Rainfall Questionaire for Farmers

3 Dee Vision

Where Does the Rain Fall?

The average rainfall for the Dinnet/Logie Coldstone area is 36 inches, of which around 19 inches fall in winter (October to March). This means that during this period for every acre of your land nearly half a million gallons of rainwater washes off into the ditches and burns, and eventually down to Loch Davan. What happens to this water, and can you make sure it is still clean when it reaches the Loch?

To help you start this audit, get a spare copy of the farm map and mark on it all burns, ditches and drains. It may help to use different colours or methods to mark watercourses over 2 metres wide, under 2 metres wide and ditches that may be dry for part of the year. If you have a LERAPs plan for spraying, you could use a copy of this. Next, mark on the direction and steepness of field slopes to help you follow the route the rainwater takes. Again, a different method (eg several lines on the arrow for steep slopes and fewer for more gentle ones) will be useful.

Farm Steadings

(likley pollution sources manure, oil, chemicals)

1. Rain falling onto roofs

Is it collected in gutters, fed into down pipes, and away into clean water drains?

Yes

Are all the gutters and pipes in good order?

Yes

Good. No action needed

No

Time to do some maintenance!

Action

Repair or unblock gutters, downpipes and drains.

No

Installation of a system to divert clean roof water away from the steading will save you money and reduce the risk of contamination of ditches and burns.

Action

1. Seek advice from SAC, SEPA, etc.
2. Seek grant aid for capital works from 3 Dee Vision.

2. Rain falling onto clean concrete

Is it diverted away from dirty areas and into clean water drains?

Yes

Good. No action needed.

No

The amount of clean water which gets mixed in with slurry or dirty water increases spreading costs and frequency, and the storage capacity needed. Installing interceptor drains to divert clean water away could pay for itself quickly in reduced spreading costs. Grant aid towards capital works may be available, and the water diverted could be collected in run-off ponds and used for other purposes, such as irrigation, later.

Action

1. Seek advice from SAC, SEPA, etc.
2. Seek grant aid for capital works from 3 Dee Vision.

3. Rain falling onto dirty concrete

Is there any way of reducing the amount of water landing on dirty concrete, for example, by encouraging cattle to congregate in roofed areas, or by constructing a roof over this area? Grant aid may be available.

Yes

Good. Now's the time to sort out livestock utilisation of hard standings, or provide some form of cover.

Action

1. Revise your handling systems to minimise the amount of dirty concrete open to rainfall.
2. If financial help is needed, please bring it to the attention of the Project as grant aid may be available.

No

Is the steading close to any farm drains, ditches or burns, into which dirty water could run during times of high rainfall, carrying contamination with it?

No

Yes

Is all water running off this area collected and stored in a suitable tank or lagoon?

Yes

No

If you are sure there is no connection to a watercourse, it may be safe to allow dirty water from the steading to seep away into the ground.

Action → Seek confirmation that run-off from the steading is unlikely to result in diffuse pollution.

No

This avoids contamination of the watercourse, but may increase the amount of storage capacity needed, and the frequency of emptying – both costs to the farm.

Action → 1. Finding ways to reduce the area of dirty concrete exposed to rainwater could provide a great saving to the farm.
2. For information on how to calculate storage needs consult the 4 point plan.

Yes

No

You may be at risk of contaminating burns or watercourses.

Action → 1. Seek further advice on constructing of storage facilities.
2. Seek grant aid from 3 Dee Vision.

4. Rain falling into the slurry lagoon

Do you have sufficient storage capacity to take rainwater as well as slurry?

Yes

Although this prevents direct problems, if you have sufficient storage to hold rainwater as well as slurry, it will still cost you more, because of the extra spreading needed.

Action

Consider covering all or part of your slurry store.

No

Heavy rainfall can speed up the rate at which the lagoon fills up, and increase the frequency of the need to empty it. This is costly to you, and may force you to spread slurry in unsuitable conditions, against Good Agricultural & Environmental Practice.

Action

1. Consider ways of diverting any clean water run-off away from your storage facility, and erecting a cover to prevent rainwater falling directly into it.
2. Seek advice from eg SAC environmental, .
3. Seek grant aid from 3 Dee Vision.

