

SBEL 1532

Horticulture and Nursery

**TOPIC 5:
PLANTS AND THEIR
ENVIRONMENT
- Above Environment**

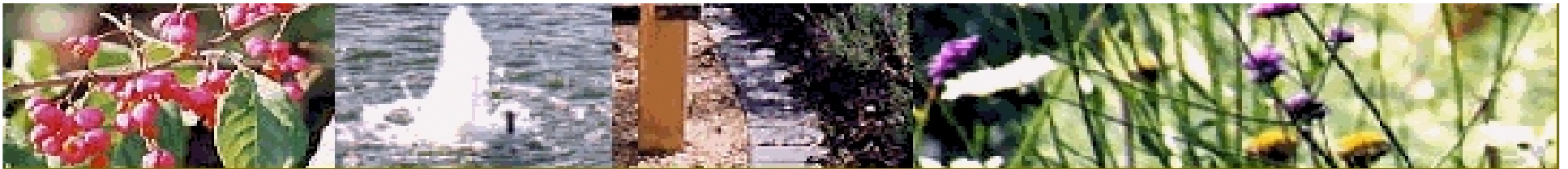
Dr. Hamidah Ahmad



TOPIC 5 :

Plants and Their Environment

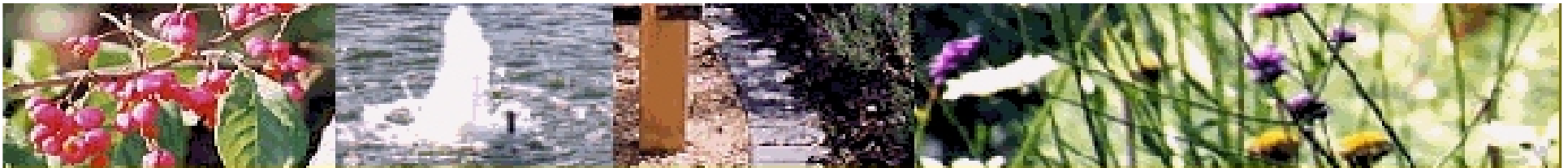
Plant Growth & Environmental Factors



The Above Environment

The aboveground environment is more changeable and may be more violent in its effect on plants. The aboveground environmental factors affecting plants include;

- 1) temperature,**
- 2) light,**
- 3) water and humidity,**
- 4) plant diseases,**
- 5) insects and**
- 6) gases or particles in the air.**

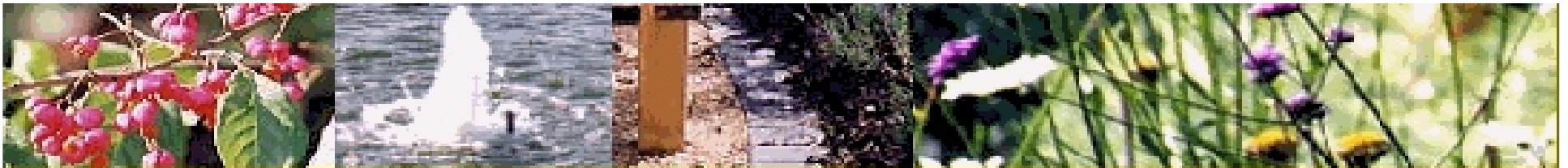


The Above Environment

1. Temperature

This factor has one of the strongest effects on plant growth.

Each plant species or variety has its own temperature requirements.

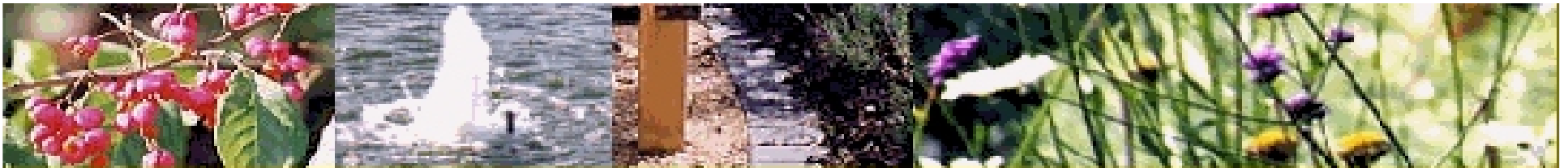


The Above Environment

1. Temperature

Plants may be classified as cool-season or warm-season types.

