

# Statement of Agricultural Benefit – Gotrel Farm & Ty Gwyn Farm



**Applicant:** Stepside Agri Contractors

**Permit:** SR2010 No4: mobile plant for land-spreading

**Permit Number:** EPR/AB3891CX

## Person with Technical Expertise:

Mr David Powell

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## Farm Addresses:

Gotrel Farm, Ferwig Road, Cardigan, Ceredigion, SA43 1PJ – Holding No. 55/305/0041

Ty Gwyn Farm, Ferwig, Cardigan, Ceredigion, SA43 1PL – Holding No. 55/226/0032

## Wastes to be applied:

Waste Code	Waste Description	Physical Form	Waste Producer
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid	Dairy Partners, Newcastle Emlyn
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid	Volac, Felinfach
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid	First Milk, Haverfordwest

Rates of application are detailed in Table 1

## Application:

- These grass silage fields will be spread subject to ground conditions being suitable and when there is a significant crop nutrient requirement (i.e. early spring, after a silage cut). Spreading of these grass fields may be split into multiple applications and the total of all applications will not exceed the max application rate per field as listed in table 1. The fields will be spread with shallow injection equipment or trailing hose applicator (dribble bar).
- Spreading of the waste will be carried out in accordance with the Code of Good Agricultural Practice ("Protecting our Water, Soil and Air. Defra, 2009) and in accordance with the requirements of the deployment and environmental permitting regulations.
- NRW will be informed at least 48 hours prior to any spreading commencing and no spreading will occur within 48 hours of forecasted rainfall.
- The waste will be directly spread onto the fields assuming ground conditions are suitable at the time of waste receipt. Should the ground or weather conditions mean it's unsuitable for spreading then storage in a secure above ground liquid storage tank at Gotrel Farm for the Gotrel fields may also be required for future application when conditions are suitable and there is requirement for application. Should the ground or weather conditions mean it's unsuitable for spreading then contingency field storage in nurse tanks may also be required. These potential locations are detailed on the attached field maps and within the LPD1 form.
- The maximum application rate for each field may be split into multiple applications and will not exceed 50t/ha in any one application to a field.
- **Waste will not be stored or spread in combination (i.e. only one waste stream per field).**

### Benefits from waste application:

- The analysis and nutrient content of the wastes are shown in the waste analysis attachments.
- The wastes are a source of nitrogen, phosphate, potassium, magnesium, sulphur, sodium, calcium. The wastes can be beneficially used to replace a proportion of bagged mineral fertiliser.
- The risk of sulphur deficiency has been estimated as 'High' based on the soil texture and expected winter rainfall (RB209). The crop requirements are approximately 40kg SO<sub>3</sub>/ha before each cut of grass silage. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 2-4kg SO<sub>3</sub>/ha.
- The addition of sodium will improve the palatability of grass and is important in the diet for livestock health. The crop requirements for the grass fields are up to 140kg Na<sub>2</sub>O/ha to improve herbage mineral balances.
- The recommended maximum application rates are shown in Table 1 and have been made on a field by field basis using The Nutrient Management Guide (RB209).

### Materials applied in previous 12 months:

The fields within this deployment application have received the rates (t/ha) of materials as in 'Table 4 - Previous Land Treatment' within the previous 12 months.

It's considered that the nutrients applied from these applications will have been utilised by the previous crops before the material within this deployment is applied for the next crops.

