



**They may be the gardeners' friend but they are the greenkeepers' enemy. JIM ARTHUR discusses what to do with worms**

**W**ith more and more of the tools of our trade being banned by our Brussels bureaucrats and our 'Greens', who live in mortal fear of killing off the planet if we carry on as we have been, we shall have to rethink our approach to problems which have always made fine turf management very difficult and where cures are progressively banned.

The worst pests of golf greenkeeping are indubitably casting earthworms. It is being suggested that only recently have we discovered that there are non-casters and we should be looking at selective wormkillers. How typical! I was writing articles 46 years ago on earthworm activity and my erstwhile colleague and friend at the then Board of Greenkeeping Research; the late Peter Jefferson, researched this problem for his M.Sc. We both came to the same conclusion: it was a non-starter.

Earthworm control is beyond argument necessary. They may well be the farmers' and the gardeners' friend but they are the greenkeepers' enemy. The problem is not just the unsightly casting and resultant smearing and muddiness of the affected turf, but interference with putting surfaces and winter playing conditions, weed invasion (from both buried seeds brought to the surface and in giving points of invasion for airborne seeds) and also subsidence (to which non-casting worms contribute), not to mention increased fertility (when we want the opposite in greenkeeping).

In my young days to describe someone as green meant they were inexperienced, naive or five green shield stamps short of a pop-up toaster. Today the term means something different. But does it? On reflection, our dear and often blinkered conservationists, many of whom seem to put invertebrate life ahead of human, should still be so described. On second thoughts however, who am I to be critical - there are some invertebrates which are infinitely to be preferred to certain so-called humans busily engaged in killing or starving their neighbours to death - and not just the third world, either.

I venture to propose a philosophy which will certainly bring down coals of fire on my head, but those hurling them had better do their homework first. As with acid rain, now blamed more on cows and excessive conifer planting than on power stations; with prophets of global warming competing with those forecasting increased glaciation; with our low lying east coast areas threatened with unlimited flooding because of perhaps a few inches extra high tides, we all listen (well, some do)

# WORM

to these harbingers of doom who persuade our bureaucrats - and ours are far worse even than those in Brussels - to ban everything in sight, replacing the tools of our trade with less efficient ones which in turn are later also proscribed as 'dangerous'.

Let us take earthworm control. In my advisory life from 1946 the best advice was to use lead arsenate and I did this up to the early seventies, when it was banned. Yet I had never lost a greenkeeper in all those years, there were no cases of poisoned stock (except one case where a daft greenkeeper had washed out the drums after use in a local stream!) and when I treated my own lawns, our black cat came back with white paws and he licked them clean and all he got was a much glossier coat and an increased zest for life. he lived another 14 years after that episode!

Lead arsenate was an ideal wormkiller. It was persistent, lasting an average of eight years and in some cases where re-invasion was slower, even longer. It stayed in the soil, did not leach, did not drift when applied and did not get into water supplies, being insoluble. However, despite the evidence of their own eyes - you could still see the lead arsenate in the soil years later - it was banned. Chlordane, with an effective life of 1-2 years, replaced it. It too has now been banned. We are now down to applying short term wormkillers several times a year. Surely the risk to environment, wild life and operators is far less, when carrying out an operation once in eight years than once in eight weeks?

I mentioned this point to Jon Allbutt who at once supported my view, as this was his view too when trying unsuccessfully to oppose the ban on Chlordane - a political decision made by those who were unrepentantly deaf to all reason and logic.



## The Name Behind Britain's Top-Rated Turf

**When it comes to quality, we don't mess around.**

Take, for example, our soils. We use the best soils in the country for growing turf. Selected to grow turf that's strong and easy to lay, with no wastage. Selected for free-drainage of rain and irrigation water. And then there's the grass seed. We choose only the top-rated varieties of grass from the STRI Merit Lists - to give you not only the best instant effect, but the best long term results, too. And with a range of different grades, you can choose the most suitable for your purpose.

**Guaranteed delivery time.**

With a guaranteed delivery time for single-drop

loads, you won't be paying your men to stand around doing nothing. And if there's no fork-lift on site, don't worry... our mechanical off-loading facilities will ease the burden.

**Big or small roll.**

As you can see in the photo above, you can have Tillers Turf in either big or small rolls. To give you even greater flexibility, we offer a laying service too. Which means that if your staff are flat out with other jobs you can rely on us to deliver the turf, off-load it, and lay it to a high standard of workmanship. Of course, you may want to lay the big roll yourself, in which case we can loan you a suitable machine free. For a prompt quote, or to find

out where our distributors are nationwide, give us a call on **0652 650555**. We will also send you a copy of our brochure. And to see for yourself why Tillers is the name behind Britain's top-rated turf we can send you a sample next day, as well.



**TILLERS**

Tillers Turf Company Ltd., Castlethorpe, Brigg, South Humberside DN20 9LG. Telephone: 0652 650555. Fax: 0652 650064.

# OUT THESE PESTS

However, as I was brusquely informed by some of our continental E.C. barons laying down the law about golf course construction, 'you can moan as much as you like but there is nothing you can do about it and the sooner you accept defeat the better'.

So we must try to control earthworms and leather jackets (the two worst pests of fine turf in the U.K.) by other means. There is nothing new in this and of course we might look into wormkillers such as derris dust used many years ago, displaced by the more efficient and cheaper (in the long run) lead arsenate.

Furthermore, even in fairly recent times, i.e. forty odd years ago, there was so little money in golf that poor clubs could not afford even modest expenditure on lead arsenate costing £122 ton in 1947, so we and they had to devise management methods avoiding direct use of pesticides.