They are based on the amount of temperature required for growth.



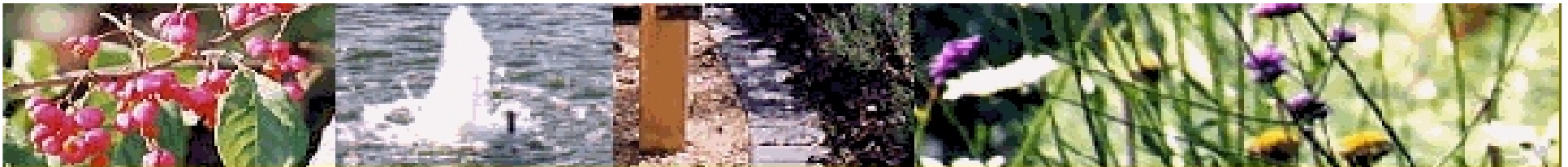
The Above Environment

1. Temperature

Cool-season plants

thrive best under relative cool conditions, of under 20 C mean daily temperature.

Some need the cool conditions to help the seeds germinate. Others requires cool condition for good crop/fruit productions.

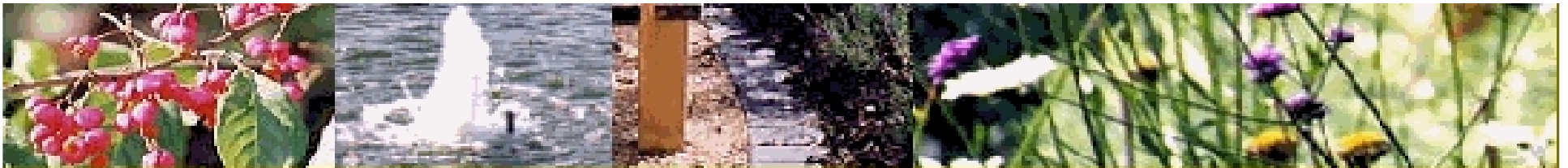


The Above Environment

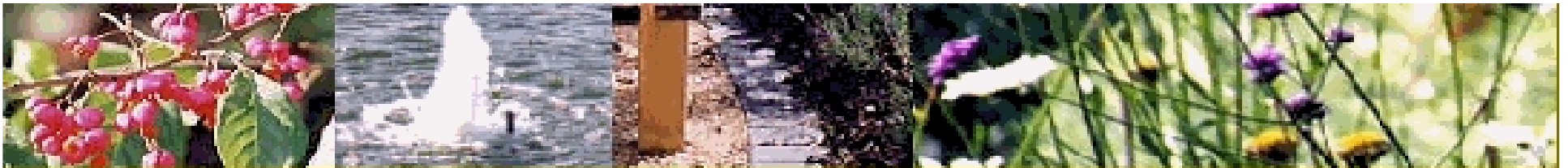
1. Temperature

Hardiness in plants are mostly referred to their **tolerance to low temperatures or other adverse conditions.**

These plants are called **hardy plants.**



- Light** Light is considered as the source of energy for plants.
- It must be present before plants can manufacture food.
 - No green plant can exist for a very long period without light.
 - The response of plants to light is dependent upon its amount or **intensity**, its kind or **quality** and its daily duration or **photoperiod**.

