

GROWTH RETARDANTS

GRASS GROWTH REGULATORS FOR THE GOLF COURSE

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TRADITIONALLY the growth of grass on golf courses was 'regulated' by grazing animals. Sheep were, and still are on several rural courses, commonly used to graze almost all the course with the exception of the greens.

On most courses, however, the mower now reigns supreme. The mower saves the golfer not only the inconvenience of having to jump over an electric fence to putt but also the less than pleasant task of carefully removing unmentionable objects between the ball and hole.

For some years now there has also been a third option for the greenkeeper although few, to my knowledge, have tried it and even less use it widely on their course. Chemical growth retardants have been tried and used in various parts of the world for some 40 years, although their success in reducing grass growth has been somewhat unpredictable for many of those years.

Over the last ten years, however, better rainfast formulations and new chemicals have come on to the market, which are much less variable in their results.

There are now three chemical grass growth retardants on the market in the UK: Maleic Hydrazide, which is sold under the names Mazide and Regulox; Mefluidide, sold under the names Mowchem and Echo - a new product soon to be released by ICI Professional Products; and Paclobutrazol, sold under the name Holdfast D.

The Options

So which should you use? Well, there are advantages and disadvantages for each chemical and they can be briefly summarised as follows.

Maleic Hydrazide (Mazide, Regulox) was, until the last few years the main grass growth retardant. In the late 70's Plymouth Parks Department saved some 60 per cent of their mowing costs by implementing a mowing and retardant spraying regime using Maleic Hydrazide.

The chemical is taken up by

the plant through the leaf and is more effective in reducing the growth of coarse leaved species. This means that the finer grasses are favoured by Maleic Hydrazide in a mixed species sward. It may, therefore, have little effect when sprayed onto a pure fescue area. One of its side effects is that it reduced seed head production.

This is important as the overall appearance of a sward can be badly affected if the leaves are retarded as the seed heads are then much more obvious. The rate of application is critical with some formulations causing discolouration of the leaf if over applied; accurate mixing and application is very important. Maleic Hydrazide is also available in mixtures with broad leaved herbicides to suppress broad-leaved weed growth (Mazide Selective).

Mefluidide (Mowchem, Echo) was used in Europe and the USA for many years under the name Embark before it became available in Britain. Like Maleic Hydrazide it is taken up through the leaf requiring rain-fast formulations to be used for best effect.

It also tends to be more effective on coarser species thereby encouraging the finer grasses. seed head suppression is better than either of the other two chemicals and its use tends to improve grass colour to a rich green after minor initial discolouration.

Paclobutrazol (Holdfast D) is the newest retardant on the market and, unlike the other two, is taken up by the plant through the roots. This means that the material is unaffected by rainfall immediately after application but is almost inactive in very dry conditions.

The latter effect is of no real concern because grass growth itself is reduced by drought conditions. Paclobutrazol does tend to dwarf the finer grasses such as the fescues more than the deeper rooted coarser species.

So a mixed sward, as is usually found in the UK would tend to become dominated by the coarser grasses with time. In addition, Paclobutrazol does not suppress seed heads at all although it does reduce the height of those produced. paclobutrazol causes some discolouration. This is more pronounced on the bents where its very good retardation effect on the leaves caused the stolons to be more obvious. Holdfast D contains 2.5% dicamba in addition to paclobutrazol so that the

growth of broad-leaved weeds is also suppressed.

MIXTURES

After reading the attributes of each retardant it can be seen that choosing the 'best' chemical is difficult. This is because each grass species, and indeed often different cultivars, react differently to each chemical. In Britain, where almost all grassed areas are sown as mixtures of different species this can cause problems.

Trials work undertaken by Tom Kavanagh in Ireland and others has shown that the best overall retardation effect is

