



# **Soil Science**

## **Handout 3**

### **Crop Rotation**

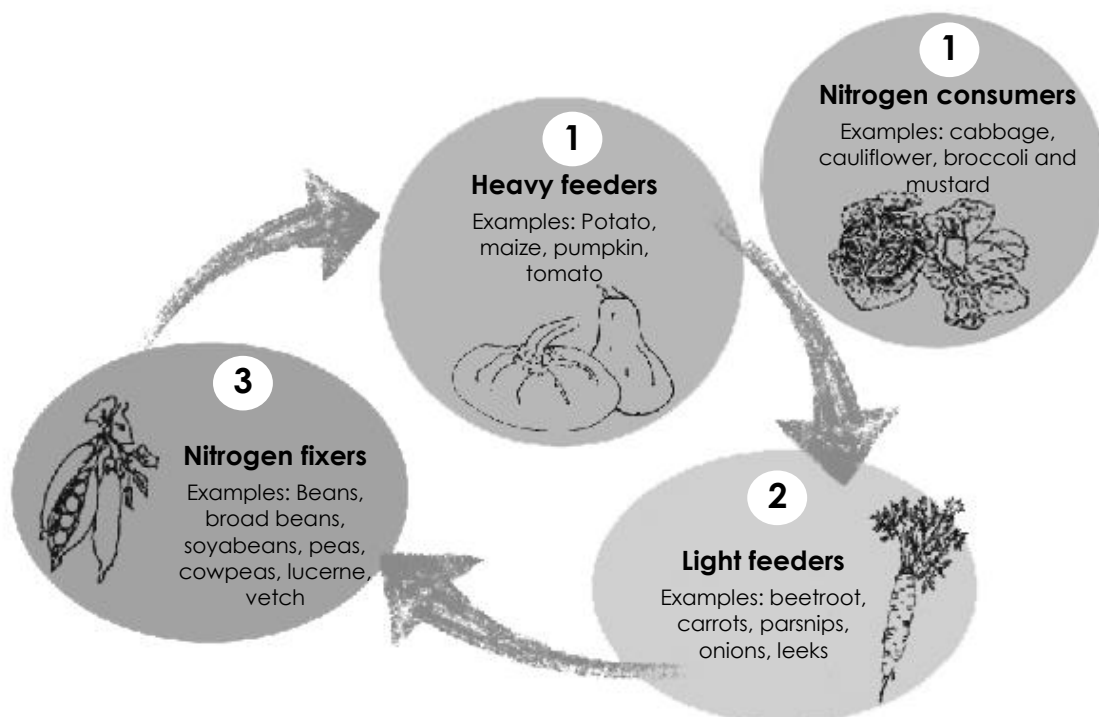
## 2. Crop Rotation

Here you do not plant the same crop in the same place year after year, but you make sure that a different crop is planted in each space. This is a good idea because:

- ❖ It prevents or stops the accumulation of insects and diseases. If the same crop is planted some insects and diseases will become more every year!
- ❖ Different crops use different nutrients or plant food stored in the soil. In this way you do not overuse some of the plant foods, while not using others.
- ❖ The soil can be covered all year round.
- ❖ Some crops add nutrients or nitrogen to the soil. Examples are beans, peas, broad beans, soya beans, peanuts, cowpeas, lucerne and clover.
- ❖ It prevents the soil from building up bad or negative reactions to specific plants. An example here is nematodes on tomatoes and swiss chard. Nematodes are very small worms that we can not see with our eyes. They live in the soil and feed on the roots of your plants.
- ❖ There is no build up of specific weeds.

There are a number of different crop rotation systems that can be used.

Below is an example of a system that is easy to use and remember.