The chief method of alternative earthworm control was to acidify the soil, generally by using sulphur, to bring alkaline soils (favouring earthworm activity), down to a pH of the lower fives or even high fours. No self respecting earthworm would poke its nose into such a hostile environment! Sulphur of course takes months to oxidise and trials were and still are necessary to determine the optimum rate – to be decided not earlier than six months after laying down replicate trials from 1-4 ozs sq yd (most commonly 2 ozs did the trick). Today sulphur is used for less laudable objectives than acidifying soil: as a constituent of explosive mixtures, so its purchase is looked on with a jaundiced eye by some authorities.

Other methods were to top dress heavily with sharp sintered ash (more like pulverised glass) and similar materials such as coke breeze, worked in after aeration. This firmed up muddy fairways and certainly discouraged earthworms, but was pretty unpopular with golfers because of club damage.

Sometimes on links courses where local earthworm activity was a problem and of course against leather jackets, low lying areas (which attracted the crane flies and the worms initially because the grass was green and the soil moist) were flooded with sea water – which needed skill if you were not to risk severe yellowing. As it killed off the grasses we did not want and left the salt resistant links grasses, we tolerated any discolouration – and anyway golfers were less critical in those days and given good putting surfaces were quite happy to play the ball where it lay in between.

We used orthodichloro-benzene and Jeyes fluid as expellents for leather jackets but even without this mix, soaking turf and 'sweating' pests out under sacks or tarpaulins and then sweeping up gave some relief.

Another method widely used, especially against leather jackets or chafers, was to heavily roll the turf, killing some grubs by squashing them but making the passage of others through the soil more difficult. Of course the resultant compaction had to be corrected later by deep aeration, but it is correctable. Without such treatment (or the use of pesticides) many areas would have been left dead and rootless, demanding wholesale reseed-ing in autumn.

Of course DDT and later the BHC's made leather jacket control easy, cheap and effective – and of course its use was stopped (perhaps with some justification because of its effects at the far end of the food ladder on birds of prey). I have heard it said of the use of DDT, which continued for many years after that in the third world, that the main problem with DDT was that it had saved so much human life by eliminating insect-borne diseases (notably malaria) that there were too many heads to feed. This I think is unfair since despite the gloomy prognostications of the experts – from Malthus and Sir John Boyd Orr to the present day – about the world not being able to produce the food to meet the demands of exploding populations, the sad fact is that it is not shortages but wars, distribution and incompetence – and religion – which is the cause of the harrowing scenes of starvation that we are presented with nightly on the box.

On a parallel tack, it is of course important not to encourage earthworms to invade. Their food is of course decomposing

(not decomposed) organic matter. Now that we almost all use imported top dressings of fen soil or equivalent and sand, the use of materials attractive to earthworms has all but ceased. In the old days when farmyard manure was stacked with local soil and the heaps turned, they were veritable earthworm factories and even when let down with sand, they provided free meals for earthworms.

Allowing cuttings to fly – even on greens in those days in winter or in drought – was another source for earthworm's looking for food. One of the reasons why mowing 20 m of approaches with triplex mowers, collecting the cuttings, is the best way I know of improving turf quality is that this discourages earthworms and related weed invasion.

Pure organic fertilisers – often sewage sludge-based, but including dried blood and hoof and horn without 'balancing' ammonia and iron – certainly invited earthworms.

Pure acidic reacting inorganics (ammonia and iron on their own) will certainly discourage earthworms, but tend to leave eventually fine turf thin and open and, with prolonged use, mossy and drought susceptible.

The biggest encouragement of all, of course, comes from alkaline reacting materials. This is so widely recognised that one sees less of the horrors resulting from agricultural advice forty years ago – but one thing is certain; some fool will always come along to repeat all the mistakes made so many years ago, in the name of progress. Lime, of course, is rarely used though one sees photographs of courses where one cannot see the fairways for clouds of lime being applied to 'sweeten sour turf'. Such pictures are not all from the 1920s. It is not so many years ago that some of our heathland courses were being limed and even more recently given a dressing of basic slag, especially if the current chairman of green was a farmer! I am talking about the mid-sixties, even the seventies!

It is totally unrealistic to expect so-called research (really only investigation of known products and policies) to come up with a new wormkiller which is acceptable to the E.C. – and even if one cropped up by sheer accident it would cost millions to get it tested and passed by our obsessed bureaucrats, with no guarantee of it being passed for use after that astronomical expenditure. We can therefore forget about that remote possibility. Frankly we want glimpses of the obvious like a hole in the head and I for one cannot see any new management methods emerging, though one has to accept that with effective persistent wormkillers and pesticides so easily available, the incentive to develop such new methods was absent, in the past.

Trawling the technical papers of the temperate world's research organisations has, believe me, been done already by commercial concerns so is not likely to yield success! We might be better off in preparing cast iron cases to protect what few products we still possess against the interference of a host of busy bodies who would not know one end of an earthworm from the other.

Doubtless we shall get the usual manic minority talking about sonic booms, electrocution, or similar way-out methods of getting rid of that oldest pest of fine turf – the casting earthworms, which may be the farmers' and gardeners' friends but are most certainly the golf greenkeepers' enemies. Those who say earthworms help by aerating soils, improving fertility and breaking down thatch live in a world of their own. Casting is the main but not only problem and a mechanical aerator does the job deeper and with less men. When will golf writers understand that the poorer the soil, the better the golfing grass. Finally, thatch is associated with waterlogged conditions and I have yet to find earthworms wearing snorkels. They just don't appear in flooded conditions.

In passing, when will the uninformed realise the difference between thatch (undecomposed stagnant dead vegetation derived mainly from leaves and stems causing all manner of problems) and fibre, the dry wiry load-bearing constituent of hard wearing turf – especially for winter play – which occurs under totally different conditions and within reason is as beneficial to golf as thatch is deleterious.