

Statement of Agricultural Benefit – Rhosygadair Fawr – land at Pantgwyn 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:

Rhosygadair Fawr – land at Pantgwyn Farm, Cardigan, Ceredigion, SA43 2ND - Holding No. 55/220/0009

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 |

Application:

- The fields will be spread in spring/early summer 2022 immediately prior to cultivations and planting of the crops with the waste incorporated into the soil or spread into the standing crops.
- Spreading of the waste will be carried out in accordance with the Code of Good Agricultural Practice 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.
- The waste will be spread onto the fields with a trailing hose applicator (dribble bar) assuming ground conditions are suitable at the time of waste receipt. Should the ground or weather conditions mean it's unsuitable for spreading then contingency storage in nurse tanks may also be required. These potential locations are detailed on the map 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. 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 and 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 25-50kg SO₃/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 3-4kg SO₃/ha.
- 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 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 @ 200 t/ha | 100 | 20 | 55 | 33 | 58 | 46 | 8 | 1 | 22 | 4 |
| Volac liquid sludge @ 42 t/ha | 42 | 8 | 60 | 36 | 38 | 30 | 8 | 1 | 17 | 3 |
| Volac liquid sludge @ 44 t/ha | 44 | 9 | 62 | 37 | 39 | 32 | 9 | 1 | 18 | 4 |
| First Milk liquid sludge @ 147 t/ha | 103 | 21 | 60 | 36 | 49 | 39 | 7 | 1 | 21 | 4 |
| First Milk liquid sludge @ 150 t/ha | 105 | 21 | 61 | 37 | 50 | 40 | 7 | 1 | 22 | 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 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) |
| 1 | Medium soils | 10.00 | Spring wheat | Forage maize | 1 | 100 | 2 | 62 | 63 | 2- | 197 | 198 | 2 | 0 |
| 2 | Medium soils | 7.30 | Spring wheat | Forage maize | 1 | 100 | 2 | 62 | 63 | 2- | 197 | 198 | 2 | 0 |
| 4 | Medium soils | 2.70 | Spring wheat | Spring wheat | 1 | 180 | 3 | 0 | 60 | 2- | 82 | 84 | 1 | 0 |
| 5 | Medium soils | 5.30 | Spring wheat | Fodder beet | 1 | 120 | 2 | 60 | 60 | 2- | 340 | 340 | 2 | 0 |
| 6 | Medium soils | 1.60 | Spring wheat | Spring wheat | 1 | 180 | 2 | 59 | 60 | 2- | 82 | 84 | 2 | 0 |
| 7 | Medium soils | 6.00 | Spring wheat | Spring wheat | 1 | 180 | 3 | 0 | 60 | 2+ | 52 | 84 | 2 | 0 |
| 9 | Medium soils | 10.00 | Spring wheat | Spring wheat | 1 | 180 | 2 | 59 | 60 | 2- | 82 | 84 | 2 | 0 |
| 10 | Medium soils | 6.30 | Spring wheat | Spring wheat | 1 | 180 | 2 | 59 | 60 | 2- | 82 | 84 | 2 | 0 |
| TOTAL | | 49.20 | | | | | | | | | | | | |

Nutrient requirements based on: Spring wheat 7t/ha straw removed
Forage maize 45t FW/ha silage (30% DM)
Fodder beet (85 t/ha roots lifted)

| Field Ref. | Dairy Partners, Newcastle Emlyn - liquid sludge | | | | | | Volac, 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 |
| 1 | **20 | *55 | *58 | *8 | 200 | 2000 | **9 | *62 | *39 | *9 | 44 | 440 | **21 | *61 | *50 | *7 | 150 | 1500 |
| 2 | **20 | *55 | *58 | *8 | 200 | 1460 | **9 | *62 | *39 | *9 | 44 | 321 | **21 | *61 | *50 | *7 | 150 | 1095 |
| 4 | **20 | *55 | *58 | **1 | 200 | 540 | **8 | *60 | *38 | **1 | 42 | 113 | **21 | *60 | *49 | **1 | 147 | 397 |
| 5 | **20 | *55 | *58 | *8 | 200 | 1060 | **8 | *60 | *38 | *8 | 42 | 223 | **21 | *60 | *49 | *7 | 147 | 779 |
| 6 | **20 | *55 | *58 | *8 | 200 | 320 | **8 | *60 | *38 | *8 | 42 | 67 | **21 | *60 | *49 | *7 | 147 | 235 |
| 7 | **20 | *55 | *58 | *8 | 200 | 1200 | **8 | *60 | *38 | *8 | 42 | 252 | **21 | *60 | *49 | *7 | 147 | 882 |
| 9 | **20 | *55 | *58 | *8 | 200 | 2000 | **8 | *60 | *38 | *8 | 42 | 420 | **21 | *60 | *49 | *7 | 147 | 1470 |
| 10 | **20 | *55 | *58 | *8 | 200 | 1260 | **8 | *60 | *38 | *8 | 42 | 265 | **21 | *60 | *49 | *7 | 147 | 926 |
| TOTAL | | | | | | 9840 | | | | | | 2101 | | | | | | 7284 |

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 wastes 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 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 arable soils under the Sludge (Use in Agriculture) Regulations.
- Soils have been sampled to 15cm depth 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 Code 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.
- 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 spread with low trajectory trailing hose applicator (dribble bar) and soil incorporated, or spread into standing crops. 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: 28/10/2021