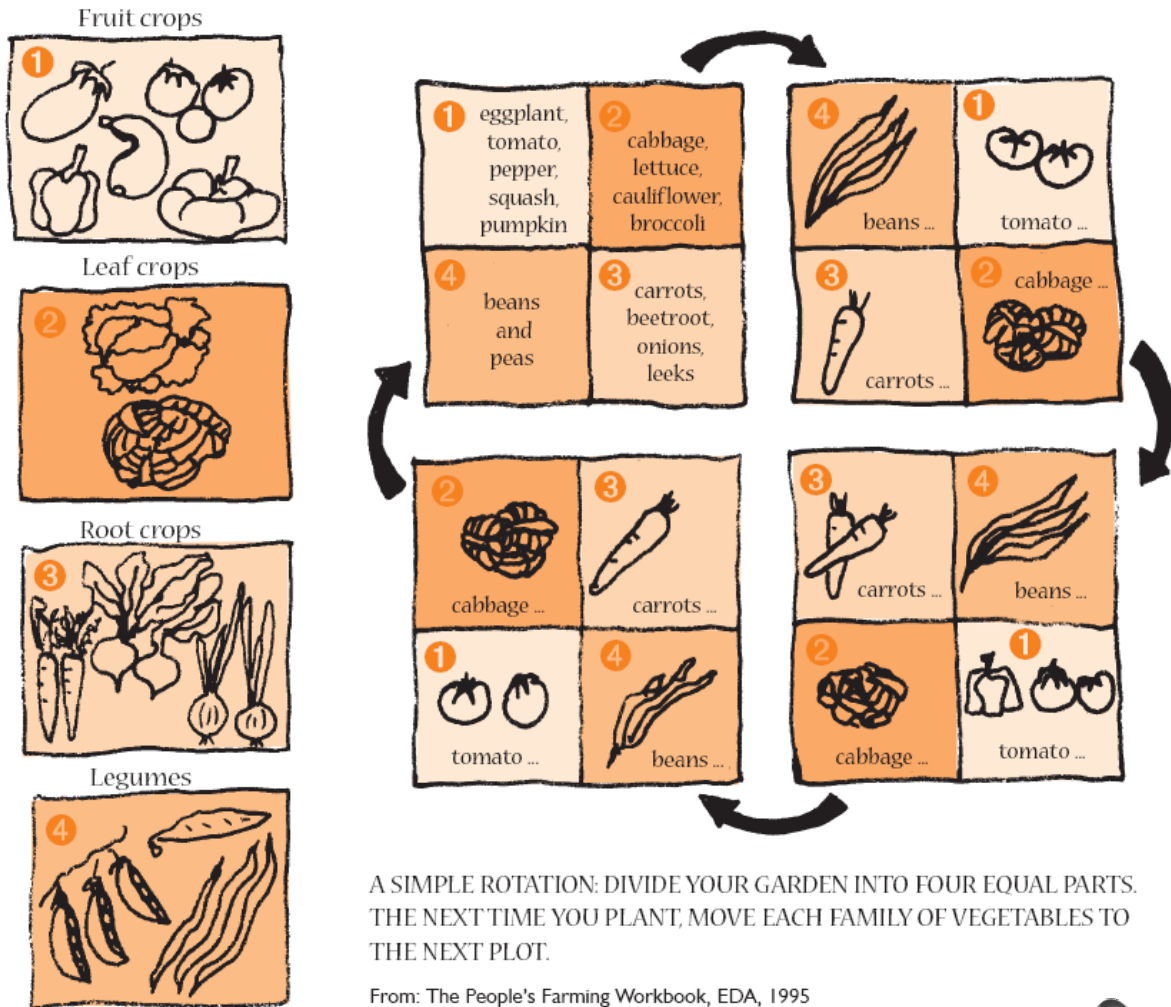


In the first season after applying compost and or manure heavy feeders or nitrogen consumers are planted. In the second season the light feeders are planted and in the third season legumes are planted. This is followed by another application of

compost or manure and the cycle is repeated.

In trench beds, where the organic matter is decaying slowly in the soil, you may want to start with legumes, move on to heavy feeders or nitrogen consumers and then move on to light feeders. This is because during the decaying process plant nutrients will take a while to become available for use by plants. The legumes can fix most of their own nitrogen and are thus a better starting point.

An alternative system is presented below:



Prepare the land or bed well. Put a lot of compost or manure in your bed (4 full spades/ square meter). Then, start by planting a fruiting crop. These plants need the most food. Leaf crops need less and can follow fruit crops. Then root crops can follow leaf crops without much addition of plant food. Root crops like fertile soil, but do not like fresh manure or compost. It has to be well rotted. Then, nitrogen fixers can follow, with addition of little or no plant food. Then you need to prepare the land well again. Start once more with fruiting crops.

Preparing the bed well:

This would mean trenching, or double digging or addition of a lot of compost/manure forked into the to 40cm of soil. You will need at least 4 full spades for every square meter.

A general recommendation is to place 30 tons of compost to a hectare of land. This comes to about one half of a wheelbarrow load for every square meter (which is about the same as 4 full spades!)

**Advantages and disadvantages of crop rotation**

ADVANTAGES of crop rotation	DISADVANTAGES of crop rotation
No build up of pest and diseases	Without a plan, either drawn or written on paper, it is difficult to remember which crop is to follow
Soil nutrients are used effectively	It can be tricky to decide which rotation to follow when inter-planting is also used.
Soil moisture is used effectively	
A healthy living soil can be built up over time	