District 410C Eco-circle Project

(Adapted from District 410B's eco-circle project)

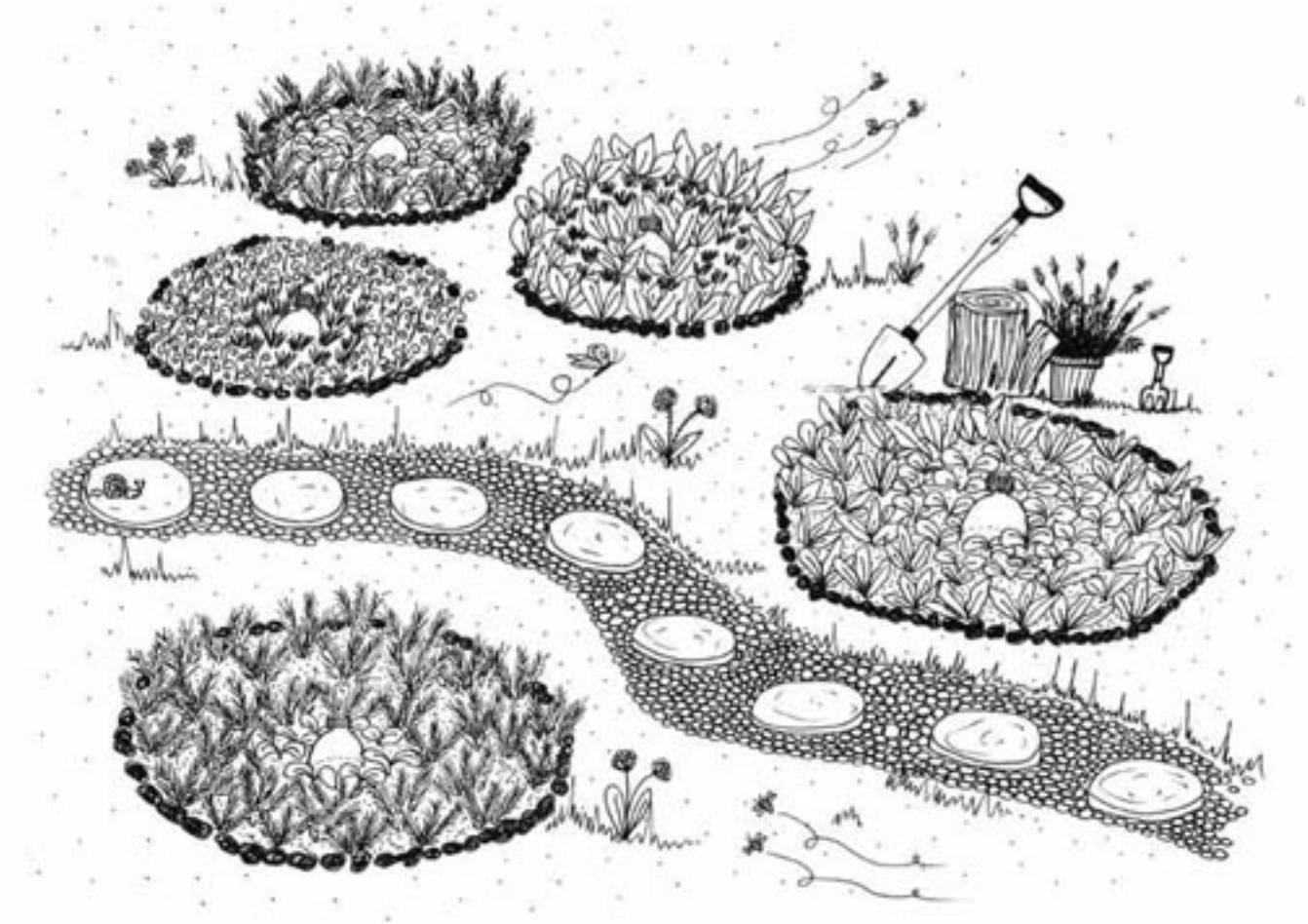
1 Introduction to Eco-circles

"Eco-circles" came to the attention of a Lion in District 410B in a *Land* magazine article dating back to 1998. The article was written by Anthony Trowbridge of Applied Natural Sciences at the then Technikon SA.

This way of growing not only to saves on labour, but also provides a unique and simple way of growing large volumes of food in small spaces using very little water.

Not only can this method be effectively used by the home gardener, but it can also be used on a commercial scale, where its low-tech requirements reduce capital costs.

Professor Donald Langham, working in Venezuela, developed the idea of planting in circles instead of growing in straight lines in angular beds as a means of overcoming the difficulties faced by South American farmers; the same difficulties experienced in this country with an ever-increasing prospect of drought and, in some regions, floods, and the loss of precious topsoil.



