

## 5. VEGETABLES



**Extract**

### Overview

In this module, we cover the following topics:

- Siting vegetables, Soil and fertility, Drainage
- The vegetable garden (layout)
- Climate
- Cropping
- Seeds
- Sowing vegetables
- Thinning, Planting
- Water, Feeding
- Weeds, Mulching, Crop protection

Vegetables are important for several reasons:

- They play an important role in the economy of some areas.
- Many gardeners get satisfaction from growing crops in their garden and getting the freshness and flavours not always available in shops.
- If you want organically grown produce, growing vegetables can be reassuring as you know what has been applied to the crop.
- The mix of colours, forms and heights of vegetables can be just as interesting as herbaceous borders and flower beds.

### Siting vegetables

Vegetables grow fast and convert a large proportion of their manufactured food and absorbed nutrients into stored energy (which is why you grow them as food crops). For that reason, vegetables need richer soil than other garden plants.

They also need shelter if the site is exposed and often improvements made in soil fertility and drainage. That fertility must also be maintained. The ideal site for vegetables provides:

- Shelter
- Warmth
- Sunlight
- Fertile, loamy, well-drained soil

- An adequate water supply.

The site should be open but not exposed or overshadowed by trees or buildings.

### Soil and fertility

The ideal soil for vegetables is a friable loam. This is a fertile soil that:

- is rich in nutrients which are available to the plants.
- supports earthworms and soil micro-organisms which help break down organic matter.
- remains workable in wet or dry conditions
- retains its crumbly texture, ensuring good aeration which supports soil organisms and the roots of the vegetables themselves
- is probably slightly acid (pH 6-6.5) or neutral
- is well drained

Different crops do well on different soils (See Figure 5.1). For example, a sandy soil which warms up quickly in spring is ideal for early crops but as nutrients are washed out easily from these soils, crops planted in them may need additional feeds.

Fig 5.1

### DIFFERENT SOILS MOST SUITABLE FOR CROPS

SOIL	CROP
Medium to light loam	Lettuce, Calabrese
Well-drained, light soil	Shallots, Onions
Very rich, lots of organic matter	Celery, Runner beans
Sandy soil	Parsnip, Khol rabi, Garlic
Peaty, moist soils	Courgettes, Marrow, Celery
Heavy Loam	Cabbage, Brussel sprouts
Medium moisture-retaining loam	Beetroot, Broad bean, Leeks, Peas, Mustard, Swedes
Light, humus rich soil Grow in most soils	Turnips, Fennel Potatoes, Iceplant, Corn salad

This does not mean you cannot grow vegetables successfully on most soils, but only indicates the ideal soil for particular vegetables.

---

A heavy clay soil is naturally sticky and cold. It warms up slowly in spring, but is rich in nutrients. Once you release them by improving the soil structure (for example, by incorporating organic matter, adding lime, and improving drainage), you make it fertile and enable it to retain moisture. Crops such as Brassicas requiring high levels of nutrients thrive on these soils.

We cover soils and soil improvements in detail in Module 7.

### **Self assessment 1**

1. List four factors important in siting a vegetable plot
2. What are the characteristics of a friable loam?
3. Which group of vegetables does well on improved clay soil?

You can improve most soils, whatever their condition to start with, so that they can support good crops of vegetables.

As crops continuously remove nutrients from the soil and from naturally occurring organic matter, you must maintain soil fertility by replacing the organic material. Sources include:

- animal manures (with a high straw content but little wood-dust or shavings). Farmyard and horse manure are preferred but others such as chicken manure can be used (chicken manure is high in nitrogen so must be used carefully).
- spent mushroom compost
- seaweed
- home produced garden compost.

To maintain soil structure and fertility, dig in or spread over the surface a layer of organic material 8-10 cm deep.

You can spread organic matter on the surface in autumn and leave it for worms to incorporate into the soil over winter. Surface application can be useful where the soil is sandy. Here, if you dig in nutrients in autumn they may be washed away by winter rainfall. You should dig in any organic matter remaining on the surface in spring anyhow.

You can apply well rotted organic matter at any time in the growing season as a mulch. This helps keep weeds down and adds nutrients to the soil.

In general, if organic matter is to be dug in, for light soils it should be dug in in spring and for heavier soils in autumn.

### **Green manuring**

This is the practice of growing a crop with the intention of digging it in to rectify soil deficiencies in organic matter and fertility.

