



The Subsistence Gardener

Soil Fertility

I hope to spend some time this month working to improve the fertility of the soil in our cereal fields. We have had several years of good rye crops, but this year the seedlings have been steadily eaten by slugs, so that there are now only about a third of the plants left. This may be partly due to the weather, but I am thinking that it has more to do with the fertility of the soil. I think that we have more slugs than is normal because we do not have the biodiversity required to keep the slug population down to the correct level, and that this ultimately comes down to not having enough organic matter in the soil.

Most people assume that soil fertility is a scientifically-recognised concept, and that it can be measured by some form of empirical tests. But, as far as I can tell, this is far from being the case; tests are available to ascertain the pH of the soil, and the mineral content, the overall organic content, and the type of soil, but the modern history of farming would suggest that none of these measures actually identifies soil fertility. Over a period of time, commercial food production has been confronted by a series of difficulties, such as declining yields, pest infestations (like my slugs), and pernicious weeds, each of which has been resolved either by the use of chemicals, or greater use of machinery. The intention was never to harm soil fertility, but the end result has been that land farmed in this way will no longer produce crops unless some form of fertiliser is added – which, to most of us, means that it has become unfertile.

In order to grow crops such as vegetables and cereals – that are generally not indigenous, and are probably not as robust as local wild plants – one has to achieve a higher level of soil fertility than exists naturally in the local landscape; in a sense, one aims to reproduce the high level of fertility that may exist in certain specific locations, such as around a rotted tree stump, or beside a spring, but across an area large enough for you to grow all the food that you need. Exactly what this means, and how you can achieve it will vary from place to place.

Like many people, we are working land whose fertility has been depleted by years of modern farming, and are having to work out what to do to return the soil to the condition that it was in, maybe a hundred, or two hundred years ago, or perhaps longer, when the focus was on subsistence and the long-term, rather than money and the short-term. There are many different elements involved.

In our area, tree roots seem to play a very important role, and even though crops suffer from competition for light and water when they are close to trees at the edge of the field, and are vulnerable to being eaten by birds using the trees as shelter, the soil itself needs the tree roots to give it structure, and to help living creatures and micro-organisms to penetrate down to deeper levels. Animal activity is also very important to soil fertility, not just the worms and insects living in the soil itself, but also frogs, toads, lizards, mice, birds, hedgehogs, etc. that roam in and around the field, controlling population levels of the smaller animals, and making their own contributions to soil fertility with their droppings.

However, it seems reasonable to presume that the main way to improve soil fertility is to incorporate the right sort of compost into the soil, in the right sort of way. For me, this means compost heaps. Because our soil was so poor at first, we did not have much material to make into compost, but things are starting to change. We have been cutting the non-crop areas with a scythe once a year, and using the cut material as a mulch. But for the past two years, we have had more mulch than we need, and now have a few unused haystacks around the land. We have also given some fallow areas a late cut, and now intend to make some big compost heaps with alternating layers of hay and green material. I imagine that the heaps will need to be turned next spring or summer, and it will be interesting to see how far the decomposition has progressed before it is time to plant next year's rye crop. Our aim is to have friable compost (too well digested to be of interest to slugs) that we can work into the surface before planting the rye.

If I am able to spend a few weeks in the winter, wheeling mulch and building compost heaps, that may do something to restore soil fertility, and, for now, I can be happy.

Judging by previous experiences of trying to convert grass into compost, the heaps may need to be turned again in the autumn, and may not be usable until the year after. However, this does not feel as though it is a serious problem. I think that I have been so worried about the slugs, not because we really need a good rye crop in 2025 (we have a surplus stored from previous years), but due to a sense of hopelessness, living in a world in which so much harm has been done to the environment, and imagining that there is nothing that can be done about it. If I am able to spend a few weeks in the winter, wheeling mulch and building compost heaps, that may do something to restore soil fertility, and, for now, I can be happy.

Gareth Lewis

Winter



Samuel Lewis