

DAERA TECHNICAL BULLETIN

SEPTEMBER 2017

This Technical Bulletin aims to provide advice and guidance to farmers and growers affected by the extreme flooding event on 22/23 August 2017.

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HEALTH AND SAFETY

Working in areas affected by a severe flooding event can be dangerous with unstable ground conditions, flooding, hidden dangers and potential disease risks among the main hazards. All situations should be carefully assessed and the appropriate safety measures/practices adopted.

FARM WASTE

With much farmland covered in flooding debris including forage, soil and stones farmers can move this within their land without the need for a waste authorisation, however care must be taken not to dump or infill material on any environmentally designated or priority habitat areas.

Stones - These should be collected as soon as ground conditions allow. Do not travel on wet fields with heavy loads of stones as this will cause compaction which will increase the damage to the soil and sward.

Stones can be used to reinstate walls and banks. **Before working on watercourse banks consult with the Loughs Agency for advice & permissions.**

If the material is to be moved off a holding, it becomes waste and there may be other requirements farmers or landowners need to consider. **Advice or support on these matters can be obtained by calling NIEA on 028 9056 9360. NIEA have officers on standby to provide local, practical advice where feasible.**

In addition to the soil and stones, other debris has been deposited by the flood waters.

Uprooted trees, hedges and other wood – This can be burnt or composted within the farm business as long as unsuitable materials, for example, plastic and wire have been removed.

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Damaged baled silage – these can be composted and stored under the same conditions as farmyard manure as long as plastic wrapping and netting have been removed.

Rubbish – plastic materials and damaged fence wire other domestic and farm waste should be reused where possible on the farm, otherwise they must be treated as wastes and disposed of appropriately. If the material is to be moved off a holding, it has to be moved to a site that is authorised to accept it. The landowner should obtain a copy of the sites' authorisation, and where required their working plan, from the site operator to examine the wastes it is authorised to accept. **Advice or support on these matters can be obtained by calling NIEA on 028 9056 9360.**

WORKING IN AREAS OF SPECIAL SCIENTIFIC INTEREST (ASSI)

Areas of Special Scientific Interest (ASSIs) are protected as they represent the best of our wildlife and geological sites. Before undertaking works, for example backfilling of river erosion by depositing soil/stones in rivers that forms part of an ASSI you may require consent. If you are unsure whether your land forms part of an ASSI you can check using the Department's Natural Environment Map Viewer: <https://www.daera-ni.gov.uk/services/natural-environment-map-viewer>. An application form can also be found at: <https://www.daera-ni.gov.uk/publications/request-consent-carry-out-notifiable-operation-assi>. Hard copies are available on request by telephoning 028 9056 9516. **To process your application quickly, provide as much detail as possible including a map.**

Landowners do not need consent from DfI Rivers for routine maintenance or removal of obstructions from watercourses unless these works will modify/divert the channel or impede the passage of fish. **Should landowners need advice they should contact DfI Rivers on 028 8676 8342. If work needs carried out in a river with an important fishery habitat, contact the Loughs Agency 028 7134 2100.**

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PREVENTING WATER POLLUTION

The extreme weather and flooding may have resulted in some slurry tanks overflowing and causing pollution to a watercourse. These circumstances will be taken into account by NIEA if such a pollution incident is reported to them for investigation.

The closed spreading period will commence on 15 October. While a force majeure claim can be taken into consideration it would be advisable to try to empty tanks before this date if ground and weather conditions permit

Farmers are expected to take all possible steps to prevent any ongoing pollution to a watercourse. For advice, contact DAERA Countryside Management Branch on 0300 200 7842.

NIEA have no significant concerns about fallen animals and environmental pollution, provided DAERA's advice on fallen animals is followed.

FARMLAND AFFECTED BY FLOODING

Field Operations - In all of the situations below it is recommended to only carry out operations on fields when ground conditions are suitably dry to carry machinery and equipment. Although it is desirable to reinstate damaged fields as quickly as possible - travelling on them, especially with heavy machinery, in wet conditions will be more likely to cause more long term damage to soil structure and drainage than waiting for drier conditions. In addition the work must be able to be carried out safely with no risk of injury to workers.

