

Pearl Mussel Programme

Supporting Actions Specifications



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Pearl Mussel Project

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Supporting Actions Specifications

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1 Introduction

The Pearl Mussel Project is a pilot results-based agri-environment programme that rewards farmers for the environmental services provided by their land.

Peatland, grassland, and woodland habitats are used as result indicators of quality. The higher the quality of these habitats, the higher the payment farmers receive. The quality of watercourses on the farm, assessed through a whole-farm assessment, also influences the final payment.

Supporting actions are voluntary measures that a farmer may choose to undertake with the aim of improving their habitat quality or whole-farm score. This document sets out the typical supporting actions that are available to farmers within the Programme.

Each participant is assigned an annual budget of **€50 per hectare (up to a maximum of €1,200 per annum)** to help fund the delivery of supporting actions on their farm. The rate of funding varies from 25% to 100% depending on the environmental benefit of the action.

Each participant is invited to **submit an annual works plan** which details the proposed supporting actions to be completed during the following year. The **participant's advisor will submit the annual works plan to the PMP Project team via the online mapping system**. Details should include the location, quantity, and costing of works proposed. On receipt of the Annual Works Plan the project team will review the proposal before issuing approval. A final copy of this plan will then be provided to the farmer. The farmer can then proceed with the works, and on completion submit a payment claim which will comprise, a declaration that works have been completed together with any supporting documents required (receipt as proof of purchase, photograph etc), which varies depending on the action completed (see Table 1-6). This declaration can be made by the farmer using a mobile application developed for the Programme. The PMP team will visit a proportion of farms to verify the works are completed in line with Programme specifications.

A list of standard supporting actions is presented in Tables 1 - 6 below together with the level of co-funding available. **There are a number of actions that, due to their variable nature and site specific conditions, will need to be costed individually in consultation with the project team.** These measures will be costed based on standard rates for labour, machinery, and materials as published by DAFM schemes such as TAMS.

There are a six categories of supporting actions as follows;

- 1) Livestock and grazing management (**Table 1**);
- 2) Water protection and habitat enhancement (**Table 2**);
- 3) Water protection (Sheep Treatment) (**Table 2**);
- 4) Farm access improvement (**Table 4**);
- 5) Invasive species control (**Table 5**); and
- 6) Woodland establishment and enhancement (**Table 6**).

The list of actions presented here is not exhaustive and it is foreseen that additional measures may be co-funded by the Programme. As individual farmers may have innovative ideas for appropriate actions, participants and their advisors are encouraged to discuss these with PMP team. Such bespoke actions would be costed individually in consultation with the project team. The actions and associated costings presented below may be revised over the duration of the Programme.

1.1 Summary Lists of Supporting Actions

Livestock and grazing management actions

Improved livestock and grazing management can lead to improvements in habitat condition and prevent impacts on watercourses. A range of fencing options, feed and water infrastructure, and gates can be funded as appropriate depending on site and farm specific conditions. In addition, the Programme will support farmers who wish to convert to lighter native breeds which may improve habitat condition in certain circumstances. The rate of funding for these actions is typically 50%.

Table 1: Livestock and grazing management actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit	Funded cost € (maximum)	Proof of completion with declaration
L1	Post and wire fence	Metre	Line	50%	€3.00	€1.50	Photograph
L2	Electric fence	Metre	Line	50%	€1.50	€0.75	Receipt
L3	Sheep fence	Metre	Line	50%	€5.34	€2.70	Photograph
L4	Sheep fencing (mountain rate)	Metre	Line	50%	€8.01	€4.00	Photograph
L5	A Frame fence	Metre	Line	50%	€8.40	€4.20	Photograph
L6	Electric fencer (standard)	Item	Point	50%	€135.00	€67.50	Receipt
L7	Electric fencer (high power)	Item	Point	50%	€203.80	€101.90	Receipt
L8	Solar 12V fencer (standard)	Item	Point	50%	€270.00	€135.00	Receipt
L9	Solar 12V fencer (high power)	Item	Point	50%	€491.98	€246.00	Receipt
L10	Galvanized gate 4 ft	Item	Point	50%	€235.00	€117.50	Photograph
L11	Galvanized gate 8 ft	Item	Point	50%	€262.50	€131.25	Photograph
L12	Galvanized gate 12 ft	Item	Point	50%	€296.00	€148.00	Photograph
L13	Livestock conversion	Animal	Point	€350 per Livestock Unit Converted (Dexter). May vary with other breeds. Consult with PMP Team.			
L14	Cattle feed trough (single 8ft metal)	Item	Point	50%	€129.00	€64.50	Photograph & Receipt
L15	Cattle feed trough (double 8ft metal)	Item	Point	50%	€177.00	€88.50	Photograph & Receipt
L16	Sheep feed trough	Item	Point	50%	€78.50	€39.25	Photograph& Receipt
L17	Water trough (standard all inclusive)	Item	Point	50%	€193.75	€96.88	Photograph
L18	Hydrodare piping (3/4 normal, 150m roll)	Item	Line	50%	€104.00	€52.00	Photograph
L19	Hydraulic ram pump	Item	Point	50%	€500.00	€250.00	Receipt & Receipt
L20	Storage tank (plastic) 300 gal	Item	Point	50%	€270.00	€135.00	Photograph
L21	Pasture (nose) pump	Item	Point	50%	€350.00	€175.00	Photograph & Receipt
L22	Solar pump	Item	Point	50%	€1,995.00	€997.50	Photograph & Receipt
L23	ICB tank 1000L capacity	Item	Point	50%	€170	€85	Photograph & Receipt

Water protection and habitat enhancement

Various actions aimed at addressing pressures relating to flow, nutrient and sediment run-off, or potential pollution will be supported by the Programme. Actions aimed at enhancement of wetland habitats are also included here. The rate of support for these actions varies from 50 to 100% funding depending on the action and related environmental benefit.

