Document Ref: P001

Agricultural benefit statement for application of Mowi Fish Farm sludge.

Fields: 9,10,14-17,19-21,23

1.1 Person with appropriate technical expertise

- K Brook, ADAS Agricultural & Soils Consultant
- BSc (Hons) Agricultural Science (Crops). FACTS
- Working for ADAS as an agricultural and soil consultant providing crop nutrition, fertiliser and waste management (farm and non-farm) advice and consultancy. Experience includes numerous waste-to-land applications, nutrient, manure and soil management plans and advice for compliance with Nitrate Vulnerable Zone rules. He has research and development experience in a variety of fertiliser and organic waste processes.
- FACTS Registration No. FE/0829

- **Signed by:** *K Brook* **Date: 5 February 2026**

Field: 9,10,14-17,19-21,23

1.2 Where the waste is to be spread

Table 1. **Farm address**

Fields	Owner/manager	Address
9,10,14-17,19-21,23	G Jones	Plas Newydd Home Farm Llanfairpwllgwyngyll Ynys Mon LL61 6DQ

Table 2: **Area of the receiving land.**

Field	Coordinates	Spreading area (ha)
9	SH 51370 69696	3.43
10	SH 51476 69890	5.62
14	SH 51206 69068	5.17
15	SH 51321 68890	3.04
16	SH 51197 68813	1.29
17	SH 51352 68666	4.04
19	SH 51597 68917	7.67
20	SH 51493 68515	5.32
21	SH 51779 68635	6.25
23	SH 51639 68398	8.17
		50

Quantity to be stored at any one time: No waste will be stored under this deployment

Total quantity to be spread: 890t

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1.2 Where the waste is to be spread

Location maps showing the field receiving sites and spreading control measures:
Please refer to Location Map documents included in the deployment application for information regarding field location and spreading areas. Note, that the area is under single continuous management.

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1.3 What is the waste to be spread

Waste producer: Mowi Anglesey

EWC code: 02 01 99

Waste description: Fish Farm sludge

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1.4 Operational details

The field areas were sampled following the recommendations outlined in Section 3 (Grass & Forage Crops) of the AHDB Nutrient Management Guide (RB209) 2023.

Table 3 below describes the crops grown prior to the application of the waste and the crops to be grown which will benefit from the nutrients supplied by the waste.

Table 3. **Cropping details for the proposed fields**

Field	Current Crop and utilisation	Harvest Year	Last Crop and utilisation	Harvest Year	Previous Crop and utilisation	Harvest Year
All fields	Grass – 2 cuts plus aftermath grazing	2026	Grass – 2 cuts plus aftermath grazing	2025	Grass – 2 cuts plus aftermath grazing	2024

[1]Note, all fields have similar utilisation.

Method of application:

- The waste will not be spread on any waterlogged areas of the fields.
- The waste will be spread during the growing season for the current crop. This will allow for spreading to be carried out in spring 2026 through a trailing shoe applicator when weather and soil conditions likely to be most suitable. The maximum total application rate for the season will be 45t/ha.
- The proposed applications will be surface spread using a tanker fitted with a trailing shoe applicator.
- No land drains were noted in the field survey.

Field: Field: 9,10,14-17,19-21,23

1.5 Compliance

NVZ compliance:

The whole of Wales including Anglesey and the fields where the wastes are to be applied are within a designated NVZ area and waste applications must comply with the NVZ regulations. For the fish farm sludge, of the total nitrogen, 34% of the Total N is readily available N. The maximum organic Total N applied will be 90kg N and the field limit for organic nitrogen is 250kg/ha N. As the level of readily available nitrogen is greater than 30% then the closed period for spreading will apply. For grassland grown in a medium textured soil, the closed period extends from 15 October to 15 January. In addition for high readily available nitrogen wastes, there is a post-closed period restriction on application rate extending up to the end of February whereby no more than 30t/ha may be spread at any one time and there should be a minimum period of 3 weeks between each spreading.

The waste application will take place following the Code of Good Agricultural Practice.

