

Manure Management System

Erection of a free range egg production unit & all associated works at Nantyrhafod, Staylittle, Powys, SY19 7DB

Mr & Mrs Jenkins

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1. Introduction to Manure Management Plans

Based on information provided by the farmer, the manure management plan fulfils the following objectives:

- From farm size, cropping and livestock numbers, it calculates if the farmer is NVZ compliant – with an average maximum load of 170kg N/ha
- The manure management plan also provides a template for the farmer to record the actual type, quantity and date of organic manure applications.
- The plan does not calculate storage requirements.
- The plan does not constitute a recommendation for the application of organic manures.

Spreading of organic manures can pose a risk of nitrogen getting into surface water via run-off. This report provides mitigation measures to limit this risk in line with The Water Resources (Control of Agricultural Pollution) (Wales) 2021.

2. Description

The farm business extends to 509 acres of owner occupied land at Nantyrhafod. The farm currently operates a mixed system with 32,000 hens proposed. The applicants currently buy in fertiliser to spread on the land together with some poultry manure. The Manure Management Plan has been set up to include the proposed 32,000 free range birds proposed at Nantyrhafod.

Total Nitrogen produced b	v livestock on the holding				
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	Type of Livestock	Number of stock	Days on farm	Total Nitrogen produced by each unit of stock (kg/annum)	Total Nitrogen produced
Cattle					
Calf (all categories including yeal) up to 3 months				8	0.00
Dainy sow to first salf	From 3 months and less than 13 months			35	0.00
Dairy cow to first calf	From 13 months and up to first calf			61	0.00
Dairy cow	Annual milk yield over 9,000 litres			115	0.00
after first	Annual milk yield 6,000-9,000 litres			101	0.00
calf reared	Annual milk yield less than 6,000 litres			77	0.00
Beef cows or steers to 25	From 3 months and less than 13 months			33	0.00
months	From 13 months and less than 25 months	42	180	50	1035.62
Beef cows or steers from 25 months	Females or steers for slaughter			50	0.00
	Females for breeding weighing 500 kg or less	42	365	61	2562.00
	Females for breeding weighing over 500 kg			83	0.00
Bulls	Non-breeding 3 months and over			54	0.00
	Breeding – from 3 months and less than 25 months			50	0.00
	Breeding – from 25 months	1	365	48	48.00
Total Cattle Nitrogen				kg/annum	3646
Sheep					
From 6 months up to 9 months		2400	180	2	2367.12
From 9 months to first lambin	g, first tupping or slaughter	458	365	1.4	641.20
After lambing or tupping	Weighing less than 60 kg			7.6	0.00
	Weighing over 60 kg	1493	365	12	17916.00
Total Sheep Nitrogen				kg/annum	20924
Goats, Deer, Horses					
Goat				15	0.00
Deer	Breeding			15.3	0.00
	Other			12	0.00
Horse				21	0.00
Total Goats, Deer, Horses	Nitrogen			kg/annum	0

Figure 1: Grazing livestock Nitrogen output

Poultry					
Chickens used for production	Less than 17 weeks			0.23	0.00
of eggs for human	From 17 weeks (caged)			0.41	0.00
consumption	From 17 weeks (not caged)	32000	365	0.55	17600.00
Chicken raised for meat				0.39	0.00
Chickens raised for breeding	Less than 25 weeks			0.31	0.00
Chickens raised for breeding	From 25 weeks			0.74	0.00
Turkey	Male			1.37	0.00
Turkey	Female			1.03	0.00
Ducks			0.91	0.00	
Ostriches			1.4	0.00	
Total Poultry Nitrogen				kg/annum	17600
[2F] Total Nitrogen produced from livestock on the holding			kg/annum	42170	

Figure 2: Non-grazing livestock Nitrogen output

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[2A]Total Area of holding(ha)	509.5	ha
[2B]Total Nitrogen capacity of		
holding from livestock manure		
(kg)*		
(8)	86615	kg
[2l]Total Nitrogen produced		
(including import/export)	51290	kg
Difference between N capacity		
and N produced		
	35325	kg
	N Loading	Limit
Compliance with the 170kg/ha Nitrogen Limit		kg/ha

Figure 3: Total value of Nitrogen for land and the N Loading Limit

As the N Loading limit is 101kg/N/ha the farm complies with regulations whereby the maximum is 170kg N/ha.

