

Mini-Series: Permaculture element technology (3)

Part 3: Flora combination and Fauna utilization

In this issue we would like to discuss the combination of plant species (fruits, cereals and vegetables) and the role of animals in the permaculture system.

In the first part of this series the basic principles of designing a permaculture plot were discussed. Among them, achieving a small-scale intensive system and biological diversity, suggested that a major part of the land should be utilized and managed effectively with multi-crop cultivation as opposed to monoculture, combining different classes of useful plant species. By doing this it is expected to promote growth of the planted species and increase pest resiliency, saving effort necessary for management. The combination of plant species which have positive effects on each other when cultivated together, is called "companion plants", often found for instance in annual vegetables and herb gardens. However, on the other hand there are combinations which work negatively. It is also possible to have spatial combination, such as planting leguminous plants (tree or grass types) under fruits trees or cultivating cereals like corn and millet wherever there is enough sunshine, rather than making clear divisions between orchards, cereal fields and so on. Moreover, intercropping such as growing groundnuts and pumpkins etc. in corn fields is also possible. There is no absolute established set of techniques in permaculture, and it does not matter whether the field is attended with a ploughing or non-ploughing cultivation scheme. Techniques can vary depending on the conditions of the place and the cultivator's policy.



It is also possible to increase management efficiency by allowing livestock to roam around in the fields. When fruit trees are still young, small poultry could help prevent weeds growing by scratching the soil surface, while at the same time providing some fertilizer. Some years later, when the fruit trees and other plants have become big enough not to be eaten up or stamped upon, larger animals such as pigs, goats and cows can be let free to graze. By introducing animals in the permaculture system, the natural circulation of nutrition and other substances can be promoted. Other than producing fertilizers, preventing weeds and eradicating pests, animals can provide foods for humans such as eggs, milk and honey.

Having some water body in the plot could also lead to increased biodiversity. A water body can accommodate not only fish but also other animals such as shellfish, shrimps and amphibians, and aquatic plants such as algae. Fish cultivation would be possible in a water body such as a pond or a lake, which may also host some water birds. Also, such water bodies could serve to retain moisture in the surrounding area.

