



### **Food security**

It is widely accepted that the near future will see the development of new microbial strains and soil-dwelling organisms that offer potential solutions to problems relating to food shortage. Already, the application of biotechnology in agriculture has resulted in new crop varieties with increased resistance to pests and diseases, as well as with higher nutritional values. Nevertheless, such progress does not come without drawbacks, some of which remain controversial. Strict regulations and protocols have already been implemented to minimise potential hazards associated with genetic manipulation and the spread of transgenic organisms, among which the direct threat to human and animal health and the risk to 'natural' biodiversity are perhaps of most concern. There is, therefore, strong pressure and incentive to utilise natural biodiversity to meet the ever-growing consumer demands for such products in our increasingly environmentally focused society.

### **Human heritage**

Much of the evidence of human heritage remains buried within the soil, awaiting discovery and study by archaeologists and palaeoecologists (scientists that study past environments and ecosystems). The degree of preservation depends very much on the local soil characteristics and conditions. Soils with extreme characteristics provide an ideal environment for preserving organic remains. Soil organisms play a key role in soil formation processes); therefore, they can indirectly influence the preservation of archaeological evidence. However, soil biota can also have negative effects, as intense soil microbial activity can lead to degradation of any type of material, including objects of historical interest. Another important aspect to consider is the material to be investigated. Some biological materials are easily degraded by soil organisms; whereas, under other circumstances, it is possible to take advantage of the decomposing action of soil biota.

### **Educational value**

Many studies have shown the importance of playing with soil and the positive effects of soil-living organisms (e.g. our beloved earthworms) on children's health. Some of the reasons are:

- a. a bacterium naturally found in soil, *Mycobacterium vaccae*, activates the neurons that produce serotonin – a key chemical in many bodily functions, as well as a natural anti-depressant
- b. the typical behaviour of children is to always put dirty things in their mouths. There may be an evolutionary reason for such a universal behaviour, a finding that science seems to corroborate. Called the 'hygiene hypothesis', many researchers have concluded that the millions of bacteria, viruses and other organisms that enter the body with every spoonful of soil 'eaten' are necessary for the development of a healthy immune system
- c. the typical behaviour of children is to always put dirty things in their mouths. There may be an evolutionary reason for such a universal behaviour, a finding that science seems to corroborate. Called the 'hygiene hypothesis', many researchers have concluded that the millions of bacteria, viruses and other organisms that enter the body with every spoonful of soil 'eaten' are necessary for the development of a healthy immune system.

***Soil Lovers say: Keep Building Your Soil Biodiversity***

***Ref: A Global Atlas of Soil Biodiversity p114***