### Nutrients supplied by this application:

Rates of application (t/ha)	Nitrogen kg/ha		Phosphate (P <sub>2</sub> O <sub>5</sub> ) kg/ha		Potash (K <sub>2</sub> O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO <sub>3</sub> ) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
Dairy Partners liquid sludge @ 125t/ha	38	8	23	14	33	27	4	0	10	2
Volac liquid sludge @ 38t/ha	23	5	79	48	44	35	9	1	15	3
First Milk liquid sludge @ 65t/ha	78	16	79	47	21	17	9	1	21	4
Estimated Availability	20%		60%		80%		10%		20%	

Table 1: Field, Soil & Cropping Details, Fertiliser Recommendations and Application Rates

Field Ref.	Soil Type	Spreadable Area (ha)	Previous Crop	Next Crop	Nitrogen		Phosphate			Potash			Magnesium	
					SNS	N Required (kg/ha)	P Index	P <sub>2</sub> O <sub>5</sub> Required (kg/ha)	Crop Use (Offtake) (kg/ha)	K Index	K <sub>2</sub> O Required (kg/ha)	Crop Use (Offtake) (kg/ha)	Mg Index	MgO Required (kg/ha)
1	Medium soils	2.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
2	Medium soils	3.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
3	Medium soils	2.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
4	Medium soils	4.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
5	Medium soils	2.50	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
6	Medium soils	4.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	2	0
7	Medium soils	3.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	3	0
13	Medium soils	1.80	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	3	0
Ty Gwyn 15	Medium soils	3.80	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Ty Gwyn 16	Medium soils	3.10	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Ty Gwyn 17	Medium soils	2.50	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	2	0
Ty Gwyn 18/19	Medium soils	5.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	2	0
Ty Gwyn 20/21	Medium soils	8.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	2	0
TOTAL		46.50												

Nutrient requirements based on:  
Grass 3 cuts silage (23t FW/ha at 1st cut, 15t FW/ha at 2nd cut, 9t FW/ha at 3rd cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake  
Expected DM yields of grass 9-12t/ha, good growth class

	Dairy Partners, Newcastle Emlyn - liquid sludge						Volac, Felinfach - liquid sludge						First Milk, Haverfordwest - liquid sludge					
Field Ref.	N Applied - Waste (kg/ha)	P <sub>2</sub> O <sub>5</sub> Applied - Waste (kg/ha)	K <sub>2</sub> O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P <sub>2</sub> O <sub>5</sub> Applied - Waste (kg/ha)	K <sub>2</sub> O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P <sub>2</sub> O <sub>5</sub> Applied - Waste (kg/ha)	K <sub>2</sub> O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
1	**8	*23	**27	*4	125	300	**5	*79	**35	*9	38	91	**16	*79	**17	*9	65	156
2	**8	*23	**27	*4	125	400	**5	*79	**35	*9	38	122	**16	*79	**17	*9	65	208
3	**8	*23	**27	*4	125	275	**5	*79	**35	*9	38	84	**16	*79	**17	*9	65	143
4	**8	*23	**27	*4	125	500	**5	*79	**35	*9	38	152	**16	*79	**17	*9	65	260
5	**8	*23	**27	*4	125	313	**5	*79	**35	*9	38	95	**16	*79	**17	*9	65	163
6	**8	*23	**27	*4	125	550	**5	*79	**35	*9	38	167	**16	*79	**17	*9	65	286
7	**8	*23	**27	*4	125	425	**5	*79	**35	*9	38	129	**16	*79	**17	*9	65	221
13	**8	*23	**27	*4	125	225	**5	*79	**35	*9	38	68	**16	*79	**17	*9	65	117
Ty Gwyn 15	**8	*23	**27	*4	125	475	**5	*79	**35	*9	38	144	**16	*79	**17	*9	65	247
Ty Gwyn 16	**8	*23	**27	*4	125	387	**5	*79	**35	*9	38	118	**16	*79	**17	*9	65	201
Ty Gwyn 17	**8	*23	**27	*4	125	313	**5	*79	**35	*9	38	95	**16	*79	**17	*9	65	163
Ty Gwyn 18/19	**8	*23	**27	*4	125	625	**5	*79	**35	*9	38	190	**16	*79	**17	*9	65	325
Ty Gwyn 20/21	**8	*23	**27	*4	125	1025	**5	*79	**35	*9	38	312	**16	*79	**17	*9	65	533
TOTAL						5813						1767						3023