A green manure can be grown and dug in between crops or over winter to boost nutrients.

### **Drainage**

Drainage is very important when growing vegetables. Wet soils have three disadvantages:

1. They are slow to warm up in spring
2. They deprive the roots of oxygen.
3. They can be hard to work.

In some cases, land drains may be necessary and are used under many fields to control the water table. In gardens, soakaways are often used, or underground pipes (See Module 2). Organic matter helps improve drainage by encouraging earthworms which excavate drainage channels.

### **Deep digging (double digging)**

Deep digging is often said to be essential when growing vegetables. Heavy soils should be dug in autumn and light soils in late winter or early spring. Every two or three years you should double-dig (dig to the depth of two 'spits' (spade-depths around 25-30 cm)).

This breaks up the subsoil which may be compacted. Deep digging gives greater depth for roots and so more water and nutrients are available to crops.

It is important that soil reaches a good crumb structure, where the soil particles stick together so they form crumbs of organic and inorganic mixtures with good air spaces between them that retain water, while allowing excess to drain away. You can maintain soil structure

by not walking on areas which are to be cultivated and keeping the surface mulched.

### **Self assessment 2**

1. List four sources of organic material
2. What is meant by 'green manuring'?
3. Why are wet soils bad for growing vegetables?

You will find the answers at the end of the Module.

### **The vegetable garden**

The layout of a vegetable garden depends on the following matters:

- The garden's site, shape and size
- Your household's needs
- Quantities you need of each crop. Do you want to be self-sufficient or to be able to sell surplus?
- Are vegetables to supplement commercially obtained crops?
- Are just a few varieties of exotic crops to be grown.?

The traditional layout of the vegetable garden is rows with paths between for access. This can lead to access problems.

A modern method is the bed system where vegetables are grown in smaller, often raised, narrow beds with the vegetables evenly spaced in all directions (See Figure 5.2). The beds can be any shape or size, as long as the centre can be reached from a path so maintenance and harvesting can be done without treading on the soil. Advantages of this system include:

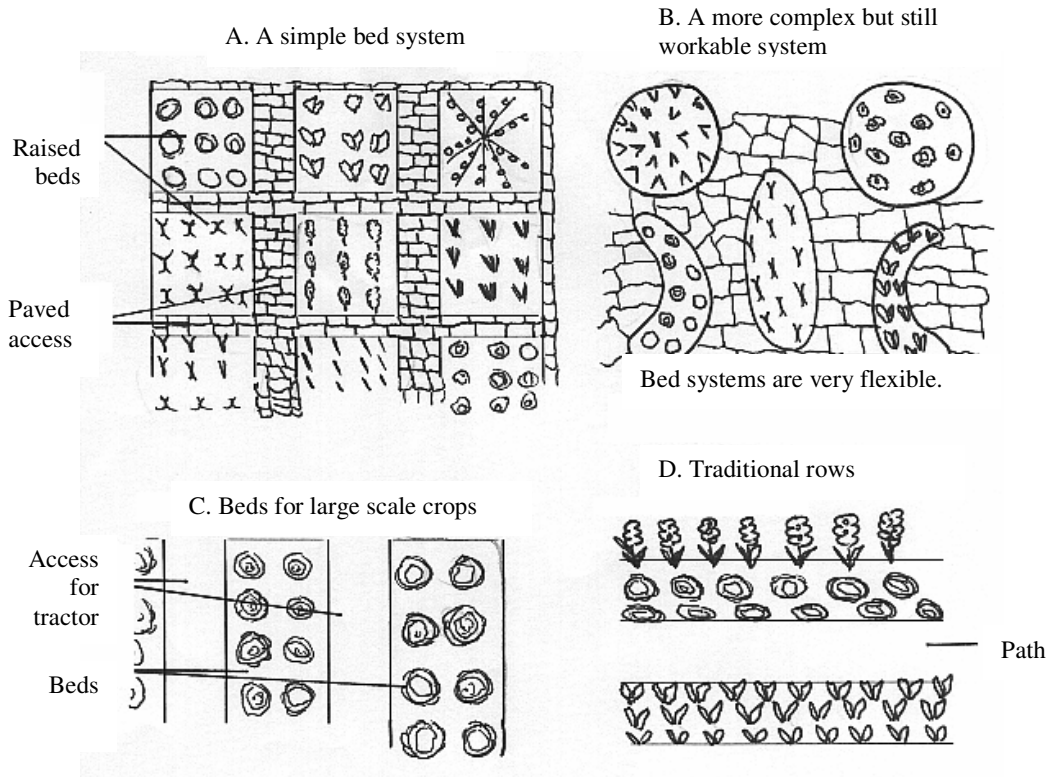
- Saving of fertilisers and manure as they are concentrated only where crops are grown and not wasted on paths or access gaps
- You only cultivate areas where crops will be grown
- The soil where crops are does not get walked on.