Don't know

Action

Refer to the 4 point plan for help in assessing storage.

5. Rain falling onto storage areas (silage bags, oil tanks, sprayer filling areas).

Are all areas properly bunded, with rainwater collected separately to ensure that contaminated water is kept away from watercourses?

Yes

Good. No further action required.

No

You must by law have adequate bunding around oil and spray storage and handling areas.

Action

Seek advice immediately and have suitable storage and containment facilities installed.

Does the farm have a contingency plan so everyone knows how to deal with accidental discharges or spillages of slurry, silage effluent, oil or chemicals?

Yes

Good. Now may be a good time to check that everything is in place and everyone knows what to do in the event of a spillage.

Action

Review your contingency plans with regular and casual staff, and check everything is in order.

No

Don't wait until an accident happens, now's the time to think about what could happen, how to prevent it and what to do in the event of a spillage.

Action

Seek advice from SEPA or SAC to help draw up an contingency plan.

6. Rain falling onto roads or tracks

Are these made of tarmac, concrete or other hard material which is not likely to erode?

Yes

These materials are much less likely to cause siltation problems in the neighbouring watercourses, although run-off may be faster, and could carry contaminents with it.

No

Dirt or hardcore roads can present problems by channelling water which then may wash the road away and deposit silt into nearby watercourses. Do these tracks have drainage channels set at regular intervals to collect water washing down or off the roads and reduce the risk of erosion?

Yes

Good. Well designed and maintained channels should reduce water damage to the road, and subsequent run-off into watercourses.

Action

Check these channels to see that they are all clear and are not depositing silt into the ditches. If silting is a problem, installing a simple silt trap at a convenient point will ensure silt is all collected in one place.

No

Installation of proper drainage channels across tracks can reduce the need for road maintenance by reducing wash-off.

Action

1. Install drainage channels and silt traps to reduce water damage to roads and tracks.
2. Seek grant aid for this work from 3 Dee Vision

Do any of the tracks get excessively dirty at times (e.g. tattie harvest, muck spreading, milking time, etc)?

Yes

No

Good. No action required

Is it possible to reduce the amount of dirt deposited on the roads, by for example not overloading muck spreaders, not cutting across the tattie field after harvesting, putting down straw in the gateways to clean wheels and prevent poaching, brushing tractor wheels etc?

Yes

No

Good.

Action

1. Plan operations to reduce dirt on tracks
2. Keep all staff informed

If dirt is unavoidable, extra attention must be given to interception of water washing off tracks.

Action

Ensure roads are well served with properly maintained silt traps.

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Do any of the tracks cross through watercourses?

Yes

No

Good. No action required.

Is it possible to build a bridge over the watercourse, or pipe it under the track?

Yes

No

Grant may be available to assist with the cost of installing pipes or bridges.

Try to find ways to reduce the number of times the tracks are used.

Action

Action

1. Seek grant aid towards the cost of installing a bridge or culvert.
2. Install bridge or culvert to separate the road from the watercourse.

1. Look at reorganising land use to minimise the need to cross through the watercourse.
2. Seek grant aid towards the cost of installing silt traps to intercept water running down the road into the burn.
3. Install a silt traps or interception channels.

Fields and Crops

On the farm map, it may help to show the main land uses over the winter months (grass, fodder crops, land left after potatoes and root crops manure/slurry spreading, stubbles, cultivated ground, winter crops). This will help you identify those fields where there is the greatest risk of run-off leading to contamination of the watercourses.

7. Rain falling on sloping, waterlogged or frozen soils

The rain can be expected to wash off these fields immediately, carrying with it any loose material which is lying on the surface. Fields immediately next to watercourses are particularly vulnerable under these circumstances.

Do you have fields where surface water run-off is a regular feature?

Yes

These are the highest priority for consideration when trying to reduce diffuse pollution. Modify your farming operations to take account of this problem.

No

Good. No action required.

Action

1. Mark these fields on your map as high risk for run-off.
2. Do not spread manure or non-agricultural waste on these fields until soil conditions have improved.
3. Do not leave these fields with exposed soil for any length of time; cultivate immediately before sowing whenever possible.
4. Leave a buffer strip of set-aside, grass or stubble around root crops if grown in these fields.
5. Cultivate root crops after harvest to ensure a loose uncompacted surface and minimise run-off.

