

Soil flora and fauna facts and numbers

It has been estimated that the weight of micro-organisms in the soil is 25 times the weight of all living animals and life-forms above the soil. Turn up a shovel of healthy soil, sink a hand into its richness and you're venturing into a largely unknown world of microbial interactions. Without them, crops wouldn't grow. People and animals would starve. The earth itself would die. With them, that soil lives. It breathes as we do. It generates heat. It moves in water and wind, and changes with time.

Researchers have discovered that the fertility value of plant residues is increased ten-fold by passing through a worm's digestive system. Earthworm burrows stay intact for three years and the linings are very rich in nutrients.

We have identified fewer than 2% of the microbial species in the soil," says Professor Phil Brookes at Rothamsted Research in Harpenden." "That's mainly because most cannot be grown in the laboratory." Trillions of these single-celled bacteria may fit on a teaspoon, but together they can be a key factor in stimulating root growth and nutrient uptake. They generate a constant flux of nutrients, including 50 – 100kg of nitrogen and 20 – 30 kg of phosphorus per hectare.

Ploughing turns the world upside down for earthworms, collembola (tiny insects whose numbers can be as high as 100,000/m²), protozoa and a range of other species and also the microbes.

As research reveals an ever better understanding of what's happening in the soil, science seems to be simply confirming what farmers have known for millennia. If the soil is healthy, the plant will be healthy. We must retain the natural vitality of the soil. We may not understand it completely, but in its own way, the soil is just as alive as we are.

The conclusions we can draw from this are, among many

1. There is far more species working for us than we appreciate.
2. That we tend to under-appreciate their roles.
3. That we are inclined to smother them with concoctions that can only slow or nullify their efficacy to work on our behalf.
4. That we should address our soils needs, and the trillions of critters living in it, before any destabilising of them addresses us and our prospects.
5. Finally – that if we do not feed the soil correctly and fully, and in BALANCE, then it and its many inhabitants will not be able to discharge their functions, ultimately leading to poorer soils, less thrifty animals grazing on them and, of course, the humans who consume the crops or animal products.