Where space is limited, growers may incorporate vegetables into flower beds (pottaging). Vegetable cultivars may be selected for their appearance and then grown in groups of beds designed to make an attractive pattern. A limitation of this is that some flowering plants are

susceptible to the same diseases as vegetables may carry, for instance Arabis also club root that affects cabbages.

Where space is very limited, or where physical limitations of the gardeners make bending a problem, vegetables can be grown in containers.

Figure 5.2  
**Bed Systems**



## Climate

Most vegetables grow well only when the average daytime temperature rises above 6°C between spring and autumn. They are also affected by other temperature requirements. Some crops are damaged by freezing temperatures (e.g. tomatoes) and some do not like very hot conditions e.g. Brassicas.

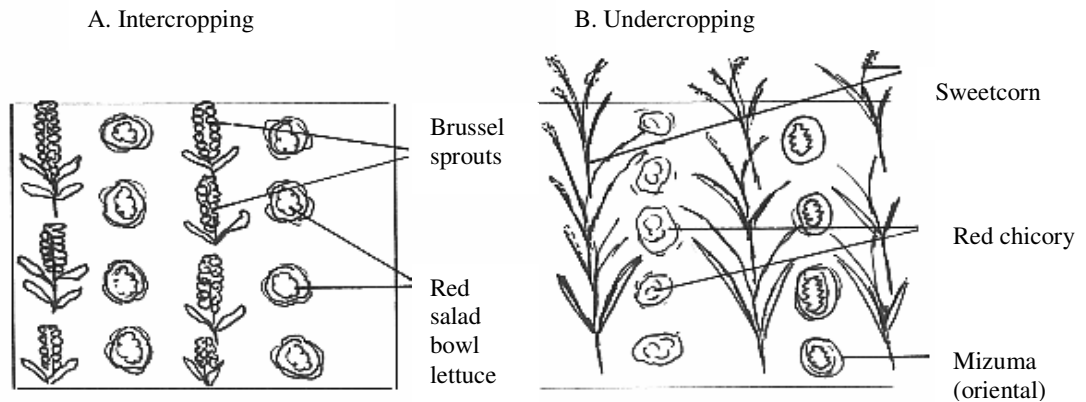
Some react to different day lengths at different stages of their growth. Temperature and day length differ according to latitude and longitude and crops in the north may mature later than the same crops in the south.

## Intercropping

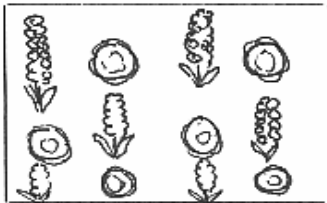
Intercropping is the system where a fast growing crop such as lettuce is planted at the same time in the same bed as a slow growing one such as parsnips (See Figure 5.3 A).

---

Figure 5.3  
**Some different systems of cropping**



Or a chequerboard pattern



As well as increasing the yield per m<sup>2</sup>, you can create colourful patterns using different crops with colours and forms.

---

This ensures the greatest yield from the area. Alternate rows or a chequerboard pattern work well. The quick growing plants make use of the space available and mature before the slow growers need it.

You must ensure the slower maturing crop does not overshadow the fast growing one. Examples are radishes grown between rows of peas, lettuces between rows of onions. The site will influence varieties chosen as the same variety may mature quicker on light loamy soil than on heavy clay.

## Assignment

1. Describe the cultivation of early outdoor lettuce, using the following headings.
  - a) TWO suitable cultivars and their characteristics
  - b) Method of raising plants
  - c) Plant management including harvesting
  
- 2) Explain what is meant by intercropping and describe two crops which would be successful. Briefly describe the sowing, growing and cropping of your named crops.

---

Well, that's the end of the extract. If you want to know more, you'll have to register!

We look forward to welcoming you on to the course, and helping you become a horticulturist.