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1.6 Benefits and nutrients supplied to the soil or crop from this application

Table 4: **Waste analysis results.**

General properties & plant nutrients	Units	Fish Farm sludge
pH		7.65
Total Dry Matter	kg/t	59.1
Total Nitrogen (N)	kg/t	2.0
Ammonium (N-NH_3)	kg/t	0.67
Nitrate (N-NO_3)	kg/t	<0.01
Phosphate (P_2O_5)	kg/t	4.49
Potassium (K_20)	kg/t	0.50
Magnesium (MgO)	kg/t	2.18
Sulphur (SO_3)	kg/t	1.06

Calcium (CaO)	kg/t	3.74
Conductivity	uS/cm	7,141

Proposed receiving fields:

Table 5. **pH and major plant nutrients analysis results[1]**

Field	pH	Phosphorus mg/l (Index)	Potassium mg/l (Index)	Magnesium mg/l (Index)
9	5.8	16 (2)	303 (3)	176 (4)
10	5.7	18 (2)	341 (3)	185 (4)
14	5.4	17 (2)	225 (2+)	161 (3)
15	5.4	15 (1)	155 (2-)	147 (3)
16	5.3	16 (2)	330 (3)	185 (4)
17	6.2	39 (3)	571 (4)	140 (3)
19	5.7	22 (2)	397 (3)	150 (3)
20	6.1	40 (3)	344 (3)	153 (3)
21	6.2	36 (3)	223 (2+)	145 (3)
23	5.8	31 (3)	156 (2-)	177 (4)

[1] Average from 25 subsamples.

Table 6. **Proposed waste application rates for fish farm sludge**

Field	Field Area (ha)	Application Rate (t/ha)	Total fresh weight spread per field (t)	Dry solids loading per field (t)
9	3.43	16	55	3.24
10	5.62	16	90	5.31
14	5.17	16	83	4.89
15	3.04	45	137	8.08
16	1.29	16	21	1.22
17	4.04	16	65	3.82
19	7.67	16	123	7.25
20	5.32	16	85	5.03
21	6.25	16	100	5.91
23	8.17	16	131	7.73
Total	50.00		890	52.49

Nitrogen provided by waste application:

The application of 45t/ha of fish farm sludge will supply 30kg/ha of readily available nitrogen (N) for the following crop.

Table 7: **Available nitrogen provided by waste application**

Field	Application	Total N	Crop

	rate (t/ha)	(kg/ha)	Available nitrogen (kg/ha)
15	45	90	30
9,10,14,16,19	16	32	11
17,20,21,23	16	32	11

Table 8. **Crop Nitrogen recommendations for the following crop**

Field	Current crop	SNS index[1]	Nitrogen[2](N kg/ha)	Revised N requirement
15	Grass	mod	270	240
9,10,14,16,19	Grass	mod	270	259
17,20,21,23	Grass	mod	270	259

[1] The nitrogen index of moderate is based on nitrogen use of 100-250kg/ha N.

Table 9. **Crop Phosphorus recommendations for the following crop**

Field	P Index	P Current crop Recommendation[1] (kg P_2O_5 /ha)	Current crop P offtake[2] (kg P_2O_5 /ha)	Available (50%) Phosphate added (kg P_2O_5 /ha)
15	1	70+25+10 =105	75	101
9,10,14,16,19	2	40+25+10 =75	75	36 (72*)
17,20,21,23	3	20	75	36 (72*)

*Total used at target index and above.

[1]Assumes a yield of 38t/ha grass.
[2]Assumes 1.7kg/ha P_2O_5 and 6kg/ha K_2O is removed in 2 cuts of grass silage (25% dm) plus 10kg/ha (index 2 recommendation) assumed for aftermath grazing (July onwards, ie half of season).

Table 10. **Crop Potassium recommendations for the following crop**

Field	K Index	K Current crop Recommendation[1] (K_20 kg/ha)	Current crop K offtake[2] (kg K_20 /ha)	Available (90%) K added (kg K_20/ha)
15,23	2-	230	228	(15) 20 (23) 7
14,21	2+	180	228	7
9,10,16, 19,20	3	70	228	7
17	4	0	228	7

[1]Assumes a yield of 38t/ha grass.
[2]Assumes 1.7kg/ha P_2O_5 and 6kg/ha K_2O is removed in 2 cuts of grass silage (25% dm).

The application of waste will provide agricultural benefit and recover the nutrients within. It is predicted that the application of the waste will not raise the soil phosphorus. Where phosphate from waste is applied at a rate of 45t/ha, it should provide approximately sufficient to meet the offtake of two cuts of silage (38 x 1.7 = 65kg/ha) as well as any grazing requirement (30kg/ha). At higher levels of soil phosphorus, for example in fields 17, 20, 21 and 23, RB209 recommendations are at levels to encourage a reduction in soil phosphate and a waste application of 16t/ha does not meet the offtake from 2 cuts and allows for soil levels to reduce. However, the crop offtakes figures are based upon crop yields and any future applications of waste should be closely monitored to

ensure soil levels of P do not rise significantly. It is noted that field 15 is below the target P index and therefore should receive sufficient P for the current crop and further amounts above what might be removed in the crop to bolster and improve soil reserves for the future.

