

Statement of Agricultural Benefit – Ty Gwyn Farm & Castell Malgwyn Farm



Applicant: Mr Daniel James and Mrs Carys James (Stepside Agricultural Contractors)

Permit: SR2010 No4: mobile plant for land-spreading

Permit number: EPR/AB3891CX

Agricultural benefit statement is prepared by:

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This agricultural benefit statement has been prepared based on information provided by Stepside Agricultural Contractors. It is made on the understanding that all information provided is correct and representative of the fields to which the material is to be applied and of the waste material to be applied.

Farm addresses:

Ty Gwyn Farm, Ferwig, Cardigan, Ceredigion, SA43 2LN (– land at Trewindsor, Llangoedmor, Cardigan, Ceredigion)

Castell Malgwyn Farm, Llechryd, Cardigan, Ceredigion, SA43 2QB

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/Sensient, Felinfach
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid	First Milk, Haverfordwest

Application:

- Field Trewindsor 1 will be spread with an application up to 50t/ha (or the max spread rate listed where lower) prior to cultivations and planting of the forage maize crop in April to June 2026. There will be a further application where applicable of the remaining balance of total max application rate into the growing forage maize crop in May – July 2026. The total of all applications will not exceed the max application rate for each field as listed in table 1. Each individual application will not exceed 50t/ha in any one application to a field (or the max application rate in Table 1 where lower).
- All other grass fields will be spread in February – August 2026 (and before expiry of deployment) prior to cuts of silage, following cuts, in advance of periods of grazing (for the Castell Malgwyn fields). Spreading of these grass fields may be split into up to 4 applications & the total of all applications will not exceed the max application rate for each field as listed in table 1. Each individual application will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower). The fields will not be grazed or cut for 3 weeks following application.
- The liquid wastes are delivered by HGV road tankers which are discharged into a nurse tank ('holding tank') or concrete above ground slurry store at Castell Malgwyn Farm prior to spreading at stated timings. These potential temporary storage locations are detailed on the attached field maps & within the LPD1 form.
- The nurse tanks do not have secondary containment, but are impermeable purpose built AW Trailers alloy nurse tanks featuring internal bracing, an anti-corrosive interior coating, designated fill and empty valves that can be shut by gate valves. These valves can be locked off in the event of temporary overnight temporary storage if the tank contains liquid to ensure secure temporary storage. The tank fills from the top via internal pipework with a 'swanneck' reducing chances off any spills when decoupling connecting pipes after filling. The empty valve allows the tank to be completely emptied to the bottom. The tank is sealed with roof to prevent odour, rainwater entering the tank and for safety, and can be vented if required. A hydraulic lifting axle in the middle allows the tank to positioned and lowered, then locked into position so the whole tank is on the ground.
- The concrete above ground slurry store at Castell Malgwyn Farm is impermeable, with concrete floor and sides. It has an open top and a 30cm freeboard will be maintained at all times. It is filled from top via pipework and emptied from the bottom with shut off valves on pipework.
- The nurse tanks and concrete above ground slurry store at Castell Malgwyn Farm will be completely empty before use. Only waste as specified in this deployment will be stored in the nurse tanks and the concrete above ground slurry store will be completely empty before use. No other waste will be added whilst in use to store waste under this deployment. The wastes aren't mixed and are spread on separate fields.

- Each liquid waste is spread from a nurse tank or concrete above ground slurry store onto the deployed fields at the required timings as stated above. This is done by either umbilical method with the liquid delivered to tractor in deployed fields pumped through hose and spread by dribble bar applicator mounted onto the back of the tractor, or a tractor and vacuum tanker with dribble bar applicator. The dribble bar applicator places the liquid in bands onto the surface of the ground. This spread method is effective in limiting odour generation & nutrient losses associated with higher trajectory spread methods such as splash plate. Spreading is undertaken with the use of flow meters to ensure correct rates are applied.
- Spreading of the waste will be carried out in accordance with the Code of Good Agricultural Practice, The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 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 heavy rainfall.
- Each individual application will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower).
- **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, sulphur, sodium, calcium and organic matter. 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 25-120kg SO₃/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 2-8kg SO₃/ha.
- The addition of sodium will improve the palatability of grass and is important in the diet for livestock health.
- 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 were for the requirements of 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 ₂ O ₅) kg/ha		Potash (K ₂ O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO ₃) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
Dairy Partners liquid sludge @ 43 t/ha	103	21	63	38	14	12	3	0	17	3
Dairy Partners liquid sludge @ 55 t/ha	132	26	80	48	19	15	4	0	21	4
Dairy Partners liquid sludge @ 100 t/ha	240	48	145	87	34	27	8	1	39	8
Volac/Sensient liquid sludge @ 52 t/ha	57	11	63	38	66	53	8	1	11	2
Volac/Sensient liquid sludge @ 66 t/ha	73	15	79	48	84	67	10	1	13	3
Volac/Sensient liquid sludge @ 100 t/ha	110	22	120	72	127	102	15	2	20	4
First Milk liquid sludge @ 65 t/ha	124	25	62	37	15	12	3	0	19	4
First Milk liquid sludge @ 83 t/ha	158	32	79	48	19	15	4	0	24	5
First Milk liquid sludge @ 130 t/ha	247	49	124	75	30	24	6	1	38	8
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 ₂ O ₅ Required (kg/ha)	Crop Use (Offtake) (kg/ha)	K Index	K ₂ O Required (kg/ha)	Crop Use (Offtake) (kg/ha)	Mg Index	MgO Required (kg/ha)
Ty Gwynn Farm														
Trewindsor 1	Medium soils	8.20	Forage maize	Forage maize	1	100	3	20	63	0	257	198	1	0
Trewindsor 2	Medium soils	5.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Trewindsor 3	Medium soils	5.30	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
Trewindsor 4	Medium soils	4.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	2	0
Trewindsor 6	Medium soils	6.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Trewindsor 7	Medium soils	8.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	2-	280	282	2	0
Castell Malgwynn Farm														
CM 3169	Medium soils	2.80	Grass 2 cuts silage & grazing	Grass 2 cuts silage & grazing	Moderate	205	1	95	65	0	320	228	3	0
CM 0438	Medium soils	5.10	Grass 2 cuts silage & grazing	Grass 2 cuts silage & grazing	Moderate	205	0	125	65	0	320	228	2	0
CM 0165	Medium soils	4.10	Grass 2 cuts silage & grazing	Grass 2 cuts silage & grazing	Moderate	205	0	125	65	0	320	228	3	0
TOTAL		49.10												