Table 2: Water protection and habitat enhancement actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit	Funded cost € (maximum)	Proof of completion with declaration
W1	Peat / plastic dams	100 metres	Line	100%	€176.00	€176.00	Photograph & PMP visit
W2	Bog restoration training	Farm	Point	100%	Consult with PMP team		Confirmation of attendance
W3	Check (leaky) dams	100 metres	Line	100%	€176.00	€176.00	Photograph & PMP visit
W4	Earth bund	100 metres	Line	100%	€175.00	€175.00	Photograph & PMP visit
W5	Swale	Item	Point	100%	Consult with PMP team		Photograph & PMP visit
W6	Sediment trap	Trap / pond	Point	100%	Consult with PMP team		Photograph & PMP visit
W7	In-ditch wetland	Trap / pond	Point	100%	Consult with PMP team		Photograph & PMP visit
W8	Cross drain	Drain	Point	50%	€276.00	€138.00	Photograph & PMP visit
W9	Livestock exclusion (>1.5m)	Farm	Point	100%	€108.00	€108.00	Photograph
W10	Buffer strip (>3m)	Farm	Point	100%	€162.00	€162.00	Photograph
W11	Buffer strip (>5m)	Farm	Point	100%	€216.00	€216.00	Photograph

Water protection (Sheep treatment)

Table 3. Sheep treatment actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit	Funded cost € (maximum)	Proof of completion with declaration
W13	Mobile sheep dip (yr 1)	Animal	Point	50%	€1.75	€0.88	Receipt
W14	Mobile sheep dip (yr 2)	Animal	Point	50%	€1.75	€0.88	Receipt
W15	Mobile sheep dip (yr 3)	Animal	Point	50%	€1.75	€0.88	Receipt
W16	Sheep dip alternative (pour on) (yr 1)	Animal	Point	50%	€2.14	€1.07	Receipt
W17	Sheep dip alternative (pour on) (yr 2)	Animal	Point	50%	€2.14	€1.07	Receipt
W18	Sheep dip alternative (pour on) (yr 3)	Animal	Point	50%	€2.14	€1.07	Receipt
W19	Sheep dip alternative (injectable) (yr 1)	Animal	Point	50%	€1.08	€0.54	Receipt
W20	Sheep dip alternative (injectable) (yr 2)	Animal	Point	50%	€1.08	€0.54	Receipt
W21	Sheep dip alternative (injectable) (yr 3)	Animal	Point	50%	€1.08	€0.54	Receipt

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit	Funded cost € (maximum)	Proof of completion with declaration
W22	Mobile sheep dip (yr 4)	Animal	Point	50%	€1.75	€0.88	Receipt
W23	Mobile sheep dip (yr 5)	Animal	Point	50%	€1.75	€0.88	Receipt
W24	Sheep dip alternative (pour on) (yr 4)	Animal	Point	50%	€2.14	€1.07	Receipt
W25	Sheep dip alternative (pour on) (yr 5)	Animal	Point	50%	€2.14	€1.07	Receipt
W26	Sheep dip alternative (injectable) (yr 4)	Animal	Point	50%	€1.08	€0.54	Receipt
W27	Sheep dip alternative (injectable) (yr 5)	Animal	Point	50%	€1.08	€0.54	Receipt

Farm access improvement actions

Improvements to farm access may address sources of sediment and nutrient run-off from farm infrastructure. The provision of bridges may be considered where pressures associated with animal crossings on watercourses exist. The rate of funding for these actions is typically 25 to 50%.

Table 4: Farm access improvement actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit	Funded cost € (maximum)	Proof of completion with declaration
F1	Farm track upgrade	Metre	Line	25%	Consult with PMP team		Photograph & PMP visit
F2	Farm track resurface	Metre	Line	25%	4.00	1.00	Photograph & PMP visit
F3	Gateway resurface	Item	Point	50%	117.50	58.75	Photo
F4	Gateway relocation	Item	Point	50%	383.00	191.50	Photo
F5	Livestock footbridge (natural watercourse)	Item	Point	50%	665	333	Photograph & PMP visit
F6	Livestock footbridge (crossing at drain; 300mm pipe)	Item	Point	50%	320	160	Photograph & PMP visit
F7	Livestock footbridge (crossing at drain; 600mm pipe)	Item	Point	50%	602	301	Photograph & PMP visit

Invasive species control actions

The presence of rhododendron, encroaching gorse, and self-sown conifers are negative indicators for terrestrial habitats within the Pearl Mussel Programme. The cost of control reflects the level of infestation and is funded by the Programme at the rate of 75%.