Waste will NOT be spread or stored in combination (i.e. one waste stream per field)

\* Total nutrient content of waste used on P, K or Mg index 2 or above  
\*\* Available nutrient content of waste used on P, K or Mg index 0 or 1  
The assumed availability of total nutrients in the sludge are N 20%, P<sub>2</sub>O<sub>5</sub> 60%, K<sub>2</sub>O 80%, MgO 10%, SO<sub>3</sub> 20%

## Potential negative impacts from this application and mitigation measures planned:

### Waste Composition & Receiving Soils

- Potentially Toxic Elements: The supplied concentrations at the proposed application rates are all significantly lower than the maximum permissible levels detailed in the Sludge (Use in Agriculture) Regulations for biosolids applied to agricultural land, which is believed to be a suitable comparison for wastes applied to agricultural land.
- Physical contaminants: The wastes are produced by managed processes. The sludges do not contain physical contaminants.
- Waste pH: The wastes are acidic in nature. The acidic nature is most probably associated with the presence of food based organic acids. Acidic food-based wastes are routinely applied to agricultural land without adverse effects on crop health, or significant decreases in soil pH. Use of the Dairy Partners, Volac & First Milk waste streams will be carefully monitored, through low rates of individual application across the growing season and close monitoring of crop health, for any adverse signs resulting from acidity around grass roots.
- Receiving soils are below the limits set for grassland & arable soils under the Sludge (Use in Agriculture) Regulations.
- Soils have been sampled to 7.5cm depth for permanent grass fields & to 15cm depth for temporary grass fields with a 'half cheese' corer soil sampler walking a 'W' pattern across each field collecting approx. 25 sub samples per field.

### Operations

The fields in this deployment have been designated as 'medium risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones. On the basis of 'medium risk' the proposed operation will be subject to the generic risk assessment for deploying mobile plant under a SR2010 No.4. The potential risks associated with the application of waste on this deployment have been identified as;

- Potential run-off after application: The wastes will be applied following the Codes of Good Agricultural Practice. The maximum application rate for each field may be split into multiple applications and will not exceed 50t/ha in any one application to a field.
- The fields are in an NVZ. Records will be kept such that a total nitrogen loading per field is recorded within any 12-month period.
- Handling: All handling of the wastes will be done in accordance to current regulations and relevant mitigation strategies will be adopted.
- Odour may potentially be emitted from the spreading of waste – to mitigate odour generation all handling of waste will be done in accordance to current regulations and relevant mitigation strategies will be adopted e.g. waste will be sub-surface injected or spread with low trajectory trailing hose applicator (dribble bar). If any odour complaints are received, further odour mitigation methods will be implemented.
- Spillages: all spillages will be reported immediately to NRW.
- No waste will be spread within 10m of any ditch, pond or surface water, within 50m of any spring, well, borehole, or reservoir that supplies water for human consumption or farm dairies.
- Waste will be spread on delivery (or securely stored as stated above). Operators will aim to empty spreading equipment before the end of each working day to avoid overnight storage of waste in machinery.
- Regular servicing of all machinery is conducted and spreading equipment is annually calibrated. To prevent waste being held in faulty machinery replacement spreading equipment will be available.
- Spreading machinery will travel over the field in a direction which will most easily allow the machinery to turn within the boundaries of the field. Any spreading equipment will be turned off and/or lifted out of the soil prior to turning at the end of each run.
- Machinery turns will be routed to avoid rutting and wheel slip. The turns will not be executed on any buffer strips.
- There will be sufficient trained staff available to ensure that the operation continues throughout operational hours (i.e. there will be sufficient cover for illness, holiday etc.).
- Rights of way have been marked on the spread risk maps.
- Weather conditions will be monitored prior to spreading with wind speed and direction assessed.
- Consideration for the public and local residential receptors will be taken before and during application.

**Signed:** David Powell

**Date:** 21/06/2021