Watercourses - The priority where watercourses are diverted and water is running over fields is to reinstate the watercourse to its original path – **before beginning any work on tributaries and along main rivers contact Loughs Agency on 028 7134 2100 for advice and, if required, permissions.**

Grazing - covered in a fine layer (less than 2"/50mm) of sediment - silt (fine non-gritty material) or sand (gritty material)

Where there is a fine layer of silt it is likely that natural processes will begin to break this down over the winter. The main effect of this layer is to seal the surface of the soil, reducing drainage and air movement through the soil ultimately reducing grass growth. If this layer dries out during this autumn there would be a benefit to harrowing/raking the surface to break-up the seal. Doing this to wet/sticky silt will be counterproductive due to the risk of increasing the sealing effect.

A thin layer of sandy material will not seal the soil and is less likely to reduce grass growth. It can be harrowed or raked when ground conditions are suitable to carry machinery, to help it to break down into the soil, but grass growth over the winter is unlikely to be restricted if this is not possible.

Grazing - covered in a thicker layer (2"/50mm - 4"/100mm) of sediment - silt (fine non-gritty material) or sand (gritty material)

Where grazing is covered with a thicker layer of silt or sand, it may be difficult to collect and remove with a digger. This layer will restrict grass growth or possibly kill the sward beneath it. **However, it is recommended that such areas are left until next spring to assess the need for reseeding or if the layer can be broken down into the existing sward.** Only in good drying conditions will a thick layer of silt dry out this autumn. If it does dry out there would be a benefit to harrowing/raking the layer to break-up the seal but doing this to wet/sticky silt will be counterproductive due to the risk of increasing the sealing effect.

Grazing – covered in a thick layer (deeper than 4"/100mm) of sediment – silt (fine non-gritty material) or sand/gravel

Silt – If ground conditions are adequately dry to allow the rowing or piling of silt deposits, this will help drying over the winter. If the silt deposits and the ground dries sufficiently it could be spread (depending on stone content) thinly on other improved grassland using a conventional manure spreader.

Sand and gravel – If ground conditions are suitably dry, sand and gravel deposits can be removed and stored or used to repair farm infrastructure e.g. lanes, banks. This material could be used to fill hollows in improved and semi improved grassland. It is recommended that topsoil is stripped off any areas that are to be filled and replaced afterwards. If moving this material off-farm see the Farm Waste Section.

Silage Swards – containing a layer of sediment/affected by silt contamination

A silage sward with any significant amount of sediment is unlikely to be suitable for silage making.

If there is only light contamination, swards could be grazed relatively tightly – preferably after the washing effect of rainfall.

Where there is significant contamination – graze lightly (preferably with sheep) and then move them to clean grazing if possible. Remove any visible stones, and when the grass regrows, graze again lightly. Overgrazing in the first instance is more likely to create a matted layer of material that will be difficult to break down. If ground conditions are suitably dry, applying 125 – 250kg/ha (50 - 100kg/ac) of granulated lime which will help with the breakdown of the dead material at the base of the sward during the winter.

Ploughing down a heavy sward of grass this autumn will produce a very organic seedbed with uneven settlement and the resulting reseed may fail or establish

unevenly. This would leave a field surface that is very vulnerable to erosion over the winter.

Wholecrop Silage

Cereals destined for silage will be more at risk of fungal and bacterial contamination. Avoid harvesting cereals for silage that have considerable soil or silt contamination. Target the least affected fields for silage and harvest above the silt line where possible to avoid soil contamination.

Take steps to promote good fermentation, such as increased use of effective silage additives, inoculation and extra compaction in the silo. A good fermentation will kill many (but not necessarily all) pathogens in the silage. Silage from these fields should be evaluated prior to feeding out and animal health should be closely monitored. Soil contamination alone may not be a serious animal health factor, but contamination from manure, sewage treatment plants and other chemicals will be unknown and could vary from one situation to another.

Segregate any cereals harvested for silage, to enable evaluation before feeding commences. Forage should be tested prior to feeding, paying particular attention to dry matter content, starch, ash, mycotoxins and fermentation profile. In all cases try to minimize the soil contamination and attempt to dilute these forages with normal quality forages as much as possible during feeding out.

Where some cereal crops intended for wholecrop have been contaminated with soil and silt combine harvesting may be an alternative option to save the grain which could then be dried and cleaned.

Cereals

During harvesting, carefully monitor contamination in grain coming into the bin and avoid the worst sections of fields that were affected by flooding. Monitor sprouting. Try to adjust the combine to remove most of the sprouted grain and any other contaminants. Rapid drying through a batch or continuous flow drier will help to maintain grain quality and remove some of the contamination.