Is it possible to install buffer strips, interception drains or settling pond to collect water from these areas before it reaches the main burn? (These could be used for farm water storage or as a wetland habitat as desired).

Yes

Advice and grants are available for the creation of farm ponds and wetlands.

Action

Seek advice from FWAG/SAC/3Dee Vision on construction and cost, including possible sources of grant aid.

No

Good. No action required.

8. Rain falling on grass fields with livestock grazing

Problems associated with land grazed by livestock include poaching, especially around feeding areas and water troughs, damage to burn and ditch banks by trampling and erosion and direct contamination of watercourses by livestock access through fouling with dung and urine or indirectly through trampling and erosion of the banks, bringing in mud and silt to the water.

Are there areas of the field where bare soil and mud are exposed by trampling or trafficking?

Yes

Is there evidence or a risk of contamination washing off into the burn?

Yes

Consider ways of reducing this.

No

Good. It is important to avoid exposure of soil and mud, especially during the winter months. The forthcoming single Farm Payments will depend on good soil management.

Action

1. Make sure the field chosen for wintering animals is the best in terms of soil structure, slope, drainage and vegetation cover.
2. Site feed rings a minimum of 10 metres away from the watercourse, and move regularly to avoid poaching.

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3. Consider using a different feeding method, or increasing the numbers of feeding stations to reduce pressure on each one.
4. Consider the possibility of reducing the numbers of animals outwintered in this field.
5. Consider creating a hard standing on which to place feed rings throughout the winter.
6. Apply for grant aid towards the cost of the above.

Do livestock have direct access to watercourses?

Yes

As well as the problems of contamination of watercourses, there may also be a disease risk to your livestock from other animals further upstream.

No

Good. No action required

Action

1. Seek advice from FWAG, SAC, 3 Dee Vision etc on sources of grant for fencing off watercourses and alternative waterings.
2. Wherever practical, fence livestock completely out of watercourses and provide alternative sources of drinking water.
3. Where no alternative water supply is available, install hard-bottomed drinking bays and exclude animals from the rest of the burn.

9. Rain falling on land on which manure is spread

Have you followed the 4-point plan before carrying out spreading operations?

Yes

Good. The following questions should confirm that manures are being spread onto your land in a responsible manner.

No

The following questions should help ensure that manures are spread responsibly. You may wish to refer to the 4-point plan in future, to help you with your decision-making.

Are field heaps of farmyard manure sited at least 10metres away from a watercourse?

Yes

Good. Care will still be needed when spreading the manure to ensure that none is dropped or spread close to water.

No

You are in breach of the PEPFAA code, and your Single Farm Payment could be at risk as a result.

Action

Have you undertaken a Farm Waste Management plan, to ensure the land is suitable to accept the manure which is spread on it?

Yes

Good. Adherence to this plan should minimise the risk of contamination of your watercourses.

No

A Farm Waste Management Plan will assist in planning manure use and may help save costs.

Action

1 Seek advice or refer to the 4-point plan for guidance.
2 Carry out a Farm Waste Management Plan.
3 Ensure all staff are aware and adhere to this Plan.

Action

Exercise extreme care when removing this heap, and ensure all future muck heaps are sited at least 10 metres away from any watercourse.

Have you left at least 10 metre buffer strips with no manure spread alongside all burns and watercourses?

Yes

Good. This is the minimum requirement to prevent contamination.

No

You are in breach of the PEPFAA code, and your Single Farm Payment could be at risk as a result

Whenever spreading farmyard manure onto fields ensure that a minimum buffer strip of at least 10 metres is left alongside all watercourses.

Action

Was the land on which the manure was spread suitable for receiving organic manure?

Yes

Good. No action required.

No

You are in breach of the PEPFAA code, and could risk prosecution as a result.

Action

1. Undertake a risk assessment before spreading manures as explained in the 4-point plan.
2. Do not spread farmyard manure onto fields where the soil is frozen or covered in snow.

10. Rain falling on arable fields

Land on which spring crops are to be grown

Is the land ploughed and cultivated throughout the winter?

Yes

Try to plan cultivations to minimise the risk of soil erosion.

