# NO-DIG GARDENING

by Mike Mason

It sounds like paradise for the gardener. It is. One simply spreads compost or manure on the surface of the soil then grows crops in it.

The scientific theory is as follows. In nature, nobody digs the soil over every year. Leaves fall, grasses and weeds die and decay, worms drag the resulting litter down into the soil and the following year's plants grow in this continuously-composting mixture. The worms do the digging and aerate the soil so that bacteria, etc in the soil can receive the oxygen they need. So the no-dig method simply follows nature.

After digging my allotment at Walter's Ash for 26 years I learned of the no-dig method and adopted it. Since the year 2000 I have not dug at all. Each winter I spread well-rotted farmyard manure over the soil, about 3 inches deep, and grow the crops in it. It works! I have better crops and avoid the effort of digging.

Now for more science. In order that plants can extract nutrients from the soil they need to have their tiny hair-like roots covered in a sheath of mycorrhizal fungi. There are many fungi in the soil which play a part in the ecosystem. The mycorrhizal fungi have a symbiotic relationship with the plants, taking surplus carbohydrates from the plants and giving in return the nutrients in a form which can be absorbed by the plants. The mycorrhizal fungi are simply **essential.**

Mycorrhizal fungi are destroyed by two things – digging and the application of herbicides and pesticides, which is what our farmers do. The farmers then apply lots of nitrogen, potash and phosphorus fertiliser to the land, but the crops have difficulty in absorbing the fertiliser in the near-absence of mycorrhizal fungi. The surplus fertiliser then runs off into streams and rivers. The farmers' fields are like deserts. To illustrate this take the example of trees being planted into former farmland. About 60% then die, starved to death because of the absence of mycorrhizal fungi. I have to admit that I don't know what the farmers can do – growing crops in compost or farmyard manure on the scale required does not seem possible. However, **we** can grow crops following the no-dig method in our gardens and allotments and benefit from the friendly mycorrhizal fungi.

Now for more science. Over the past 50 years the percentages of minerals in our food have declined – calcium by one fifth, copper by one third, sodium by a half, iron by one fifth, etc. Zinc deficiency can lead to mental diseases, digestive disorders, skin problems, anorexia, infertility, birth defects, prostate problems and diabetes. Magnesium deficiency is implicated in diabetes, arthritis and osteoporosis. Need I go on? The list of vital trace elements is extensive and also includes chromium, boron, cobalt, selenium, vanadium, iodine, nickel, molybdenum, potassium and manganese. Whilst we need only small amounts of these minerals in our food, the continuing decline must be a cause of concern for the future. A possible reason for the decline is that crops containing these minerals are taken continuously from farmland but the minerals are not replaced if only artificial fertilisers such as nitrogen, potash and phosphorus are used. Thus the percentages of minerals in farmland diminish each year – and the percentages in our food also. You can combat this decrease by growing your own food in land which is enriched with farmyard manure – putting back into **your** land the minerals taken, via the manure, from farmland.

I must acknowlege the Good Gardeners' Association (http://www.goodgardeners.org.uk) in the preparation of this article. Those wishing to know more about the topic should contact the Association on 01453 520 322. Good gardening!

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