients Action Programme, Nutrients Action Programme Derogations, Field Storage of Poultry Litter and anaerobic digestate fibre.	<b>028 9262 3280</b>
<b>Silage and Slurry issues:</b> Contact NIEA before planning to substantially alter any existing storage facility or commission new silos or slurry tanks.	<b>028 9262 3280</b>
<b>Ground Water Authorisations:</b> Authorisation for disposal of spent sheep dip.	<b>028 9262 3279</b>
<b>Applying Sewage Sludge to Land</b>	<b>028 9263 3445</b>
<b>Registration of Waste Carriers</b>	<b>028 9056 9389</b>
<b>Simple Waste Management Exemptions</b>	<b>028 9056 9380</b>
<b>Other Waste Management Exemptions</b>	<b>028 9056 9380</b>
<b>Hazardous Waste Queries</b>	<b>028 9056 9710</b>
<b>Pollution Prevention and Control (PPC) licensing</b>	<b>028 9056 9299</b>
<b>24 hr Pollution Hotline Number</b>	<b>Freephone 0800 80 70 60</b>

## Contact Details (continued)

### Department of Agriculture, Environment and Rural Affairs (DAERA).

**Useful DAERA telephone numbers** (Note: DAERA 0300 numbers are charged at local rate).

<p><b>Environment Awareness:</b> Agri-environment scheme information. Countryside Management advice including Cross-Compliance, Nutrients Action Programme, Codes of Good Agriculture Practice, Farm Waste Management, Uncultivated Land Regulations and Field Boundary Removals.</p>	<b>0300 200 7842</b>
<p><b>Education and Training:</b> The College of Agriculture, Food and Rural Enterprise offers training including Cross-Compliance, Nitrates and Nutrient Management Planning. (<a href="http://www.cafre.ac.uk">www.cafre.ac.uk</a>).</p>	<b>0300 200 7841</b>
<p><b>DAERA Corporate Services:</b> DAERA Headquarters, Press Office, Information Services and Systems, Human Resources and Facilities Management.</p>	<b>0300 200 7850</b>
<p><b>DAERA Animal By-Products Section</b></p>	<b>028 9052 5275</b>
<p><b>Textphone:</b> For people with hearing difficulties.</p>	<b>dial 18007 + number</b>
<p><b>Calls from non-UK numbers or networks/international calls</b></p>	<b>+44 (0)28 9049 5780</b>
<p>A list of DAERA contact numbers can be obtained by visiting the Contact Us section of the DAERA Website: <a href="http://www.daera-ni.gov.uk/contact">www.daera-ni.gov.uk/contact</a></p>	









Department of  
**Agriculture, Environment  
and Rural Affairs**

[www.daera-ni.gov.uk](http://www.daera-ni.gov.uk)



[www.daera-ni.gov.uk](http://www.daera-ni.gov.uk)



**INVESTORS  
IN PEOPLE**