Table 5: Invasive species control actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit €	Funded cost € (maximum)	Proof of completion with declaration
IS1	Rhododendron (high cover)	Hectare	Polygon	75%	€2,211.00	€1,658.25	Photograph & PMP visit
IS2	Rhododendron (medium cover)	Hectare	Polygon	75%	€1,106.00	€829.50	Photograph & PMP visit
IS3	Rhododendron (low cover)	Hectare	Polygon	75%	€536.00	€402.00	Photograph & PMP visit
IS4	Rhododendron (sparse cover)	Hectare	Polygon	75%	€106.00	€79.50	Photograph & PMP visit
IS5	Conifer (high cover)	Hectare	Polygon	75%	€1,795.50	€1,345.50	Photograph & PMP visit
IS6	Conifer (medium cover)	Hectare	Polygon	75%	€897.75	€673.25	Photograph & PMP visit
IS7	Conifer (low cover)	Hectare	Polygon	75%	€435.50	€326.50	Photograph & PMP visit
IS8	Conifer (sparse cover)	Hectare	Polygon	75%	€81.00	€60.75	Photograph & PMP visit
IS9	Gorse (high cover)	Hectare	Polygon	75%	€2,211.00	€1,658.25	Photograph & PMP visit
IS10	Gorse (medium cover)	Hectare	Polygon	75%	€1,106.00	€829.50	Photograph & PMP visit
IS11	Gorse (low cover)	Hectare	Polygon	75%	€536.00	€402.00	Photograph & PMP visit
IS12	Gorse (sparse cover)	Hectare	Polygon	75%	€106.00	€79.50	Photograph & PMP visit

Woodland establishment and enhancement actions

The establishment and enhancement of native tree groves and hedgerows in strategic locations could intercept and capture nutrients from surface water prior to discharge to watercourses. In appropriate locations, hedgerows and wooded areas can also provide added ecological benefits. Rejuvenation of overgrown hedgerows can provide shelter and improve livestock management. These actions are funded by the Programme at rates varying from 75 to 100%.

Table 6: Woodland establishment and enhancement actions.

Code	Action name	Unit	Map feature	Rate of Support	Cost/unit €	Funded cost € (maximum)	Proof of completion with declaration
WD1	Native tree grove	Tree	Point	100%	€5.00	€5.00	Photo
WD2	Hedgerow establishment	Metre	Line	75%	€5.00	€3.75	Photo
WD3	Hedgerow laying	Metre	Line	75%	€8.00	€6.00	Photo

2 Livestock and grazing management actions

2.1 Fencing (Actions L1 to L9)

2.1.1 Background

Fencing may be required to improve management of livestock with a view to improving habitat condition and/or reducing impacts on watercourses.

It is essential that the appropriate farm fencing is used for the relevant livestock types. In all cases, the fencing must be stock-proof, suitably constructed and braced, and fit for purpose. Fencing should never be placed where there is a risk of damaging or destabilising the banks of a water course.

A particular type of “A frame fence” is supported by the project which is suitable in sensitive riverside locations. This is an alternative and less labour intensive method of installing fencing next to a watercourse. Posts do not need to be driven into the ground, which saves on labour and avoids sediment release to watercourses. These fences are also effective against deer and have the advantage of being moved when needed to alter width of buffer zone as appropriate.

2.1.2 Standard Fencing Methods (L1 to L4)

- 1) Remove all old fencing material before putting up the new fencing.
- 2) Erect Permanent posts to sufficiently support new fence.
- 3) Use enough strands to control the livestock.
- 4) Fencing is never to be attached to trees or hedgerows.
- 5) All fencing should be erected at least 1.5m back from the bank of watercourse/drain.

2.1.3 Non-standard A Frame Fence Method (applies to L5 only)

The following is the typical installation requirements for A Frame Fencing:

- 1) Strainer posts are secured in the ground at both ends and one in the middle to protect fence from flooding.
- 2) 1.82m light poles nailed in ‘A’ shape formation and stood on top of the ground at 5m intervals.
- 3) Attach wire to posts.
- 4) The fence can then be moved by hand to specific widths from watercourses as required for conservation purposes.
- 5) Ensure the bottom of the fence is parallel with the ground and that there is no gaps present under the fence.
- 6) Check fence regularly during winter months for loose debris as result of flood events.

Note: Fencing actions cannot be selected along the same length within a parcel where the participant has already received or applied for funding for fencing under TAMS or GLAS.

2.1.4 Electric and Solar fencers (L6 to L9)

The electric and solar fencers are to be purchased new with certification to ensure that the product conforms with health, safety, and environmental protection standards.

2.2 Gates (Actions L10 to L12)

2.2.1 Requirements

Standard methods of gate installation are to be followed. The standard galvanised gate is acceptable although we also encourage the use of more traditional wooden or vernacular steel gates.

- 1) Hang and clasp all styles of gate separately from an adjoining fence line – do not use the hanging post as an end strainer.
- 2) Gates must be suitably constructed, braced and fit for purpose.

2.3 Livestock conversion (L13)

2.3.1 Background

This action supports farmers to adapt to more sustainable production methods, using fewer inputs and more suited to farming the sensitive wet soils in these catchments by reducing ground/soil damage. Out-wintering cattle on suitable land means less supplementary forage needs to be saved and less slurry is produced. There is a far lower risk to water quality, greenhouse gas emissions are reduced, and the farm's carbon footprint is lowered, particularly where smaller native cows are farmed. To increase farm viability and increase profits cows need to be smaller, eat less, live longer and be more fertile. Savings can be made by switching to an out-wintered dry cow system with a suitable breed.

This action supports farmers to reduce the size of their herd and/or alter the breed to facilitate the long-term sustainability of farming in these catchments. It enables farmers the potential to achieve higher PMP scores through less intensive grassland management.