All of the manure produced will be used on land owned by Mr & Mrs Jenkins.

3. Phosphate Produced

Based upon the 20% ranging of the birds, the phosphate deposits to the 40 acre (16.18 ha) range will be 2,496kg P, which is the equivalent of 154.2kg P/ha. No other inorganic fertilisers are brought onto the farm.



4. Storage of Manure

All solid manure produced within the poultry unit will be removed every four to five days and spread directly onto land in ownership of the applicant.

5. "Dirty" Yard Areas

The "dirty" yard areas on the farm will be kept to a minimum. This is due to the manure being contained in the poultry unit and removed every four days together with the hardcore area to the front of the poultry unit. The farm business will require all areas to be clean outside the building as they will be producing food products within the unit.

The proposal will incorporate the installation of a dirty water tank adjacent to the poultry unit. The wastewater tank will be built in compliance with The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. The tank to be installed will be 1,000 gallons.

6. Contingency Plan

There are a number of covered areas on the farm to allow for storing any manure, slurry and dirty water produced at times when spreading may not be possible e.g. due to wet, waterlogged or frozen conditions. This is to ensure manures and slurry are spread at appropriate times to prevent pollution and maximise uptake of nutrients for crop growth.

Contingency will be in place for storing of wash water during and after disease outbreak. Any contaminated wash water will be stored in containers separate from other manures, and will be disposed of by a specialist contractor licensed to deal with such wastes.

7. Spreading of Manures

Areas on which solid manures and slurry should never be spread are: Ditches and watercourses:

 Within at least 10 metres (11 yards) of either side of any watercourse including ditches and piped ditches. This will avoid direct spreading into the watercourse and also reduce the risk of run-off reaching the watercourse.

Other non-spreading (red) areas:

- Within at least 50 metres of any spring, well, borehole or reservoir that supplies water for human consumption or farm dairies.
- Very steep slopes where run-off is a high risk throughout the year.
- Any areas where you may not be allowed to spread for reasons such as a tenancy agreement, an abatement notice due to smell, set-aside land, Sites of Special Scientific Interest (SSSIs) or Environmentally Sensitive Areas (ESAs).
- The surface is rocky or uneven so that your equipment cannot be used effectively or safely.

8. Application Methods

Manures will be stored and spread in accordance with The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021.

Manures will be stored in field stores and manure heaps at Nantyrhafod on pasture ground and will be densely packed with an 'A' shaped profile.

 Manure heaps will be well away from water courses, drainage schemes and ditches.

Manure will be spread under suitable conditions

- Wind direction will be chosen to be blowing with prevailing direction from the west which will blow any odours away from the closest dwellings.
- The ground to receive the manure will not be water logged or frozen.
- Spreading will be done at least 10 metres away from any water courses or ditches
- Manure will be incorporated in the soil within 24 hours of application, where this is possible due to conditions.

9. Manure Spreading Plan

Manure will be spread according to the annual plan.

Manure will be tested and analysed on a regular basis so that quantities applied will mean that applications will concur with crop requirements as laid out in DEFRA document RB209.

The birds within the free-range unit will graze the designated land in a rotational field system. The birds will step out of the building through the pop holes provided and onto a veranda, which shall ensure that the ground is not poached and compacted by the birds. The veranda shall also ensure that the feet of the birds are cleaned prior to entering the building. The birds will be then directed to those fields available for grazing in rotation to prevent over stocking of the ground and ensure the fertility of soil. Good pasture management is essential, and it is paramount the problems of parasitic intestinal worms and coccidian oocysts are avoided.

The maps below show watercourses & boreholes are surrounded with no spread zones in red, orange areas are medium risk meaning spreading should be avoided or carefully managed. Manure spreading areas are shown in green.

There are a number of watercourses and ditches through the farm land. There is a no spread zone around each 10 metres of these.

10. Nantyrhafod spreading maps

Below are the Manure Spreading plans showing unspreadable areas in red.









