

# Management and Control of Common (Soft) Rush

Information provided by Ian Cairns, Principal Consultant, SAC Consulting.



## Key messages

- + Long term control of common rush can only be achieved by addressing underlying soil problems such as drainage, soil acidity and soil fertility.
- + Mechanical topping can have a key role in rush management by either removing rush cover to allow further treatment, or for annual control of light infestations.
- + Well-timed application of glyphosate through a weed wiper can be an important part of a control strategy. It is particularly effective when applied to green rush regrowth after topping or mowing.
- + Competition from grass and clover will help reduce re-infestation in a productive sward after the initial rush control programme has been carried out.
- + Grazing management has a significant effect on rush competition. Grazing during the late spring and early summer will help control its spread. However, heavy grazing during late autumn and winter may cause poaching and compaction, encouraging the germination of dormant rush seeds the following spring.
- + The control strategy adopted on individual farms must focus on priority production areas and should take account of agri-environmental scheme and wildlife requirements.

## Keywords:

Common rush, soft rush, rush control, *Juncus effusus*

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## Introduction

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Common rush (*Juncus effusus*) infestation is mainly a problem in permanent pastures and rough grazings on poorly drained soils in high rainfall areas. In practice, these conditions are found mainly in marginal and reclaimed upland areas in the north and west of England.

Once established, rush plants can impede soil drainage and reduce sward productivity. Where silage is made they can affect consolidation in the pit or bale reducing the fermentation quality.



A 15% rush infestation in a productive grass sward, could reduce output by 1.25t DM/ha/annum. If the field is cut for big bale silage on upland in-bye fields, the value of this lost production could be as high as £192/ha (£78/acre).

Recent wet winters and summers have provided ideal rush growing conditions and severely limited the opportunity to control infestations.

## How infestations arise

Common rush seeds can lie dormant in soils for up to 60 years. Dormancy may be broken allowing germination to occur after surface disturbance during cultivation, or after surface poaching by livestock in wet weather.

A single rush seed head can produce up to 8,500 seeds a year, which are light and easily dispersed in the wind. It is very important to take action quickly to prevent rapid infestation.

Rush plants are often found in clumps in the wettest areas of fields, such as alongside watercourses or in low-lying, boggy areas. If unchecked, spread can occur to the remainder of the field or to neighbouring land.

## Preventing infestation

The level of infestation or spread can be controlled by good management:

- + Avoid damaging grass swards by overgrazing, which can lead to poaching and bare patches where rush seeds can establish
- + Maintain good drainage and remove soil compaction at the surface or within the soil profile
- + Maintain soil fertility and soil pH to encourage good grass growth
- + Sow grass seed mixtures which are persistent and tiller aggressively which will aid quick establishment and provide competition to the rush seedlings

## Controlling common rush on improved grassland

Topping with a rotary or flail mower before the rush plants produce seed, can help slow the rate of spread of infestation. It can also be useful in encouraging leafy growth before chemical treatment.

Topping should take place before the seed produced that year becomes viable, ie in late spring or early summer.

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Top with a rotary or flail mower before the rush plants produce seed

Treating severe infestations like this can create a thick mulch of dead rush plants, which will reduce grass competition and encourage rush seedling establishment. On flat and stone-free land, large areas of rushes may be best tackled by drum/disc mowing, with the cut material baled and removed.

Good grazing management is a key to prolonging the life of grass swards and prevent weed infestation. The aim is to avoid excessive winter grazing, but to graze hard, topping if necessary, in late spring and summer.

Note this strategy may be at odds with agri-environment scheme management options, which require undisturbed swards during this period for nesting birds and chick cover.

Less selective grazing animals, such as cattle, will help prevent re-infestation, due to their grazing and trampling effect on young rush plants.

Chemical control can be effective in widely-scattered and light infestations. Glyphosate can be applied through a weed wiper, where rush plants are actively growing and stand higher than the surrounding grass, eg after cattle or sheep have been removed. In particularly dense infestations, wiping in two directions may be required to achieve effective control.

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Common rush is moderately susceptible to selective hormonal herbicides, such as MCPA. These chemicals, which can be applied to grass as a boom sprayer application, must be applied with care, as they will damage or kill most broad-leaved plants, including clover. Advice should be sought from a BASIS qualified adviser before application and must be applied according to the product data sheet.

Chemical control options may not be possible where rush pastures are managed under environmental schemes and their use will not be permitted if land is managed organically. The application of all pesticides on land must be fully recorded.