2.3.2 Requirements

Replace one conventional Livestock Unit with a lighter Bovine Breed Livestock Unit such as Dexter. The participant's current and previous years Nitrates figures should be provided to PMP Team when claiming payment. The current nitrates figure should either be the same or less than the previous year's figures.

It is expected that participants will continue to use the lighter rare breed stock as part of the grazing management system while part of the PMP Project, otherwise payment may be recouped.

This measure will require discussion between the farmer and the PMP team to identify details including preferred breed, suitability of the available habitat, farm infrastructure, etc. Payment rates may take the following points into account as appropriate;

- Alteration of husbandry required by certain breeds.
- Potential for additional herding at the early stages of ownership.
- Potential options of short-term use of animals at certain periods of the year ('B&B'ing').
- Help with registering with relevant breed society if appropriate.

Any farmer considering this Supporting Action should consult with the project team to agree the appropriate funding support. As part of these discussions the team will also provide a cost - benefit analysis to illustrate the potential short to long term effects on their farm enterprise.

2.4 Provision of livestock drinking and feeding facilities (Actions L14 to L23)

2.4.1 Background

Where access to watercourses by livestock or vehicles is evident, this may result in a reduced whole-farm score. In cases where a reduced score arises, it may be necessary to prevent access and provide alternative drinking facilities. These actions also include provision of feeding troughs, should they be necessary to improve grazing management of a plot and / or eliminate risks to watercourses.

2.4.2 Requirements

The trough and associated piping should be installed according to the manufacturers specifications at the point specified in the participant's PMP Annual Works Plan. In all cases, they must be appropriate for use by the relevant livestock and fit for purpose.

There are a wide range of options available depending on local site conditions. Pasture, solar, hydraulic ram pumps may be suitable where there is no gravity fed water source available. For further advice on any of these options, please contact your advisor or the PMP team.

3 Water protection and habitat enhancement

3.1 Bog restoration (W1, W2)

3.1.1 Background

Bog (peatland) is a natural wetland habitat that occurs throughout the top eight catchments. Intact peatland provides a vital function in flow regulation, and clean water for freshwater pearl mussel rivers. They are also an important natural carbon store and in their natural state continue to accumulate carbon.

Damaged peatlands can result in faster flow of water through the catchment, resulting in inferior water quality, higher levels of flooding, both of which are serious threats to freshwater pearl mussel. In addition, damaged peatland can become a source of greenhouse gases due to the breakdown of carbon-rich peat. PMP habitat and whole-farm scores may also be reduced due to the presence of drains.

Bog restoration can reverse the negative impacts and restore the bog. It does not result in flooding of lands but seeks to restore the natural water table within the bog.

This action restores the bog hydrology through drain-blocking using peat or plastic dams (W1).

Full training of the person undertaking the works will be provided as an associated action (W2). This training in the execution of the works and their monitoring will generally involve a visit to a demonstration site where drain-blocking works have been completed.

3.1.2 Requirements

- 1) The number of dams in each of the drains to be blocked will be agreed between the PMP team and the participant, along with the type of dam and method to be used.
- 2) The person undertaking the works will be identified and will require training (Supporting action W2, which will be funded separately).

- 3) Advance notice of the expected date of commencement must be given to the PMP team.
- 4) Dams must be constructed / installed according to guidance provided.
- 5) Annual monitoring of the dams and any corrective actions will be required by the participant to ensure they are working correctly.

3.2 Check (leaky) dams (W3)

3.2.1 Background

Artificial drainage, particularly on peat soil, can result in reduced water quality and higher fluctuations in water levels and river flow which in turn reduce the quality of the habitats within the river. Check dams slow the movement of water, particularly during high flow events.

Check dams typically comprise loose, clean, stone, or wood to form a porous dam. They will have the effect of creating a pool on the upstream side during high flow periods. They need to be installed in series to be effective. Over time the bed of the drain should become stabilised.

3.2.2 Requirements

- 1) The number of check dams in each of the drains to be blocked will be agreed between the PMP team and the participant, along with the type of check dam and method to be used
- 2) The person undertaking the works will be identified and will require relevant PMP training.
- 3) Advance notice of the expected date of commencement must be given to the PMP team.
- 4) Check dams must be constructed/installed according to the guidance provided and of sufficient design to withstand high-flow periods.
- 5) Annual monitoring of the dams and any corrective actions will be required by the participant to ensure they are working correctly.

3.3 Earth Bund (W4)

3.3.1 Background

Nutrients and sediments originating from land sources follow flow pathways (often lower lying areas where overland flow concentrates to watercourses, where they may become detrimental to freshwater pearl mussel and other aquatic life. Typical sources of nutrients or sediment arise from the spreading of organic and artificial fertilisers, and bare or poached ground.

An earth bund is one of the solutions to breaking the nutrient or sediment pathway and, once constructed correctly, can improve the whole-farm score. The earth bund is usually a low (<0.5m) earth bank that is constructed in situ that intercepts overland flow to watercourses. The actual height may vary depending on the nature of the topography to ensure it breaks the pathway and diverts the flow to a more appropriate area where the nutrient and silt will naturally settle out.

3.3.2 Requirements

- 1) The dimensions specification of the earth bund will be agreed between the PMP team and the participant.
- 2) The location of the material donor site will usually be immediately adjacent to the location of the earth bund, on the upslope site.
- 3) The person undertaking the works will be identified and will require relevant PMP training
- 4) The vegetated sod (turves) should be removed and left aside prior to construction and then replace on the earth bund to allow re-vegetation as soon as possible.
- 5) Advance notice of the expected date of commencement must be given to the PMP team.

