

# Drainage: Where do you start?

## Practical Guide for crofters and smallholders



**Farm  
Advisory  
Service**

Crofts and smallholdings can often have old, damaged or blocked drainage systems, leading to water-logged soil and runoff. This guide will provide you with the steps to consider when you are planning to

### What is field drainage?

- Field drainage is installed to rapidly remove excess soil water to reduce or eliminate water-logging and return soils to their natural field capacity.
- It includes open ditches, surface culverts through to full piped drainage schemes .



### Benefits of drainage

- Warmer soils in spring will enable earlier germination of grass
- Increases the growing season with more timely cultivations and sowing
- Improves soil structure → better air & water circulation, which benefits plant growth
- Less surface run-off, which reduces risk of environmental pollution
- Improves soil water storage during flood events
- Better machinery utilisation—reduces compaction and smearing of the soil
- Improves fertiliser efficiency
- Better weed control
- Reduces risk of livestock parasites ( e.g. fluke)

### Cost of drainage

- Full drainage installation is an expensive operation and can cost between £750 to £4,500 per hectare depending on the problems identified and the equipment used.
- Therefore, a detailed assessment of all the costs and benefits both financial and environmental is required before the work is carried out.
- Don't forget: you can apply for financial support through CAGS for the installation of your new drainage system
- However, you can clean out ditches, maintain outfalls & rod existing drains for much less.

### Consider no drainage

- Sensitive habitats such as wetland and peatland could be left untouched for biodiversity purposes
- New drainage of wetlands and any unimproved land requires the approval from SGRPID as part of the Environmental Impact Assessment (Agriculture) (Scotland) Regulations 2006



## Key points to consider for improving your drainage

1. Ask yourself where is the water coming from?  
Could be a combination of several places:
  - Originating from a spring; run off from a neighbouring area; excess rainfall, or high water table
2. Review available drainage plans
  - Are the field ditches all cleared and running at the depth required?
  - Are the drain outfalls of any existing drainage all clear?
3. Soil type
  - Peaty and heavy clay soils can be very difficult to drain because the water does not flow quickly through these soils
  - Dig a hole! Topsoil & subsoil texture and structure; are there compacted layers?
  - Other problems e.g. iron ochre, running sand, etc.
4. Is it cost effective to drain?



### Top tip:

The most useful tool for drainage is a spade!

## Maintenance

### Ditches

- Cleaning out existing ditches
- Fencing off ditches and watercourses from livestock can reduce maintenance needs by preventing bank damage and erosion

### Blocked outfalls

- Can be often be cleared with a spade in a matter of minutes

### Pipes

- Use rodding pipes to clean them out and replacing damaged sections of pipe or tile



## Materials used for drainage

### Pipe type

- Currently, all new installed drainage systems use plastic pipes
- In areas where pipes could be crushed, consider twin-wall or ductile iron pipes or gravel pipes

### Permeable backfill type

- Gravel is recommended for the vast majority of piped systems
- Bulk of the material should be in the range of 5–50 mm. Material should not contain more than 10% fines

## Summary

Maintaining your existing drainage features regularly rather than building full drainage systems will be more efficiently financially. However, sometimes systems will need major overhaul or replacement—as this is expensive it is important to look after your drainage system.