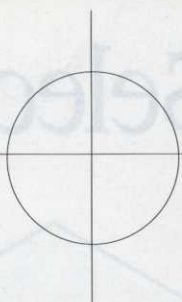


Set your



SIGHTS

Legislation and the requirement for specific label recommendations have reduced the number of herbicides which are available to the greenkeeper. Cost and delays have prevented several manufacturers and distributors from seeking approval for herbicides unless they have a significant and assured market, and while there are a number of materials which are approved for 'grass,' most if not all are primarily approved for agricultural grass – or cereal (which is a grass!). Amenity grass – ie. turf – is regarded as a different 'crop' and use. Nevertheless those manufacturers or suppliers with a significant interest in the turfgrass market have tried to ensure that their most important products are still available – although several are still in the Ministry of Agriculture approvals 'pipeline.' Only Approved Products may be supplied, stored or used; approved by the Government and including a wide range of products which encompass herbicides, adjuvants (wettters), insecticides and fungicides.

The manufacturer or his agent (who may be an importer or licensee) must seek approval for new uses even for materials which are already approved for apparently similar use, whilst approval is also needed if an existing product is reformulated. The Minister can also make specific requirements over the use of specific products (such as has happened with ioxynil) and these may include how and where they may be used and at what maximum application

rates. They can also stipulate requirements for protective clothing.

As an example, ioxynil is a valuable herbicide for taking out speedwells but it cannot be used with hand held or knapsack sprayers. It is perhaps not surprising that the products which are currently available are (mostly) those with the longest history of use and the first hormone weedkillers to find general use in agriculture: chemicals such as 2,4-D, mecoprop (CMPP) and MCPA. These pre-date most of the non-selective products such as paraquat. The two notable exceptions to this hormone weedkiller family are ioxynil and ferrous sulphate, used as a moss killer. Several suppliers have suggested to Greenkeeper International that in future they will not be licensing some of their products for amenity turf, thus the range available from any particular supplier – if not the overall range of products – is likely to be greatly more restricted.

Maximum weed control comes from optimising the application of the selected herbicide with obvious limitations being imposed by weather, growing conditions, stage of weed growth, and the efficiency of the application. Weather limitations obviously include rain, and the less obvious such as drought and hot weather – which place stress on the grass as well as inhibiting the uptake by the target weeds. Hot weather may also cause vapour drift with 2,4-D ester

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GREENKEEPER International

Selective herbicides – for the control of broadleaf weeds in turf

as listed in the British Agrochemicals Association Amenity Handbook

Active ingredient	Formulation	Suppliers and product name
2,4-D amine	Liquid	Agrichem 2,4-D, Mirfield MSS 2,4-D amine, Vitax Syford
2,4-D amine + mecoprop	Liquid	Rhone Poulenc Supertox 30
	CDA	Rhone Poulenc CDA Supertox 30, Vitax Sydex
2,4-D amine + picloram	Liquid	Chipman Atladox HI
2,4-D ester	Liquid	Rhone Poulenc Dicotex Extra, Mirfield MSS 2,4-D ester, Vitax Forester
2,4-D ester + mecoprop	CDA	BP Oil/Chipman BP Zennapron, ICI Verdane CDA
2,4-D + dicamba	Liquid	Vitax New Estermone
	Aerosol	Vitax Green Up Weedfree – spot weedkiller
2,4-D + dicamba + ioxynil	Gran Fer	ICI Longlife Plus
2,4-D + mecoprop	Liquid	ICI Super Verdane
2,4-D + mecoprop + ferrous sulphate in fertiliser	CDA	BP Oil/Chipman Zennapron
Chlorothal-dimethyl	Powder	Vitax Weed 'n' Feed Extra
Dichlorophen	W/powder	ISK Biotech Dacthal W-75
Ferrous sulphate in fertiliser	Liquid	Rhone Poulenc Super Mosstox
	Sol Powder	Fisons Greenmaster Mosskiller, Vitax Green Up Mossfree, Vitax Lawn Sand, Vitax Turf Tonic
	M/Gran	Vitax Microgran 2
MCPA	Liquid	Mirfield MCPA 50
MCPA + mecoprop + dicamba	Liquid	Chipman Tribute, Mirfield MSS Mircam Plus, Fisons Tritox
Mecoprop	Liquid	Rhone Poulenc Clovotox, Mirfield MSS CMPP
Mecoprop + MCPA in gran. fertiliser		Fisons Greenmaster Extra
Suitable for seedling grasses or young turf		
Isoxaben	Liquid	Vitax Knot Out
Mecoprop	Liquid	Rhone Poulenc Clovotox
Ioxynil	Liquid	Rhone Poulenc Actrilawn 10
For special situations, control of docks, nettles and bracken and so on		
Asulam	Liquid	Rhone Poulenc Asulox
Triclopyr	Liquid	Chipman Garland

