

## MORE ON WORMS

Worms are the big beasts of the wonderful world of soil. There are around 7 billion species of soil micro-organism in a handful of soil, but nearly all of them are very small indeed, being bacteria and fungi and the like. Worms eat soil and leaf debris and produce castings which are twice as rich in organic material as ordinary soil. Indeed, some gardeners scrape up worm castings from their lawns for use as super compost for seed sowing. The worm casts have 7 times as much phosphate, 10 times as much potash, 5 times as much nitrogen, 3 times as much magnesium and 1.5 times as much calcium as ordinary soil. Castings are left on the soil at a rate of about 8 ounces per square foot per year, and that means about 0.75 tons per annum on my allotment – not to be sniffed at (I currently spread about 0.6 tons of farmyard manure on my allotment soil every year, so the worms make a very important contribution to increasing the fertility of my soil). Worms have no brains, no eyes, no teeth and breathe through their skin, so they are somewhat different to humans. Their main diet is bacteria. They need moist soil so there are not many worms in sandy soil. One benefit of my avoidance of digging is that I do not leave the soil in a rough-dug state which would favourise the drying-out of the soil. Indeed, my allotment soil is classed as clay loam which, in addition, has clay underneath, and with all the farmyard manure I have applied over the years must be a fairly perfect moist habitat for worms.

There are believed to be about 7,000 species of earthworm in the World, but apparently we have only 27 species in the UK, with about 8 species in the average garden. Healthy farmland has around 1,750,000 per acre which works out at about 50 per square foot – I probably have more than that in my garden and on my allotment since my soil is so rich. Indeed, one thing worms don't like is man-made chemicals and another is being disturbed by digging or ploughing and as I don't indulge in such cavalier treatment of the soil I must have very happy worms. (It is not true that if you cut a worm in half you get two.) Worms are very good at reproducing, and they reach breeding maturity at only 3 to 4 months. Nearly all species are hermaphrodites (having both male and female reproductive organs) but some need a mate to reproduce. They can live to 15 years old. Their predators are badgers, for whom worms comprise 80% of their diet, hedgehogs and moles. I have never had moles on my allotment or in my garden – perhaps it is something I said! Blackbirds in the garden take delirious pleasure in turving out farmyard manure from our flower beds in search of worms and other free food.

My favourite worms are the great, snake-like creatures up to 9 inches long that burrow deep into the soil and bring up precious trace elements from the depths then deposit them on the soil surface in their casts. I say favourite, but they do cause me angst at times when they pull up my newly-planted onion sets and leave them upside down blocking the entrance to their vertical burrows where the onions are too large to be dragged down. I put fine plastic netting over my onion bed to stop birds pulling up the onions but I have not found a way of stopping the worms play their tricks. I have noticed another aspect of the worms' behaviour: often I find small stones piled up on the top of the burrows, presumably to deter birds from invading the burrows. Worms are quite strong and can move stones six times their weight, which is a lot more than humans can do. My favourite worms create vertical burrows in the soil, so helping to aerate it. Most of the other soil micro-organisms need oxygen to thrive, so the worms create a much healthier habitat for our other precious soil micro-organisms. Of course, I am a no-dig gardener and rely on the larger worms to aerate the soil. Indeed, a friend of mine once accused me of being from "X", since the people from "X" had the reputation of sitting in the sun drinking pastis whilst others worked. (I cannot divulge the identity of "X" because I do not wish to offend!!)

My second favourite species of worm are the brandlings. These are the bright red earthworms about 3 inches long that live in compost heaps and play a large part in breaking down vegetable matter and turning it into compost. When I empty my compost heaps I find plenty of that one variety of worm. They are compost heap specialists and seem able to sense a compost heap from afar and will travel quite long distances for their favourite food. I usually pile vegetable matter into my compost heaps and just leave the brandling worms to it. After a year, or maybe two, the compost is ready to be used.

I do not apply compost accelerators and I do not turn the heaps – there is no need, I just leave it all to the brandlings.

Now for invasive species. The early settlers in North America took earthworms from the UK since they knew their value. The worms bred rapidly and soon colonised most of the USA. In our turn we in the UK now have invasive species, which are causing some distress to our worms – the New Zealand and Australian varieties of flatworm, which have only our British worms on their menus. The Australian variety grows to 2.5 inches and the New Zealand variety grows to 7 inches. They were first found in the UK in the 1960s, probably imported in plant soil. The New Zealand flatworms can run, or rather slither, quite quickly – about 50 feet per hour - which seems quite remarkable. Both these varieties of flatworm have the charming technique of lying down beside our worms and exuding a slimy substance which dissolves worms - what a way to go! It sounds perfectly horrible. There was a worry that the New Zealand and Australian flatworms would eliminate all our worms but that does not appear to be the case. I suppose that if they ate all our worms they would no longer have a food supply, so it is not in their interest to eat the lot. I have not spotted any in my garden or on my allotment but they have been sighted in a great many places in the UK. A bit of a worry really, especially for a no-dig gardener like myself who relies on British earthworms to do all the work! Am I from “X”?

Happy Gardening!

MIKE MASON