It affords the home-gardener an opportunity to create interesting garden designs with circular veggie patches arranged along pathways, interspersed with herbs and flowers which serve the multiple purposes of attracting beneficial animal life, providing colour and diversity, acting as companion plants to the vegetable crops, stimulating their growth, acting as natural pest deterrents and creating a feeling of

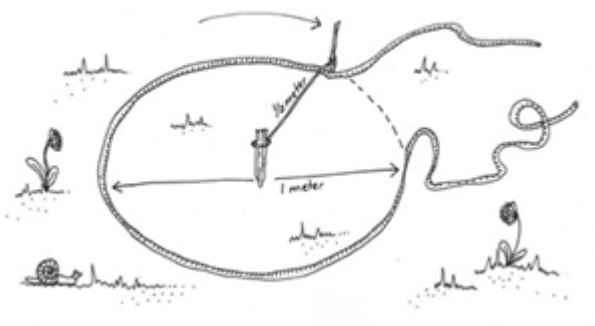
abundance.

2 Benefits

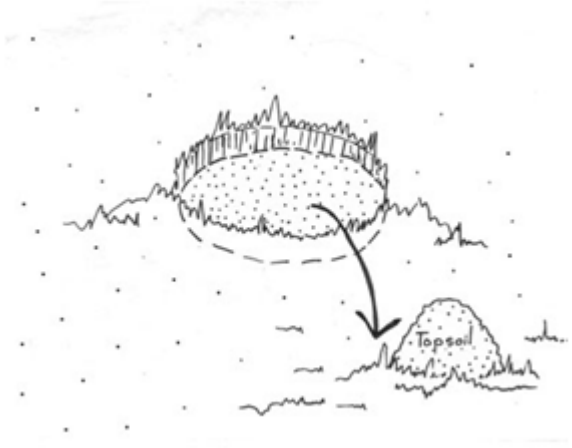
There are many benefits of growing in this way:

- You can grow lots of food in small spaces. Each circle has a diameter of one metre (or one spade).
- District 410B are amazed at how much food comes out of one circle at their Resource Centre garden. For example, they harvested 3 bunches of spring onions, a bunch of beetroot, 4 lettuces and a whole stack of beans. Total sale value - R60.
- Out of another circle they got five massive cabbages, inter-planted with faster growing radishes and spring onions. They have planted tomatoes, spinach, radishes and lettuces in all sorts of combinations together, and all have given incredible yields.
- Raised beds give an increased depth for establishing healthy root systems.
- There is a saving of up to 70% in water usage. Compost (or other organic material) added to the soil as the bed is constructed creates a sponge which retains the water. Mulching prevents evaporation, and the method of irrigating ensures that minimal water is used.
- Eco-circles build soil fertility and help to prevent the unnecessary loss of soil to the erosive forces of wind and rain.
- The basin shape of the completed bed funnels water into the centre where it sinks into the soil; it doesn't run off, carrying precious topsoil with it. In other words, the bed acts as a mini water-harvester.
- Deep watering encourages good root growth. A strong, well-developed root system will ensure a healthy plant.
- Because it is such simple technology, it costs extremely little to implement.
- It requires almost no land preparation. You don't even need to weed before you start. This means less work for those of us who are not up to wielding a spade.

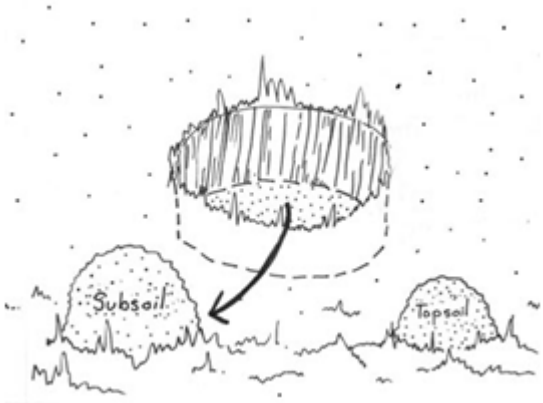
3 Creating an Eco-circle



Mark out a circle (1 meter in diameter) on the ground using two sticks and a piece of string. Alternatively, if you are the secret possessor of a hoola hoop, that will suffice to mark out the circle.

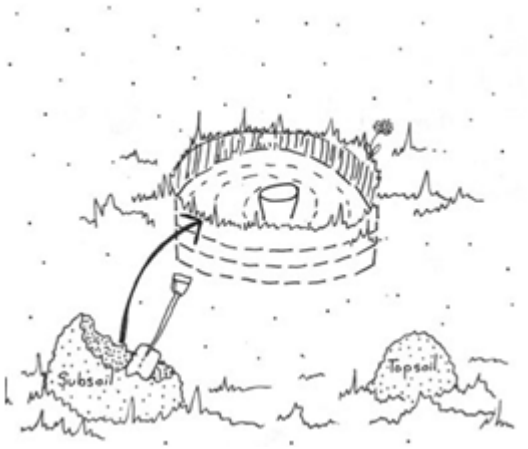


Remove the first 20 - 30 cm of topsoil and place in a neat pile next to the circle.