Suppliers

- Agrichem International Ltd.**
Industrial Estate, Station Road,
Whittlesey, Cambs PE7 2EY.
Tel: 0733 204019
- BP Oil Ltd.** BP House, Breakspear
Way, Hemel Hempstead, Herts
HP2 4UL. Tel: 0442 232323.
- ISK Biotech Europe Ltd.** 4th Floor,
Central Court, 1b Knoll Rise,
Orpington, Kent BR6 0JA.
Tel: 0689 74011.
- Fisons plc.** Horticulture Division,
Paper Mill Lane, Bramford,
Ipswich IP8 4BZ. Tel: 0473
830492.
- Hortichem Ltd.** 14 Edison Road,
Churchfield Industrial Estate,
Salisbury, Wilts SP2 7NU.
Tel: 0722 320122.
- ICI Professional Products.**
Woolmead House East,
Woolmead Walk, Farnham,
Surrey GU9 7UB. Tel: 0252
733919.
- Mirfield Sales Services Ltd.**
Grosvenor Works, Linthwaite,
Huddersfield, West Yorks HD7
5QE. Tel: 0484 842451.
- Nomix-Chipman Ltd.** Portland
Building, Portland Street, Staple
Hill, Bristol BS16 4PS.
Tel: 0272 574574.
- Rhone Poulenc Ltd.** Regent
House, Hubert Road,
Brentwood, Essex CM14 4TZ.
Tel: 0277 261414.
- Vitax Ltd.** Owen Street, Coalville,
Leicestershire LE6 2DE.
Tel: 0530 510060.

'No-one can be unaware about the need to 'read the label' before using any pesticide: all warnings, precautions and statutory recommendations must be included...'

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and this has been known to decimate susceptible plants at a considerable distance downwind.

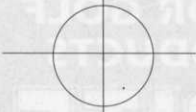
Probably the most common hormone material for use on amenity turf is 2,4-D, formulated by several companies either as an amine salt or in the ester form. Hormone weed-killers work by interfering with the plant's hormone system, causing abnormal stimulation and distortion before death. A single application applied when the weeds are growing actively in the early part of the season is likely to control weeds such as Plantains, Mouse-ear Hawkweed and Creeping Buttercup (which are very susceptible), though a second application four weeks later may be needed to finish off Daisy, Cat's Ear, Dandelion and Sorells. Clovers and trefoils may survive two applications, but obviously if these are a dominant problem you should perhaps look at using another product. Applications can safely be made with a tractor mounted sprayer or by hand-held or knapsack sprayers which allow 'spot weeding' to be carried out. Dico-tox Extra, an ester form, is suggested by Rhone Poulenc as being ideal for the economic control of a range of weeds on 'outfield' turf. Apart from relative low cost it has the advantage of being resistant to light rainfall.