- 6) Earth bunds must be constructed/installed according to the guidance provided and of sufficient design to ensure there is no risk of water overtopping the bund.

3.4 Swale, Sediment trap, In-ditch wetland (W5, W6, W7)

3.4.1 Background

Nutrients and sediments originating from land sources follow flow pathways to watercourses, where they may become detrimental to freshwater pearl mussel and other aquatic life. Typical sources of nutrients or sediment arise from the spreading of organic and artificial fertilisers, bare or poached ground, or farm tracks. Swales, sediment traps, and in-ditch wetlands may be used to reduce or eliminate this risk.

3.4.1.1 Swale (W5)

A swale is a linear, mostly dry, vegetated channel laid with a shallow fall on its base. Swales are designed to collect and transfer runoff during rainfall events. They slow down the rate that runoff reaches a watercourse. The grass / vegetated surface of a swale helps to filter coarse sediments and pollutants from runoff allowing them to settle out and be retained within the swale. The swale also encourages infiltration of run-off to the ground.

3.4.1.2 Sediment trap (W6)

A sediment trap is a dry, shallow, vegetated basin laid with a shallow fall on its base. Sediment traps are generally dry structures that collect, retain and treat runoff during rainfall events. They typically intercept run-off from tracks or roads used by livestock or machinery and allow sediment or heavy material to drop out prior to discharge to grassland away from watercourses. The vegetated surface of the trap helps to filter sediments and pollutants within runoff retaining them within the trap.

3.4.1.3 In-ditch wetland (W7)

In-ditch wetlands are ditches that have been re-profiled to create areas where wetland vegetation can develop. This vegetation slows water flows, increases sediment deposition and helps remove nutrients from the water. These wetlands may also develop into valuable wildlife habitats in their own right. They can be created close to known risks of pollution, for example in a seasonal ditch down-slope of a cattle yard. Alternatively they can be created within a network of seasonal ditches to improve general water quality.

3.4.2 Requirements

- 1) The location and dimensions of the Swale/Sediment trap/ In-ditch wetland will be agreed between the PMP team and the participant.
- 2) The person undertaking the works will be identified and will require relevant PMP training.
- 3) Advance notice of the expected date of commencement must be given to the PMP team.
- 4) Swale/Sediment trap/ In-ditch wetlands must be constructed/installed according to the guidance provided and of sufficient design to ensure there is no risk of damage during very high flow periods.

3.5 Cross drains (W8)

3.5.1 Background

This item will provide a drain to intercept and conduct surface runoff away from farm tracks and yards. The drain will help reduce channelling of surface runoff and the risk of sediment and other pollution entering a watercourse.

The cross drains action supported here is designed to intercept flow on tracks thereby reduce potential erosion and sediment losses. They are installed perpendicular to the slope of a track; they are particularly effective across tracks that are parallel to the fall in land. Cross drains are discharged across vegetated surfaces to the side of the trackway.

Cross drains must be fully fit for purpose but may vary in design, depending on the nature of the track. Cross drains can comprise: a metal or plastic grate; a series of raised humps using stone or concrete; or a stone drain.

It is important that Cross drains are not directed to any watercourse or farm drain that may be connected to a watercourse. In some cases, this Supporting Action should be use in conjunction with a Swale (W5), Sediment trap (W6) or In-ditch wetland (W7) Supporting Action.

3.5.2 Requirements

- 1) Position the cross drain so it catches the water on the uphill side of the track or yard and transfers it to an outfall where it will not cause new erosion or runoff issues.
- 2) Construct the drain either by digging a partially covered channel to collect sediment and redirect surface water, or by constructing a low hump to direct surface flows.
- 3) Redirect water from the cross drain to a stable drainage outlet such as a sediment trap.
- 4) You may need to create a swale to transport this run off to a sediment trap or other suitable area where there is no risk of sediment runoff to a watercourse.
- 5) Maintain drains and drainage outfalls or the areas around humps by removing built-up sediment or other clogging materials.
- 6) Cross drains to be correctly installed across entire track to ensure all water running down the track is captured.
- 7) Cross drains to discharge to a vegetated area.
- 8) Cross drains must be maintained to ensure continuous functionality.

3.6 Livestock exclusion (>1.5m) (W9)

This action must be completed along with a permanent fencing action (L1 - L5).

3.6.1 Background

Livestock access to water courses, particularly by cattle, has the potential to damage river structure and cause pollution through inputs of sediment and / or nutrients.

This supporting action relates to the costs of planning, designing and monitoring the livestock exclusion area and will also require the inclusion of a permanent stake and wire fencing, which will be paid for as a separate supporting action (Supporting Actions L1 - L5).

3.6.2 Requirement

- 1) Participants must also select a permanent fencing supporting action (L1 - L5) along the affected stretch of watercourse. The permanent fencing will be supported under their respective rates.

3.7 Buffer strip (>3m or >5m) (W10, W11)

This action must be completed along with a permanent fencing action (L1-L5).

3.7.1 Background

Nutrients entering the watercourse, through inadequate buffer strips when applying fertiliser/pesticides or from stock grazing the banks of watercourses, can be harmful to aquatic species and habitats. Buffer strips help intercept nutrients and / or sediment from overland flow and help to stabilise banks that may have been damaged by livestock.

The required buffer strip width can vary depending on slope, soil type, and field management. This supporting action relates to the costs of planning, designing, and monitoring the livestock exclusion area and will also require the inclusion of suitable fencing, which will be paid for as a separate supporting action (Supporting Actions L1-L5).