In every case, the RB209 estimate for P offtake exceeds the available P added in the waste. Fields 9, 10, 14, 16 and 19 are at target index for P but the available P application from the effluent is significantly below crop requirement. In this case, the crop will remove more P than will be applied and therefore the overall expected negative balance of 75-36 = 39kg/ha should be met with additional amounts of fertiliser required to meet crop need.

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1.8 Sensitive human and environmental receptors

Sensitive human receptors

There are a number of receptors in the area including the Plas Coch Holiday Park to the south-west and isolated farms such as the adjacent Plas Newydd Home Farm and Plas Llwynonn Farm and the outskirts of the village of Plas Cefn Mawr which lies 50m to the west.

- Noise control - Equipment is similar to normal agricultural machinery. The fields are within an agricultural environment. Sensitive spreading periods will be avoided eg. bank holidays and weekends. Deliveries will be during daylight hours.
- The contractor will ensure that there are buffer areas in place when spreading near the footpaths and watercourses.
- There are no known boreholes or springs in these fields.
- The contractor will check the location of any water main services in the vicinity of the works before commencement.

Sensitive environmental receptors

- Natural Resources Wales /'Groundwater Source Protection Zones'. The field is not within a Groundwater Source Protection Zones.
- Natural Resources Wales 'Aquifer Maps - Superficial Deposits Designation'. The field proposed are in a Secondary (undifferentiated) designation.
- Natural Resources Wales 'Aquifer Maps - Bedrock Designation'. The fields proposed are in a Principal area.
- Natural Resources Wales 'Groundwater Vulnerability Zones'. The fields proposed to be used are classified as medium.
- Natural Resources Wales Drinking Water SafeGuard Zone – the fields are not within a surface water safeguard zone.
- Flooding. From the Natural Resources Wales website, the following risks have been considered:

  Flood risk VERY LOW – each year, the chance of flooding is less than 1:1,000.
- It is not intended to spread near the boundary hedges. A 2m minimum buffer zone will be left free from waste adjacent to bushes and hedgerows. No waste will be spread beneath tree canopies.
- There are some watercourses and one pond recorded. The contractor will leave buffer strips (10m minimum) free from waste adjacent to watercourses and ponds.

A search on MAGIC Map - http://magic.defra.gov.uk/ found the following statutory and

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1.8 Sensitive human and environmental receptors

non-statutory designations to be **unaffected:**

Statutory designations

No designations affected

Non statutory:

No designations affected

Priority Species for CS Targeting – none

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1.9 Practices to reduce the impacts of the operation on identified sensitive receptors

In this section you should set out the measures to be taken to reduce the impact of the operation on the receptors identified for example:

- The fish farm sludge has an elevated level of conductivity at a level of 7,141uS/cm. However, wastes with elevated levels of conductivity may be surface spread or injected for agricultural benefit with no ill effects to the growing crop as is the case with thousands of tonnes of AD digestate every year. However, a precautionary approach should be taken to minimise any risk to a growing crop. As a well-established crop, the risk to permanent grassland is much reduced. Risks to the crop and soil will be mitigated in a number of ways, in particular, use of low application rates allowing rapid infiltration minimising any risk of ponding or runoff and dynamic risk assessment undertaken at the time of spreading, for example, when soils are dry or crops are under drought stress at certain times of year, landspreading will be limited to certain times of the day, for example early morning or at the end of the day when rates of evapotranspiration are reduced.
- Overall risk of runoff causing pollution at this site is small due to lack of surface waters apart from along the boundaries of Fields 15 and 16 but is reduced further by the following. A precautionary approach will be taken at the edges of Fields 9, 14 and 19 where steeply sloping areas greater than 12º degrees are present. Risk of runoff from these areas as well as moderately (7-12º) sloping fields is reduced by low application rates, use of modern trailing shoe spreading equipment and following the Code of Good Agricultural Practice for the Protection of Water, Soil and Air for Wales (2011), for example, no spreading in adverse weather or poor ground conditions etc.
- Any odour potential from the waste materials will be minimised. Sensitive spreading periods eg. bank holidays and weekends will be avoided.
- Spreading will only be undertaken when weather conditions are suitable.
- Buffer strips keeping any operations more than 10 metres from receptors will be put in place.
- No spreading or storage of material within 2 metres of a hedgerow, pylon, footpath or tree.
- Machinery operations will take account of soil conditions, slope etc.
- Machinery will be checked daily
- Machinery turns will not be executed in the buffer strips
- Waste deliveries to fields will be supervised to minimise impacts
- Spreading restrictions within the ‘Code of Good Agricultural Practice’ will be adhered to.
- All machinery is regularly serviced.