In some circumstances, ploughing, drainage and reseedling offers the best long-term solution. Deep ploughing helps to bury rush seeds beyond germination depth, which is at least 250mm below the surface, creating a clean seedbed for sowing grass. A well-established, competitive grass sward which is well managed, will prevent significant rush re-infestation.

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## **Cost-effective, integrated control strategies**

Managed levels of rush plants on many farms may be tolerated, or even desirable in some locations. Rush clumps can provide protected nesting and feeding sites in wet areas for wading birds, or may provide shelter for lambs in exposed fields.

Environmental payments on most upland farms are a key income stream, so meeting the requirements of scheme prescriptions for the chosen options is necessary. This may mean that chemical control is not permitted in some areas, or that the timing and scale of mechanical topping is restricted.

Natural England should be consulted before a rush control strategy is started on land under scheme management or on unimproved land. They may be able to offer a seasonal derogation from scheme rules for an agreed control strategy.

Rush infestations on some upland farms may be severe. Tackling the problem with an effective control or eradication strategy can be expensive and time consuming.

Costs may range from £35/ha (£14/acre) for weed wiping with glyphosate, to £500/ha (£204/acre) for full reseedling. This means control of common rush on all affected areas may not be economically possible.

A strategic approach to control should be adopted, with a focus on the most important production areas of the farm first, eg silage, lambing or key grazing fields. Some large, enclosed land parcels with established rush cover, such as intakes, may be less of a priority. Control in areas like these may be more expensive and returns lower as they are generally less productive.

**A strategic approach to control should be adopted, with a focus on the most important production areas of the farm first.**

It is best to adopt a control strategy which is cost effective and relevant to each location. A standard control strategy may be as follows:

- + Mechanical topping and possible removal of rush cover
- + Check and repair field drainage or address compaction through aeration or sub-soiling where practical
- + Soil test, then lime or apply nutrients based on the results
- + Chemical control of rush regrowth with glyphosate applied through a weed wiper
- + Surface application of an appropriate upland grass seed mixture, which is direct drilled, lightly harrowed and rolled, or trampled with sheep to bring seed in contact with the soil
- + Grazing management with annual nutrient application to meet production requirements, but which also prevents surface poaching



Apply herbicide spray through a weed wiper to control rushes





A six-month-old reseed on the left shows marked improvement over the previous sward, which looked like the field to the right of it



Rows of new rush seedlings where ploughing depth has not buried dormant rush seeds beyond germination depth

### Eric and Dianne Horn

#### Slackhouse Farm, Brampton, Cumbria

Slackhouse Farm is a 45ha (110 acre) organic dairy and beef farm. All the land on the farm is classified as a Severely Disadvantaged Area (SDA) and managed as improved grassland. Stocking levels on the farm are around 1.4 LU/ha.

Annual rainfall is high at 2,000mm (79 inches) and there is a predominantly organic/peat over clay soil type. Poaching can be a problem and is the limiting factor when it comes to grazing management.

The Horns have an on-going battle with encroachment by common rush. As no herbicides can be used, a longer-term management approach is required including:

- Soil analysis to identify pH and nutrient deficiency, so appropriate nutrient applications can be planned
- Topping pasture with a rotary topper to help control annual rush growth
- Surface aeration when poor surface drainage is evident
- Using sheep from a nearby organic farm for winter grazing to help manage sward growth where grazing cattle would cause poaching

Reseeding following deep ploughing has been the most successful way of increasing grassland productivity and controlling rush encroachment. However, success is not guaranteed and has been noticeably more effective when seedbed conditions have been ideal for grass germination and establishment.

In wetter growing seasons, or when germination of new leys has been compromised, new rush seedlings have become established. The outcome of the technique is also affected by the depth of ploughing.

Where surface trash (containing high populations of dormant rush seeds) is not buried at least 250mm below the surface, rush seedlings have emerged in rows, competing with grass and clover in the newly established sward.

Reseeding following ploughing is expensive. Nutrient and pH deficiencies must be addressed to encourage good competition from the new reseed. Soil acidity has been analysed down to pH 5.3 and requires at least one application of agricultural lime to raise levels for optimum sward growth. As magnesium levels are at indices of 3 or higher, calcium lime is used.

Eric and Dianne believe that the fight will continue each year, as the soil and weather conditions on the farm naturally favour common rush over productive swards.

## For more information:

### For more information contact: Better Returns Programme

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