

Resource Material for Homestead Food Gardeners

Chapter 4: Handouts (English)

- Handout 1 Mixed Cropping
- Handout 2 Crop Rotation
- Handout 3 Pest and Disease Management
- Handout 4 Wind and Frost Protection
- Handout 5 Seed Saving
- Handout 6 Growing Fruit Trees

1. Mixed cropping

We want to create as much diversity in our gardens as possible. Diversity ensures a natural balance in the garden. This includes creating a living soil, using water efficiently and minimising pest and disease attack on crops.

Mixed cropping involves planting various crops together in one plot. Plants can either be inter- planted at the same time, or crops can be rotated. This means that different crops are planted in the same place at different times. Using both inter-planting and crop rotation in your garden is a good idea.

Inter planting

When planting a number of different crops together we need to consider the following:

- ❖ **Nutrient consumption:** We mix crops together that consume different amounts of nutrients. Some plants are heavy feeders and need a lot of nutrients. Some are light feeders and some are nitrogen fixers. A good example here is the traditional practise of planting maize and beans together. Maize is a heavy feeder, while beans are light feeders as well as fixing nitrogen in the soil
- ❖ **Root depth:** Plant deep and shallow rooted plants together to ensure that they do not compete for nutrients and water. A good example here is planting maize and pumpkins together. Maize is an upright plant that has a deep rooting system and pumpkin is a creeping plant with a shallow rooting system. They do not compete for space either below or above the ground
- ❖ **Insect repellent plants:** There are some crops which have a unique smell that repels some kinds of insects. For example, onion has a specific smell that butterflies dislike. If onions are inter planted with cabbage, this will reduce the attack from insects (worms). Combinations like onion and cabbage are called companion plants. Companion planting is an effective pest prevention measure.
- ❖ **Timing:** Some crops have a longer life cycle than others. It is possible to plant crops that mature quickly in-between crops that take longer to mature. In this way one crop can be harvested while the other crop is still growing and competition is reduced. An example is planting radish, mustard spinach and potatoes together. Radish matures quickly and is harvested within 6 weeks of planting. The leaves of the mustard spinach are harvested for 2-3 months. This reduces competition with the potato plants that are now growing large. Potatoes are harvested after 3.5-4 months. A combination such as this also includes that aspect of rooting depth, nutrient consumption and insect repellent properties.
- ❖ **Shade tolerance:** This becomes important when tall crops and perennial plants are also grown in the garden. These include fruit trees. Some crops such as comfrey, lettuce and strawberries are shade tolerant.

More examples of inter-cropping in a vegetable garden

In the beds

Plant carrots and onions together: Carrots protect against onion fly and onions protect against carrot fly. Carrots root more deeply than onions and are harvested earlier; giving the onions the space they need to mature.

Plant cauliflower or cabbage, lettuce, fennel and onion together: This combination gives complete control of aphids and diamondback moth (shown on the right) on the cauliflower. It takes into account nutrient consumption, rooting depth, insect repellent properties (onion and fennel), timing and shade tolerance.



Plant tomatoes, onion or garlic and carrots together: This combines insect repellent properties, nutrient consumption, rooting depth, timing and disease control into account. Tomato plants are scattered so that do not touch each other, which reduces the incidence of early and late blight.

Plant swiss chard (spinach) and beans together: this combination takes into account nutrient consumption, rooting depth and disease control on the chard. Planting the chard in alternate rows with beans reduced the incidence of bacterial spot on the chard.

Many different combinations are possible. Below are two more examples:



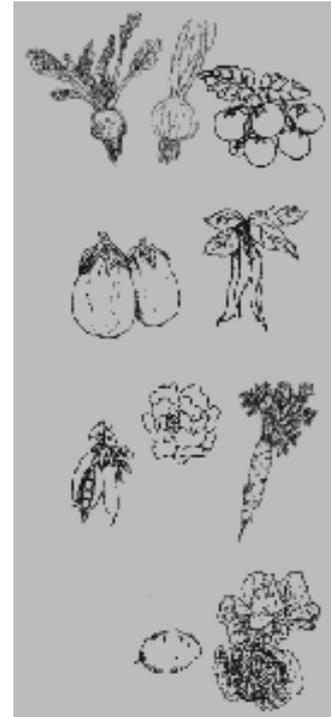
Left: Swiss chard inter-planted with fennel and garlic chives

Right: A bed with onions, cabbage, lettuce and swiss chard planted together.

There are a number of crops that grow well together and some that do not. When planting a bed, use the diagrams below to choose combinations of crops that suite each other.

Some plants which grow well together:

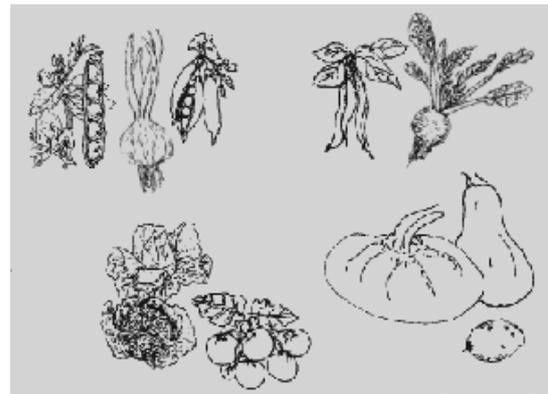
- Beetroot - onions
- Carrots - peas, lettuce, onions, tomatoes
- Onions - beetroot, strawberries, tomatoes, lettuce
- Eggplant - beans
- Cabbage - potatoes, beetroot, onions
- Green Peppers - all vegetables
- Lettuce - carrots, radishes, strawberries, cucumbers
- Pumpkin - mealies
- Swiss Chard - strawberries
- Tomatoes - onions, carrots
- Mealies - peanuts, peas, beans, cucumber, pumpkins, potatoes
- Sunflowers - cucumbers
- Beans - potatoes, carrots, cabbage, most other vegetables



Plants that do not grow well together:

These are some plants which do not grow well together. Try to avoid putting them in the same beds. Try and experiment for yourself.

- Beetroot - pole beans
- Onion - peas and beans
- Cabbage - strawberries
- Pumpkin - potatoes
- Tomatoes - potatoes and cabbage
- Beans - onions
- Sunflowers - potatoes



Advantages and disadvantages of inter-planting

ADVANTAGES of inter-planting	DISADVANTAGES of inter-planting
Efficient use of space below and above ground	Looks "untidy"
Reduces and avoids pest and disease build-up in the soil and in the garden	Can make harvesting of crops more fiddly
Reduces weeds	Some shading may occur if plants are not spaced well
Covers the soil and uses nutrients in an effective manner. Building of a healthy, living soil is possible.	Weeding can be more time consuming initially, as crops may be scattered, rather than being planted in rows.
Plants support each other in a synergistic relationship that protects against pest and disease attack and increases vigour and growth.	Some plants may be over or under watered depending on their life cycle. For example, some plants may be seeding while others are still growing.
Efficient use of water	