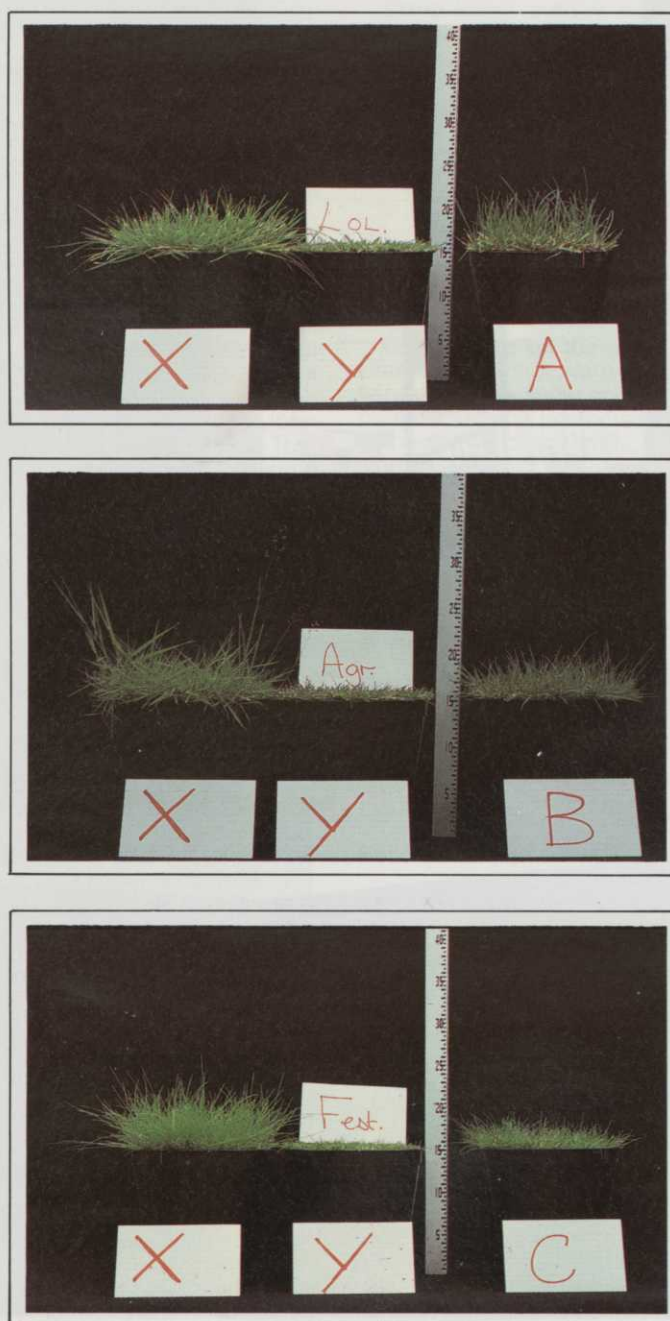
gained by applying a mixture of Paclobutrazol with either Maleic Hydrazide or Mefluidide. This is suggested on the paclobutrazol label and is therefore according to ICI Professional Products a safe mixture.

In fact, the production of Echo (Mefluidide) by ICI is a recognition that mixtures of the two chemicals mixed together produce better results on mixed swards. Such a mixture will retard both fine and coarse grass species and suppress seed head production.

WHAT ABOUT COST?

Retardants are costly both to buy and spray. However,

Three stages in the effective use of growth retardants.



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when compared to the cost of mowing the same area, keeping to the same standard, then retardants win hands down. Using retardants may enable improvement of the overall standard of the course without taking on more part-time staff.

They may also enable a reduction in the numbers of extra summer staff required or more importantly take the pressure off the Greenkeeping staff in the early summer when the work load is especially high.

The following prices are taken from a well known supplier.

COSTS OF CHEMICAL GROWTH RETARDANTS

Product	Cost per 5 litres £	Cost per hectare £
Mowchem	203-88	67-96
Mazide 25	25-94	51-88
Mazide Selective*	36-76	161-74
Holdfast D*	84-27	84-27

*Mazide Selective contains Maleic Hydrazide and two selective herbicides - MCPA and dicamba. Holdfast also contains dicamba to suppress weed growth.

These prices may seem high

but how many courses have one hectare (2½ acres) of banks and other awkward places? The cost of spraying is not included.

WHEN AND WHERE?

Chemical growth retardants are most useful and cost effective on areas which are difficult to mow. Steep banks, perhaps those around the tees and bunkers, where hover mowers normally have to be used are ideal sites for trying out retardants.

The rough and semi-rough in addition to areas which are difficult to mow - under signs and alongside walls - can also benefit. Last year a retardant was used on the grass banks of the ditch which runs through the golf course at the Lancastrian College.

We found this reduced the hover mowing at a time when the greenstaff were very busy keeping up with ganging on the fairways. Even when the bank was mown for appearances sake there was much less grass to cut which made the work much easier and quicker.

Although varying from year and from location to location,

perhaps the best time to apply growth retardants is in mid-April. This will catch the early summer growth flush of May and June as most retardants are effective for between eight and 14 weeks. Holdfast is recommended to be applied two weeks before the anticipated start of grass growth.

Grass growth retardants are not usually recommended for use on turf mown less than 25mm (2") and are not suitable for greens. Similarly, retardants are not recommended for use on areas which receive a lot of wear such as tees (except at the base of signs) and paths where the grasses are required to grow back rapidly after use.

It is also important to note that the retardants do not work as effectively on turf weeds and that, although the grass may be retarded, broad-leaved weeds if present will be much more obvious - hence the inclusion of selective herbicides in some retardants.

Using retardants with selectives may then be undesirable on areas which contain attractive and environmentally friendly natural flora which should be retained wherever possible.

Don't expect too much of growth retardants. They do not cut grass and will not give the finish that mowing does. It may then be worth having a combined spray and mow programme, the latter to give the finish that members expect.

A final consideration perhaps - with the general distrust of chemicals by the general public, there may be some resistance to more spraying on the Course by the members. However, as long as the areas are sprayed correctly by trained applicators (remember FEPA) they should be completely safe and give you another useful additional weapon for efficient course management. Don't forget, always read and strictly carry out the manufacturers instructions as printed on the label.

Thanks go to John Doyle of Maxwell Hart and Patrick Goldsworthy of ICI Professional Products for their help in providing information.

Lancashire College of Agriculture and Horticulture currently run the only BTEC National Diploma in Turf Science and Sportsground Management in the UK.