More frequently 2,4-D is sold as one active constituent of a proprietary herbicide – of which mecoprop (also known as CMPP) is the most common partner. It is available both as a conventional liquid for dilution with water and application by motorised, tractor or knapsack sprayer or even by watering can, and as an oil/water concentrate for CDA application. The addition of mecoprop increases the spectrum of control by perhaps 40%. This combination is available from ICI Professional Products for CDA as Verdone CDA and from BP Oils/Chipman as Zennapron, both with the ester form of 2,4-D and the limitation of spraying in hot weather. In contrast, Supertox 30 in both CDA and conventional dilutable liquid from Rhone Poulenc uses a 2,4-D amine salt and as a consequence is non-volatile so that it may be safely used near ornamental or other susceptible plantings. Dosage rates of these chemicals is reasonably flexible allowing them to be tailored to the susceptibility of the targeted weed. White clover, creeping buttercup, plantains, daisy and dandelion succumb to the Rhone Poulenc recommendation of 84ml in 9 litres (of water) to cover 100m². Doubling the inclusion rate (but not reducing water or area) should provide control of red clovers, lesser trefoil and other weeds. Mecoprop is active against chickweed and it has a significantly greater effect on clovers and trefoils than 2,4-D, having the advantage of being particularly safe for the grasses, to the point that it is recommended – as Clovotox, by Rhone Poulenc for application to young seedling grass or turf. Again there is the flexibility to apply by hand or power sprayer or even a watering can (with a fine rose). As already stated this flexibility does not apply to ioxynil, which in a straight active ingredient formulation as Actrilawn 10, is a prime herbicide for new grass and turf, and one which is particularly effective on chickweeds and trefoils. Whilst not a hormone weedkiller, it is a contact herbicide which inhibits photosynthesis and respiration and is exceptionally safe for fine turf grasses including bents and fescues (but excepting crested dog's tail) and it may cause temporary tip scorch on perennial ryegrasses – especially if care is not taken to avoid over spraying. No claims are made for control of mature weeds, thus it is essential these be removed before seeding – perhaps by the use of a non-selective herbicide such as paraquat, diquat, or glyphostat which require no delay before seeding. However, in general, environment awareness would suggest mechanical control prior to planting.

Particularly effective for 'difficult' weeds such as Speedwells, Parsley-piert, Pearlwort and Woodrush is the mix of Mecoprop with ioxynil which suppliers Vitax were selling as

Synox, though currently they are having difficulties with supply. Their recommendation is only for established fine turf. Vitax previously sold their pesticides under the Synchemicals mark and some of these products are still around. Another 'useful' hormone herbicide which is found in combination with other active ingredients is dicamba. Vitax combine it with 2,4-D in New Estermone to give control of weeds such as Black Medick and Toad Rush as well as enhancing the control of species such as Chickweed and Common Mouse Ear. ICI include it with 2,4-D and ioxynil in their conventional liquid herbicide Super Verdone while Chipman in Tribune, Mirfield in Mircam Plus and Fisons in Tritox add it to MCPA and mecoprop to give an optimum wide spectrum of control. Vitax's answer for weed control in newly sown grass is Knot Out. Based on Isoxaben this is ideally applied within two days of sowing so that it forms a layer over the soil surface, and as it is a residual it is absorbed by broadleaf weeds as they break through. Weeds controlled include Mayweed, Speedwells, Common Mouse-ear Knotgrass, Common Chickweed and Parsley-piert. Like most residuals it is inactivated by high organic matter or peat in the soil. Iron, usually as a Ferrous sulphate compound, is well known for its ability to control moss and algae, though often it is not even recognised as being a selective herbicide as it is frequently a component of fertilisers. The contact application is perhaps less critical than with any other 'herbicide' as it can be put on by watering or spraying with hand or mechanical sprayers.

Set your SIGHTS



Many of these products can be 'tank mixed' with adjuvants – wetting agents, liquid fertilisers, conditioners or fungicides etc., – however such mixing must be within the label recommendations. For instance Rhone Poulenc list Mildothane Turf Liquid as being suitable for mixing with Clovertox and Supertox 30 where disease control is required in addition to weed control. Vitax suggest their 50/50 liquid feed as an ideal way of boosting the grass to fill in where weeds are killed. Some agronomists recommend the use of wetters to aid absorption of the chemical, but these must have clearance for this use. No one can be unaware about the need to 'read the label' before using any pesticide: all warnings, precautions and statutory recommendations must be included – and the container must at all times be complete with its label.

For anyone who has a personal computer there is the option to buy the Datachem program, a very comprehensive software package which assists the user in selecting the right product (from the Rhone Poulenc range) and to set rate use, including the calibration of the sprayer. The database also assists with the identification of pests and diseases. Past entries are saved for future reference and the program also allows data to be added to the database.