Crops that were under water will have an increased risk of moulds and bacterial rotting. Cereals from flood-damaged fields should be evaluated for grain quality and kept in separate storage - if there are indications of moulds or contamination. Mould and mycotoxin levels can be determined by most feed testing laboratories and used as guidance in marketing.

Crops affected by flooding will create more dust during harvesting. Operators should take steps to avoid breathing the dust. Some flooded fields have substantial debris strewn across them, which would be best removed before commencing combining as the dust created during harvest will make it more difficult for operators to avoid such debris.

Potatoes

Potato crops are particularly prone to damage by flooding. Where crops have been affected delay harvesting until the full extent of the damage is evident so that badly affected potatoes are not mixed with healthy potatoes prior to storage.

Maintain blight control programs where possible up to and during haulm desiccation.

Dry potatoes with positive ventilation before putting into store, label boxes of affected potatoes and store separately from other potatoes.

Check with end markets for any possible issues from contaminants from the flood water.

Upland/moorland or rough moorland pasture

It will probably be best to leave any damage in upland/moorland or rough moorland pasture areas to regenerate naturally. Mechanical or chemical management may breach cross compliance regulations. If particular sites are considered dangerous, you should request advice via DAERA Countryside Management Branch - 0300 200 7842.

SOIL AND PASTURE RECOVERY FOLLOWING FLOODING

Flooding of soil induces a series of physical, chemical and biological changes most of which will be reversed once the soil begins to dry out. The rate of recovery of a soil and pasture after flood waters have receded will depend on a number of factors outlined below.

Soil texture – pasture recovery will be better on light textured soils. Even after the flood waters have receded, heavy soils will retain water for longer, extending the period of water logging.

Sward height – pastures with lower grass covers prior to flooding should recover more quickly as they will have collected less silt and mud. Longer grass slows water flow, which will have caused sediment to settle out.

Silt and mud – sediment deposits of less than 5cm should allow pasture to regenerate relatively quickly. However, deposits of very fine sediment can cause surface sealing, which reduces water infiltration and aeration, thereby creating anaerobic conditions in the soil.

Weed burdens after flooding are likely to be large, as flood waters can introduce new weed species to pastures. In addition, thin, slow recovering pastures and bare soils will allow weed infestation and a reduction in the seed bank of desirable species.

Soil structure, health and fertility must all be considered after flood events. Typically, finer clay loam deposits will in theory contain more nutrients than the coarser, sandy material which is often deposited closer to the river channel.

Soil aeration - where river silts become ‘smelly’, this indicates that toxins are present as a result of anaerobic organism activity. It is probable that sowing grass seed directly onto ‘smelly’ silt will result in poor germination due to these toxins and also the lack of soil structure. However, recovery of anaerobic silt following cultivation when dry enough is likely to be rapid.

Soil testing - is essential to be able to correct any imbalances in soil chemistry, particularly in situations where salt water has caused flooding. Following flooding, it is likely that readily mobile nutrients such as nitrogen and sulphur will have been leached from the soil profile. **Don't apply lime or nutrients to uncultivated land or unimproved or rough moorland pasture.**

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DRAINAGE

Existing drainage systems – check all existing drains and outfalls to ensure they are not blocked – be sure to look up the pipe at outfalls to ensure material hasn't been forced up the pipe by flood water. If pipes are blocked clear them by rodding, jetting or if necessary digging out the blocked length. Headwalls of outfalls that have been washed away will need to be reinstated.

Surface pooling/ponding on fields – this may be due to a thin layer of silt preventing water getting into the soil. Leaving this over the winter will make the problem worse. For small areas it may be possible to use a crowbar or spade to break this seal sufficiently to allow the pool to disappear. Larger areas may need a shallow drain to take the water away to the nearest watercourse. Subsoiling these areas should correct the problem but only when ground conditions are suitable to carry machinery. This will probably only be possible next year - **Subsoiling wet soils will make the problem significantly worse and more difficult to correct.**

UPLAND LANDSLIDES

In most cases these landslides have removed a layer of vegetation and some soil/peat but a layer of soil/peat remains. It is likely that these areas will regenerate naturally over a period of years. **As these areas are within unimproved fields/moorland they should not be seeded or cultivated without consulting DAERA's Countryside Management Branch. Only specialist mixes would be acceptable and restricted to grassland sites.**

A number of deep gullies have been created with steep and, in some cases, undermined sides. You should keep away from these as they are likely to widen over time. Temporary fences to keep livestock away would reduce the chances of losses but permanent fencing should not be carried out until the area stabilises.