Nutrient requirements based on: Grass 2 cuts silage (23t FW/ha at 1st cut, 15t FW/ha at 2nd cut), silage 25% DM, totalling 1.7kg/t P₂O₅ and 6.0kg/t K₂O removed in offtake + grazing
 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 grass growth class
 Forage maize 45t FW/ha silage (30% DM)

Field Ref.	Dairy Partners, Newcastle Emlyn - liquid sludge						Volac/Sensient, Felinfach - liquid sludge						First Milk, Haverfordwest - liquid sludge					
	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Ty Gwynn Farm																		
Trewindsor 1	**21	*63	**12	**0	43	353	**11	*63	**53	**1	52	426	**25	*62	**12	**0	65	533
Trewindsor 2	**26	*80	**15	*4	55	297	**15	*79	**67	*10	66	356	**32	*79	**15	*4	83	448
Trewindsor 3	**26	*80	**15	*4	55	291	**15	*79	**67	*10	66	350	**32	*79	**15	*4	83	440
Trewindsor 4	**26	*80	**15	*4	55	231	**15	*79	**67	*10	66	277	**32	*79	**15	*4	83	349
Trewindsor 6	**26	*80	*19	*4	55	330	**15	*79	*84	*10	66	396	**32	*79	*19	*4	83	498
Trewindsor 7	**26	*80	*19	*4	55	440	**15	*79	*84	*10	66	528	**32	*79	*19	*4	83	664
Castell Malgwynn Farm																		
CM 3169	**48	**87	**27	*8	100	280	**22	**72	**102	*15	100	280	**49	**75	**24	*6	130	364
CM 0438	**48	**87	**27	*8	100	510	**22	**72	**102	*15	100	510	**49	**75	**24	*6	130	663
CM 0165	**48	**87	**27	*8	100	410	**22	**72	**102	*15	100	410	**49	**75	**24	*6	130	533
TOTAL						3142						3533						4492

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 Dairy Partners, Volac/Sensient & First Milk liquid sludges are N 20%, P₂O₅ 60%, K₂O 80%, MgO 10%, SO₃ 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 wastes do not contain physical contaminants.
- Oils, fats & grease: The Dairy Partners liquid sludge contains 1.77% oils, fats & grease. Application at this percentage is unlikely to have detrimental effects on plant growth which can be seen with wastes containing 4% content or more. As a precaution the sludge will be surface applied with dribble bar applicator and soil incorporated as soon as possible for field Trewindsor 1 prior to the forage maize being planted. All other grass fields will also be spread with low trajectory dribble bar applicator which places the liquid sludge in bands on surface to reduce leaf contact, and the max application rate for each grass field will be split into up to 4 applications.
- Waste pH: Although the Dairy Partners & First Milk liquid sludges are slightly acidic, they're weakly buffered and unlikely to result in a change in soil pH. The slightly 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 wastes will be carefully monitored, through low rates of individual application and close monitoring of crop health, for any adverse signs resulting from acidity around roots.
- BOD: The BOD of the Volac / Sensient liquid sludge is low and below the range for cattle slurry (10-20,000 mg/l). The BOD of the First Milk liquid sludge is within the range for cattle slurry. The BOD of the Dairy Partners liquid sludge is in the range for pig slurry (20-40,000 mg/l). Consequently, the environmental risks applying these wastes will be similar to that of the materials mentioned. To mitigate the pollution risk to watercourses the wastes will not be applied at a rate greater than 50 t/ha in a single application (or the maximum application rate given in Table 1 where lower). The proposed method of application, no-spread zones and precautions as stated in this document should be sufficient to minimise the pollution risk to manageable levels.
- Soils have been sampled to 7.5cm depth for permanent grass fields & to 15cm depth for arable & temporary grass fields with a 'half cheese' corer soil sampler walking a 'W' pattern across each field collecting approx. 25 sub samples per field.
- Receiving soils have been analysed and are suitable for application at the proposed application rates.

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 Code of Good Agricultural Practice. The maximum application rate for each field where over 50t/ha will be split into multiple applications (up to 2 separate applications for forage maize and up to 4 separate applications for the grass fields) and will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower). The fields will be spread using precision spreading dribble bar equipment with no spreading areas enforced as per maps. Trewindsor field 1 will be cultivated following spreading with the waste incorporated into the soil where spread prior to planting of the forage maize crop.
- All handling of the wastes will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- Odour may potentially be emitted from the spreading of the wastes – to mitigate odour generation all handling of waste will be done in accordance to current regulations and relevant mitigation strategies will be adopted. Waste will be spread with low trajectory dribble bar applicator. This is an efficient method to prevent odour transmission & nutrient losses associated with higher trajectory spread methods such as splash plate. 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 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. There are no public rights of way through the fields to be spread.
- 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 into account.

Signed: Robert Tucker

Date: 04/07/2025