Please note that under cross compliance organic fertilisers cannot be spread within 5m of a water course.

Two different strip widths of >3m and >5m are funded under this action.

3.7.2 Requirements

1. Participants can, depending on risk to watercourse, select a buffer strip of >3m or >5m
2. A stock-proof fence must be erected to demonstrate the buffer and to prevent livestock from gaining unrestricted access.
3. Machinery access may in certain circumstances be permitted for management purposes.
4. Where livestock are being used to temporarily graze the buffer areas (to prevent woody growth), they must be excluded 1.5 metres from the top of the bank to ensure there is no physical damage to the watercourse/bank, this may require additional temporary fencing.
5. Fertiliser or pesticides cannot be applied.
6. Use of herbicides (following strict adherence to best practice) only permitted to weed wipe or spot treat injurious weeds or invasive non-native species.
7. If the strip requires mowing or mulching to control woody growth, this should not take place until after scoring of the plot has been carried out in a given year.
8. Width of the strip is measured from the top of the watercourse bank.
9. An access gate can be included to enable appropriate management. This can be supported under L10 to L12.

Note: This supporting action cannot be selected on the same length of parcel that has been selected for a TAMS sheep fencing grant or has been funded for GLAS protection of watercourses or riparian margins.

3.7.3 Further information

It is necessary to comply with the statutory buffer zones as set out in the Nitrates Regulations, (S.I. 605 of 2017). When spreading slurry or manure a 5m buffer must be maintained during the period when spreading is permitted¹.

The following should also be noted:

¹<https://www.agriculture.gov.ie/media/migration/farmingschemesandpayments/crosscompliance/CrossComplianceHandbook130916.pdf>

- The regulatory buffers increase to double width for 2 weeks either side of the prohibited spreading period.
- For inorganic fertiliser you must maintain a 2m buffer during the period when spreading is permitted.
- Under The Pearl Mussel Programme, you must maintain a 5m buffer if weed wiping rushes.

4 Water protection and habitat enhancement (Treatment of sheep)

4.1 Sheep dipping and alternative treatments (W13 - W27)

4.1.1 Background

Sheep dipping is a common practice carried out in the majority of the PMP catchments. Dipping tanks have historically been located alongside watercourses. Sheep dip, being an insecticide, presents a high risk to water quality.

If it has been identified that there is a risk from the dipping tank or that there isn't suitable spread land away from the watercourse, this will give rise to whole-farm score of 0.6. These participants then have the option of selecting the supporting action for mobile sheep dipping. Other methods of treatment may also be supported as an alternative to sheep dipping (W16-W27), subject to submission of valid receipts in support of the payment claim.

Where suitable spread land is not available, it may be acceptable for the used dip to be transported to a suitable spread area outside of the catchment, provided a signed declaration of volume, location of the donor site, and a photo of the pumping operation is provided by the participant.

4.1.2 Requirements

4.1.2.1 Mobile dipping

- 1) Participants will select a mobile dipping contractor who has completed the PMP environmental induction course.
- 2) Participants will have to provide a copy of their most recent census.
- 3) It is the responsibility of the participant to satisfy themselves that the mobile dipper meets relevant standards, product labelling, and licensing requirements.
- 4) A copy of a receipt from the contractor detailing the number of sheep treated and the unit price of treatment per sheep needs to be submitted with the payment claim.

4.1.2.2 Other treatments

Where a participant's preference is to use injection, pour-on, or other treatment as a replacement for sheep dipping, support of 50% will be available. Receipts must be provided.

It is the responsibility of the participant to satisfy themselves that the chosen treatment meets relevant product labelling, and licensing requirements. Receipts must be submitted in support of the payment claim.

4.1.3 Further information

4.1.3.1 Cross compliance requirements for sheep dipping tanks

- The dipping tank must be structurally sound
- No outlet pipe or bung at base of tank is permitted
- Empty and cleaned after use
- Drainage pens should be concreted, channelled back to tank, and cleaned after use

- Land Spreading: must never be disposed of to soak pit or dumped on sacrifice land. Dilution rate 3:1 and max rate of 5000 L/ha must apply.

4.2 Farm track upgrade and farm track resurface (F1, F2)

4.2.1 Background

Good quality access tracks within a farm holding can be of good benefit to farmers for herding and feeding livestock, and for general farm husbandry and management, particularly in remote locations or extensive sites. However, access tracks in environmentally sensitive areas can result in considerable damage to important habitats and species, particularly during construction, and where they are in a poor state of repair. Excessive tracking, collapsed culverts, etc. can give rise to an input of pollution, particularly silt, to watercourses. This can be detrimental to freshwater pearl mussel and may result in a low whole-farm score.

These supporting action may be appropriate where an existing track is important to access remote parts of a farm for regular farm duties such as feeding livestock. Where this supporting action is sought for non-farm activities, it is not likely to be approved as a supporting action.

Farm track upgrade (F1) refers to works that may include culverts, improving levels and sub-structure, and resurfacing.

Farm track resurfacing (F2) refers only to improving the top surface of the track, generally by using a layer of geo-textile overlain by suitable stone.