FIELD BOUNDARIES

Damaged or destroyed farm boundaries should be recorded on an FM1 report as farmers must retain landscape features under cross compliance regulations. Soil, silt and stone debris on the farm can be used to recreate any walls or earth banks affected by the flooding. Permanent fencing replacement should only be carried out when all other associated restoration measures have been completed including the cleaning of existing watercourses. A silt-filled watercourse will be more prone to flooding until it is cleaned thus putting any adjacent new fencing at risk. Temporary fencing such as electric fencing should be considered if immediate stock control is needed. When planting new hedges ensure that the site is stable and well prepared to ensure highest chance of success.

RISKS TO ANIMAL HEALTH

Livestock that have been stressed by flooding events may be more prone to diseases such as pneumonia. Vaccinating these stock may reduce the incidence and effects of these diseases. An appropriate vaccination programme should be discussed with your PVP (Private Veterinary Practitioner).

Exposure to soil contaminated feed can result in an increased risk of Clostridial infections. Ensure that all grazing stock are effectively vaccinated against diseases such as Blackleg and Black's disease. Vaccinations that cover a range of diseases, i.e., 7 in 1 or 10 in 1 are likely to be more effective.

Soil contamination in silage can lead to an increased risk of listeriosis, especially in sheep. Avoid feeding any contaminated silage to sheep.

Soils that have been or are covered with water for a period of time may contain higher levels of Salmonella and Leptospira organisms. These can affect all livestock but pregnant stock will be most vulnerable. Discuss these potential risks with your PVP.

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It is unlikely that short term or flash flooding will increase levels of stomach worms, liver or rumen fluke but normal treatment routines should be continued.

Botulism is caused by a toxin found in rotting animal material or on the bones of dead animals, especially those which have been buried and then unearthed. Botulism is a Clostridial disease, but is not covered by the normal Clostridial vaccines. Removal of carcasses as soon as possible is important in the prevention of botulism.

Try to separate neighbouring flocks and herds mixed by fence damage as quickly as possible. Temporary electric fences could be used to minimise the transfer of diseases such as BVD and TB.

FODDER SHORTAGES

The loss of second cuts in the field and round bales will reduce the fodder available to some farm businesses this winter. Further detailed advice will be available later on dealing with fodder shortage but the first stage is to assess the quantities available and the likely requirements this winter. **An online calculator is available on the DAERA website – www.daera-ni.gov.uk go to Online Services and then Calculators. A worksheet is available from CAFRE advisers and DAERA Direct Offices.**

FORESTRY

Where areas are damaged one option may be to avail of Forestry grants to establish woodlands. Further details are available at www.daera-ni.gov.uk/topics/forestry-grants-and-funding/forestry-grants.

GET SUPPORT FOR YOURSELF

As well as the physical impact on the land, the flooding has had a devastating impact on the local community and many individual farmers.

Rural Support offers free, confidential, face to face support. Our Farm Business Mentors can help to analyse your current financial/ farm business position and help identify a way forward beyond the floods. Mentors will be available to help farmers work through the current situation and put together a plan for the coming months providing not only practical but also emotional and impartial support.

Rural Support also provides a listening and signposting service for farmers and rural families across Northern Ireland. Rural Support's volunteers are all from a rural background, with many being retired farmers and individuals who have worked in the agriculture sector. Our volunteers understand the emotional drain, technical difficulties and isolation experienced by farming and rural communities, especially in events such as the recent flooding.

To speak to someone in confidence contact our helpline on **0845 606 7 607**. The helpline is available from 9am to 9pm Monday - Friday (voicemail and support options available at all other times).

Contact Information

- Rural Support 0845 606 7 607
- Loughs Agency 028 7134 2100
- DfI Rivers 028 86768342NIEA 028 9056 9360
- ASSI forms 028 9056 9516
- DAERA Countryside Management Branch 0300 200 7842
- NIEA water pollution hotline is available 24 hours a day - 0800 807 060.
- Farming advice CAFRE Advisors 0300 200 7843
- Animal health and welfare DAERA 0300 200 7840
- Forest Service customer number 028 6634 3019
- Force Majeure form - available at this link <https://www.daera-ni.gov.uk/publications/force-majeure>

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DAERA customer helpline is 0300 200 7852 or

email: daera.helpline@daera-ni.gov.uk.

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