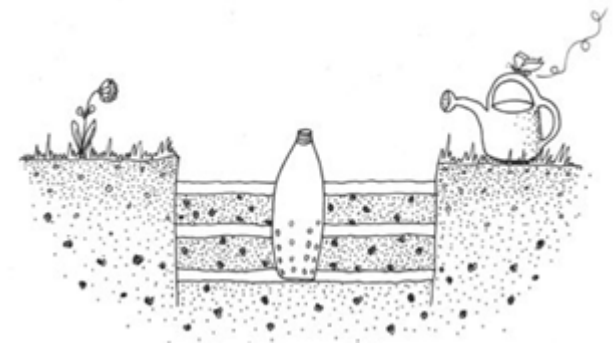
Remove 20 to 30 cm of subsoil and place it in a separate pile next to the circle. The depth of the hole should be 50cm (knee deep).

Using a candle and a needle (stick it in a cork to prevent burning your fingers) burn 16 holes in the side of a 2 litre plastic bottle which has a lid. The holes should be arranged in 4 vertical rows as shown above. Place the bottle at the bottom of the hole, in the centre of the circle. Add a 2 cm layer (one finger) of compost (or well-rotted kraal manure, kitchen waste or dry grass) in the base of the hole and cover this with an 8 cm layer (four fingers) of subsoil. Water these two layers well.

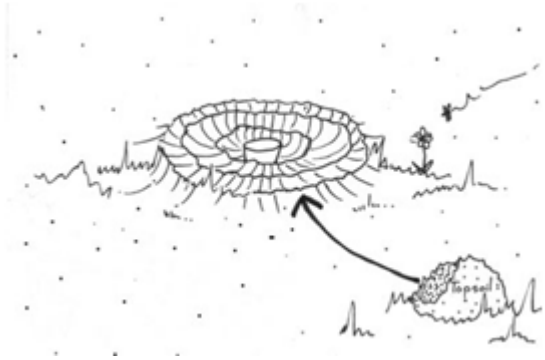


Continue replacing the subsoil, layering it with compost (or the other materials mentioned above) and watering each layer as you go until all the subsoil has been replaced.

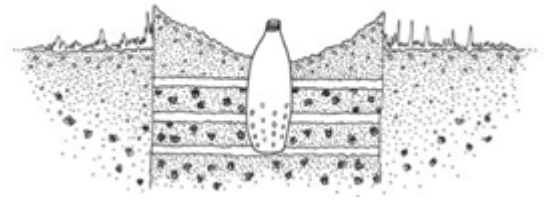
By adding organic matter and watering each level in turn a sponge effect is created which will retain water below the surface so that plant roots are encouraged to grow downwards, giving them greater strength. Surface watering tends to make plant roots stay near the surface.



The sponge effect is maintained by the burying of the bottle (or alternatively a tin can with holes in the bottom) into which water can be poured so that all the plants in the eco-circle can be reached with one watering session.

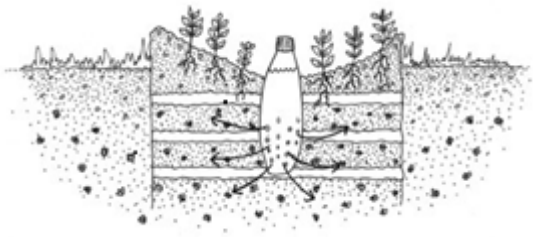


Having added all the subsoil, replace the topsoil. The surface of the bed will be higher than the surrounding ground. This creates a raised circular bed.



Scoop the soil from the centre of the circle to the outside to create a basin with the top of the bottle in the centre.

Mulch the surface of the basin and plant seeds or seedlings on the inside of the ridge, in circles. It is extremely important to keep the beds well mulched as this prevents water loss by evaporation. One bed can accommodate 10 lettuces, 5 to 8 cabbages, 4 rows of beans or a variety of different crops.



4 Looking After the Eco-circle

To look after your eco-circle there are a few things you need to remember:

- Fill the bottle with water (it is only necessary to do this once a week if the bed is well mulched. This means that you are using only 2 litres of water per bed per week). Tighten the cap and then loosen it a little so that no vacuum is created once the water drips out into the soil.
- In areas of high rainfall, the surface of the bed should be flat to prevent water-logging. In dry areas the basin shape promotes the sinking of water.
- Records on planting and crop rotation can be kept easily and accurately to ensure good soil, and therefore, good plant health.
- Very young seedlings planted in the centre of the circle are protected from wind.