4.2.2 Requirements

- 1) Advance notice of the expected date of commencement must be given to the PMP team.
- 2) They must be constructed/installed according to the guidance provided.
- 3) If a track is to be resurfaced, geotextile membranes should be laid to the full width of the track, and a base layer of stone.
- 4) Camber the track so that water sheds continuously off it.
- 5) Use cross drains or bunds if necessary (e.g. sloping tracks of where the track cannot be cambered).
- 6) During works temporary sediment control measures such as silt fencing or check dams within roadside drains may be required.
- 7) When maintaining tracks any material lost to potholes and erosion should be replaced and compacted. Direct any track runoff to a sediment trap or a swale which leads to a suitable percolation area, or divert it on to grassland, where there is no risk of runoff into drains or watercourses.
- 8) Temporary storage of stone or excavated material must be suitably located away from any watercourse or drain to prevent any siltation risk to watercourses.

4.3 Gateway resurface (F3)

4.3.1 Background

Ponding at gateways from soil compaction can give rise to surface runoff and / or soil erosion. This action provides a strengthened surface at the field gateway to reduce ponding and erosion.

4.3.2 Requirements

- 1) Clean the surface material to a depth of c.150mm or until there is a naturally occurring hard surface.
- 2) Overlay the excavated area with a geotextile membrane and fill with aggregate (hard core) to a minimum consolidated depth of 150mm.
- 3) The area to be resurfaced should be appropriate for the size of the gateway and the type of traffic that will move through it.
- 4) Compact each layer of hard core well down before adding another layer.
- 5) Temporary storage of stone or excavated material must be suitably located away from any watercourse or drain.

4.4 Gateway relocation (F4)

4.4.1 Background

Where the presence of a gateway gives rise to damage to habitats or watercourses, this may result in a low whole-farm score. This action provides for the re-location of such "high risk" access points

4.4.2 Requirements

- 1) Re-route the existing trackways associated with the gateway and make good the disused sections.
- 2) Use new hanging and shutting posts in the new gateway.
- 3) Gap up the old gateway using materials that match the character of the rest of the boundary.
- 4) Temporary storage of stone or excavated material must be suitably located away from any watercourse or drain.

4.5 Livestock footbridge (F5, F6, F7)

4.5.1 Background

Livestock or vehicular access to watercourses often results in physical damage to watercourses and can give rise to inputs of sediment and / or nutrients.

Providing a dedicated bridge may address these impacts.

4.5.2 Requirements

The bridge should be fit for purpose and built using materials that will not themselves result in pollution, and be an appropriate width for their use, e.g. cattle, quad crossing etc. The construction should also be suited to the local on-site conditions and capable of withstanding flood conditions.

4.5.3 Crossing at natural watercourse / naturalised drain (F5)

- 1) The location and dimensions of the livestock bridge will be agreed between the PMP team and the participant.
- 2) The bridge must be:
 - a single span of at least 1.5 metres
 - constructed so as not to impede the water flow
 - secured on both sides
- 3) It must not result in any alteration of the channel or heightening of the banks.
- 4) The person undertaking the works will be identified and will require relevant PMP training.
- 5) Advance notice of the expected date of commencement must be given to the PMP team.

4.5.4 Crossing at drain (F6, F7)

- 1) The bridge may be:
 - a concrete/plastic culvert (pipe) overlain by geotextile and stone.
 - constructed so as to ensure no impedance of water flow within the channel. A 300mm (F6) and 600mm (F7) are both available.
 - secured on both sides.
- 2) The person undertaking the works will be identified and will require relevant PMP training.
- 3) Advance notice of the expected date of commencement must be given to the PMP team.

5 Invasive species control

5.1 Rhododendron control (IS1, IS2, IS3, IS4)

5.1.1 Background

Rhododendron is a non-native 'alien' invasive plant that spreads easily in the wet acidic peat soils of the western seaboard of Ireland. It causes extensive shading out of native vegetation in the understory. The flowers of Rhododendron are an attractive pink colour that bear hundreds of thousands of seeds in each plant. The leaves have a waxy texture and are generally not grazed by animals. Once established, the plant may have a drying effect on the ground which may promote its further local spread.

There are a number of different treatment options depending on site characteristics including:

- Create a notch in the stem below the lowest branch and apply herbicide (glyphosate) directly to the wound, just beneath the bark, of the plant. This allows the herbicide to go directly into the plants transport system. Using this method death of the plant occurs between 9 and 31 months later, depending on application date and bush size. Treated bushes can be left standing on site to rot or alternatively cut and removed after the shrub has died.
- Young plants / seedlings can be pulled from the ground.

5.1.2 Requirements

- 1) The person(s) proposed to undertake the removal must undertake appropriate PMP rhododendron removal training.
- 2) As this action involves the use of chemical herbicide that can be harmful to people and the environment, those person(s) undertaking the action are responsible for ensuring they follow the product label, are certified to use the product and wear the appropriate PPE.
- 3) Strictly adhere to guidance provided for the treatment option selected.
- 4) This work should be done between 1st September and 28th February (outside of the bird breeding season).

5.2 Conifer removal (IS5, IS6, IS7, IS8)

5.2.1 Background

Conifers are cone-bearing trees that are generally evergreen. Common non-native species in the west of Ireland include Sitka Spruce and Lodgepole Pine. In the past, many peatland sites were planted with conifers as it was seen as an economic use of agriculturally poor land. This, however, resulted in significant ecological impacts leading to increased siltation, nutrient inputs, and alteration of water flow in the catchment.

Under suitable conditions non-native conifers can spread rapidly from adjacent plantations across peatland plots. This reduces the agricultural and ecological value of the peatland. The specific method for removal will depend on the site conditions, size and maturity of the conifers.