Action

1. Consider using minimal cultivations instead of ploughing.
2. Consider growing a cover crop to protect the soil over winter.
3. Leave all cultivations as late as possible into the spring.
4. Work your most level fields first.
5. Leave steep fields near watercourses till last.
6. Leave land prone to flooding till last.
7. Leave unploughed buffer strips alongside watercourses until springtime.
8. Leave cultivated ground as rough as possible (i.e. ploughed, not harrowed).

No

Good. As well as protecting the soil from erosion and reducing Nitrogen and Phosphate loss, you are providing much-needed winter foraging for farmland birds and game.

Land on which root crops are grown

Is the crop drilled up and down a slope above a watercourse?

Yes

Crops grown in this way may encourage soil erosion and run-off of soil, fertilisers and sprays into the watercourse.

Action

In future try to sow root crops across the slope.
Where this is not possible, a wide buffer strip (20metres or more) should be left at the bottom of the slope to intercept run-off from the crop.

No

Good. No action required

Is the ground left how it was when lifting was finished?

Yes

Soil is very prone to erosion after the harvesting of root crops.

Action

Try to get the land ploughed soon after harvesting of root crops.

No

Good. Loosening of compacted soil after tattie or neep harvest can help water drain into the land rather than running off the surface.

Is there a buffer strip between the harvested crop and any watercourses?

Yes

Good. This is important both to fulfil your obligations under LERAPS regarding the application of chemicals near to watercourses, and also to reduce the risk of silt run-off.

No

You may be at risk of prosecution if you have applied some crop protection chemicals within 10 metres of a watercourse. Your Single Farm Payment could also be in jeopardy.

Action

1. Consult your LERAPS guide or your agricultural adviser to ensure no chemicals are applied in breach of the law.
2. Take action to ensure there is a minimum risk of surface water run-off from the land (by ploughing to remove compaction, or sowing of a cover crop).
3. When growing root crops in future ensure a minimum of 10 metre buffer strip between the crop and all watercourses.

Land which is sown to winter crops

Is it necessary to provide a fine seedbed to ensure good crop establishment?

Yes

Fine seedbeds are much more prone to soil erosion than are rough ones.

Action

1. Try to avoid growing crops which need a fine seedbed on sloping fields, especially next to watercourses.
2. Leave a buffer strip of 10 – 20 metres between the crop and any watercourse.

No

Good. Try to leave as rough a seed bed as possible, to reduce the risk of soil capping and erosion.

Are tramlines to be installed in the crop?

Yes

Water can find a route along tramlines, especially if these run with the slope.

Action

1. Where tramlines must run with the slope, ensure they end as far away from the bottom of the field as practical.

No

Good. No action required.

Land on which fertilisers are to be applied

Have you taken into account N residues after the previous crop, N values in manure spread onto the land, and the requirements of the crop?

Yes

Good. Tailoring Nitrogen applications to existing conditions and crop requirements saves you money and reduces the risk of pollution.

No

Before spending a lot of money on fertiliser, ensure you are applying no more than is required.

Action

Seek advice from your independent agricultural adviser, or undertake a nutrient budget to ascertain fertiliser needs.

Have you had your soils tested for Phosphate recently?

Yes

Good. Tailoring phosphate applications to soil status and crop requirements saves you money and reduces the risk of pollution.

No

Before spending a lot of money on phosphate fertiliser, ensure you are applying the required amount.

Action

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Action

1. Have your soil tested for Phosphates. Financial assistance for this may be available from 3 Dee Vision.
2. Seek advice on Phosphate applications from your independent agricultural adviser.

Is a buffer strip left between the area where fertiliser is spread and a watercourse?

Yes

Good. This will help protect the watercourse from diffuse pollution.

NO

Is the fertiliser spreader adjusted for headland areas?

Yes

Good. This will save you money and protect the watercourse.

NO

You are wasting money on fertiliser and risk penalties for pollution of the watercourse.

Action

1. Introduce buffer strips between areas on which fertiliser is spread and the watercourse.
2. Consider applying for payments for Watermargins under the Rural Stewardship Scheme.
3. Adjust your fertiliser spreader when applying close to watercourses. Seek advice from your agricultural adviser or your machinery supplier.

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Project website - www.nolimp.org

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