



# WORMS

## WHAT IS THE PROBLEM WITH WORMS?

Earthworms play a vital role in the soil system as nutrient recycler's, mixing surface litter with the soil, breaking down organic matter and providing channels for the infiltration of liquids and gases. However, in certain circumstances, earthworm activity in soil under fine turf is not so welcome due to the surface casts produced by some species. These casts have many direct and indirect negative effects on the playing quality of fine turf, some of which are outlined below.

- Produce uneven playing surfaces.
- Result in muddy surfaces, which can seal the surface and reduce drainage.
- Provide an ideal seedbed for weed seeds, e.g. daisy and annual meadow grass.
- Reduce visual quality of the surface.

In British soils there are 25 species of earthworm, but only three have been shown to produce surface casts, with the two major species being *Apprectodea longa* and *Lumbricus terrestris*.

It is the aim of the greenkeeper to keep surface casting at a minimum to ensure playing quality is minimally affected. However, due to the climate change predictions of milder, wetter autumns and winters, it is likely that increased incidence of worm casting will be experienced, thus increasing the negative effect on turf playing quality. Whilst we always have to accept a certain amount of casting, when casting rates are high, particularly on fine turf, the disadvantages of casts outweigh the advantages of earthworms and consequently control measures become necessary.



## CONTROLLING WORM CASTING – THE CHEMICAL APPROACH

Carbendazim has been used in the British sports turf and domestic professional turf care industries for years and became the de facto chemical for worm control after Chlordane and other chemicals associated with DDT became unavailable. Carbendazim is a fungicide but when used on turf to control disease a side effect causes worms to be deterred from entering treated soil. Carbendazim does not kill worms.



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However, there are wide concerns about Carbendazim's safety. Studies show that Carbendazim disrupts human and animal hormones. with a ban coming into force in 2017.

**THE DEADLINE FOR PURCHASING CARBENDAZIM IS 28 FEBRUARY 2017, AND THEN CLUBS HAVE UNTIL 31 AUGUST 2017 TO STORE, USE AND DISPOSE OF EXISTING STOCK.**

Chemicals used in today's domestic and professional turf care industry must have a minimal residual effect. It is the grass professional's objective to deter rather than kill worms in the soil and to utilise best practice in achieving this. [The Amenity Forum](#) has launched the [Get Moving Campaign](#) in a bid to help realise this essential goal.

Approved chemical products remain available for the golf course management are detailed in the current edition of the *BCPC - UK Pesticide Guide 2017* or at the [pesticides.gov.uk](http://pesticides.gov.uk) website.

## CONTROLLING WORM CASTING – THE CULTURAL APPROACH

As chemical control is so limited, and is likely to become even more so in the future, due to stricter pesticide legislation, it is important to adopt a more cultural approach to the worm casting problem. Essentially the cultural control methods for worm casting can be described as follows.

- **Reduce the food source:** Boxing off grass clippings and using inorganic fertilisers will reduce the food supply to worms. However, boxing off clippings from larger areas such as fairways is largely impractical not only in terms of time but also with the disposal of grass clippings. Reduction of thatch and organic matter in the soil by regular aeration and scarification techniques will also reduce the food supply further.
- **Reduce soil pH:** We can manipulate soil pH on alkaline soils. Using an acidifying agent such as iron sulphate or in some circumstances sulphur, we can drive down pH to produce more acid soil conditions and discourage earthworms.
- **Sand top dressing:** The application of sand as top dressing reduces surface casting. As a sand particle is relatively coarse, it is irritable to the worm on passage through its gut. The result of this is to force the worm to migrate away from the sand top dressed area, thus away from the playing surface. Furthermore, in the event of casting, the sandier cast is much easier to disperse. Sanding also has the benefit of diluting thatch/organic matter and improving surface drainage.

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