5.2.2 Requirements

- 1) Conifers should be hand-cut.

- 2) Depending on the nature/sensitivity of the ground conditions, the PMP team may require conifers to be removed by hand or left on site (fell to waste).
- 3) Depending on the age of the conifers, a felling licence may be required. The PMP team will provide advice on the process of applying for a licence should it be required.

5.3 Gorse removal (IS9, IS10, IS11, IS12)

5.3.1 Background

European gorse (also known as furze or whins) is a native shrub that grows up to 2m high and primarily flowers in spring, but is capable of flowering throughout the year. It can be confused with Western gorse, a smaller, more compact shrub that flowers July-September. The Western gorse is not invasive and does not need require control.

Gorse seed, which has a thick case preventing immediate germination, falls within 2m of the parent plant and can remain dormant for up to 30 years. The heat from burning breaks down the hard casing stimulating germination.

The specific method for removal will depend on the site conditions, size and maturity of the scrub and time available. Reducing/eliminating gorse from a grassland/peat plot will require ongoing management using a combination of these methods: cutting, grazing and spot spraying.

5.3.2 Requirements

- 1) Cut and, where possible, remove gorse cuttings; this should be done between 1st September and 28th February (**Do not physically remove the plant from the ground**). Either chainsaw through a stand or, if the site is outside of an SAC, use a suitable flail mower, which fits onto the front of a large tractor. Take care not to disturb the top soil if flailing
- 2) Immediately after cutting, remaining stumps of larger stands (diameter 15cm or more) should be drilled and painted with herbicides to minimise regrowth
- 3) Cuttings can be collected and burnt on corrugated metal sheets or composted if possible. On wetter sites, it is advisable to pile the cut material into a corner and leave to rot down
- 4) **Do not burn gorse stands:** heat from fires causes the seed cases to pop open and the seeds easily spread, exacerbating their spread.

5.4 Native tree grove (WD1)

5.4.1 Background

Small groups or groves of trees provide ecological benefits including increased nature value and, depending on the location of the grove may have a positive effect on water quality.

In the PMP, some farms may receive a reduced whole-farm score where active, free-flowing, drains join water courses, or where nutrient or sediment pathways are present. The planting of a small grove of native trees may be a solution to breaking these pathways.

5.4.2 Requirements

- 1) The species of native trees will be agreed between the PMP team and the participant.
- 2) The area required may vary depending on the extent of the nutrient/sediment/flow pathway from the land but the grove should be a minimum of 50 native trees covering 0.01ha (10x10m).
- 3) The trees should be planted in a cluster c.1.5m apart.

- 4) Planting should take place between November and March inclusive.
- 5) Any dead trees should be replaced in the next dormant season.
- 6) The trees should be protected from livestock.
- 7) Grass and other competing vegetation should be controlled by hand until the trees have become established.

5.5 Hedgerow establishment (WD2)

5.5.1 Background

Hedgerows form a distinctive pattern on the Irish agricultural landscape and provide a valuable nature asset to the countryside. They also provide; a stock-proof barrier; shelter for livestock; can help stop spread of disease; and define farm boundaries.

5.5.2 Requirements

- 1) The species of tree will be agreed between the PMP team and the participant.
- 2) Plant 6 plants per metre in a double row between November and March inclusive.
- 3) The trees should be protected from livestock.
- 4) Grass and other competing vegetation should be controlled by hand until the trees have become established.
- 5) Established plants should be trimmed each year to ensure the thickening of the hedgerow.

5.6 Hedgerow laying (WD3)

5.6.1 Background

Hedgerow laying aims to rejuvenate overgrown hedgerows, increase biodiversity, and enhance the visual landscape. The rejuvenated hedgerow functions much better as a barrier and shelter for livestock.

5.6.2 Requirements

- 1) Laying should be done by hand following the guidance provided.
- 2) Any gaps in the hedgerow that cannot be filled by regrowth should be planted with new plants.
- 3) Individual mature trees occurring along the hedgerow must not be laid.
- 4) Laying of hedgerows must be completed by the end of February, prior to the bird nesting season.

6 Environmental workshop

6.1 Environmental workshop (EW1)

6.1.1 Background

The Pearl Mussel Programme is a results-based programme that is a new concept to most farmers. The design of the programme provides payment bands whereby the first 15hectares of low scoring lands (often lands in receipt of most inputs) are paid at the highest rate. In the case where farmers are achieving a payment far below their potential, due to, for example, high stocking rates, high fertiliser inputs, or turf cutting activities, they may be eligible to join a series of environmental and farm viability workshops facilitated by the PMP team.

The purpose of the PMP Environmental workshop is to assist farmers develop the skills to make well informed management decisions for their farm taking due consideration of environmental issues with the view of migrating towards a more sustainable farm enterprise. The workshops will also provide the farmers with the opportunity of increasing their income through the PMP. The key focus areas of the workshop will include improving environmental outputs, farming economics and increased efficiency in farming.

This is a trial measure, and in year 1 of this Supporting Action, Environmental Workshops, will be offered to a small number participants that are currently in receipt of low payments relative to their potential payment.

6.1.2 Requirements

- 1) Participants are required to attend all four workshops, which will be held on week-day evenings.
- 2) There will be an action-based task to complete to illustrate an understanding of the project goals. This will involve the participant farmer implementing an action that will result in a score increase on their own farm.
- 3) Participants will lead the workshops, with the project team adding a formal structure and providing guidance during the workshops.