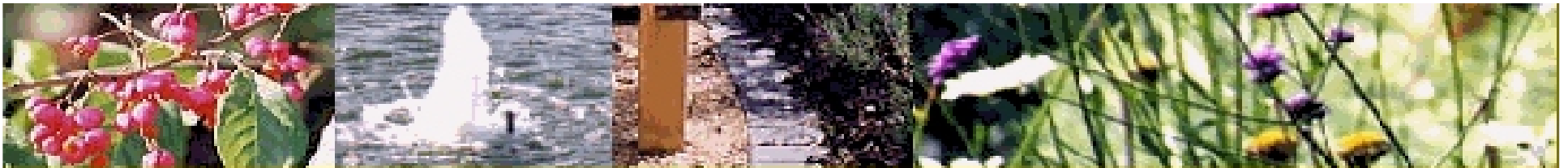


Light

Quality or kind of light refers to its colour or location in the spectrum as seen in the array of colours in a rainbow or through a prism.

The total blend of colours in visible light is called white light. Photosynthesis proceed through all the components of white light from violet through blue, green, yellow, orange and red.

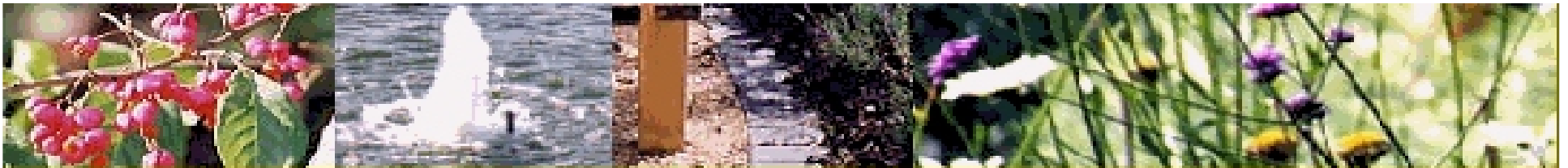
Artificial light can also supply the energy provided the intensity is sufficient.



Water & Humidity

Water is one of the limiting factors for plant growth.

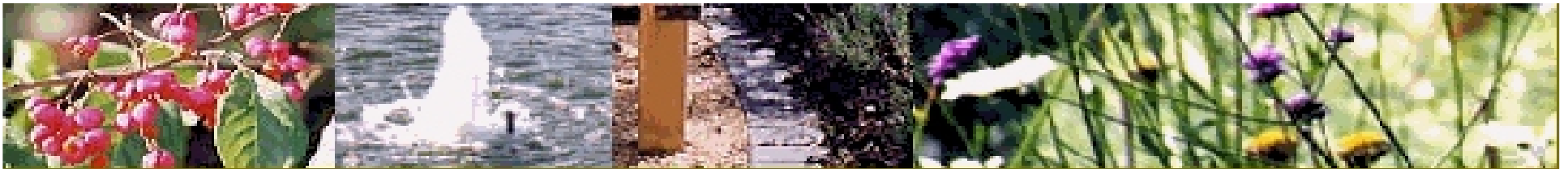
Most plants parts are made up of water; example the potato is nearly 80 %, carrots 88% and water melon is about 94 %.



Water & Humidity

Water is required by plants in a large quantities. This is so because water is useful for the following purposes;

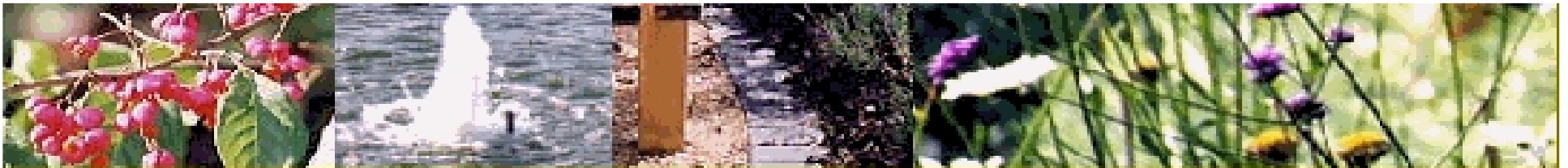
- 1. *Absorption and translocation* are entirely dependent on water for movement of materials into the root and for distribution within the plant.**



Water & Humidity

- 2. Cell enlargement** is also primarily dependent on water to expand the cell wall and cell membrane.

The size of the cell are also maintained through turgor pressure of water.



Water & Humidity

3. Photosynthesis will not proceed without considerable amount of water.

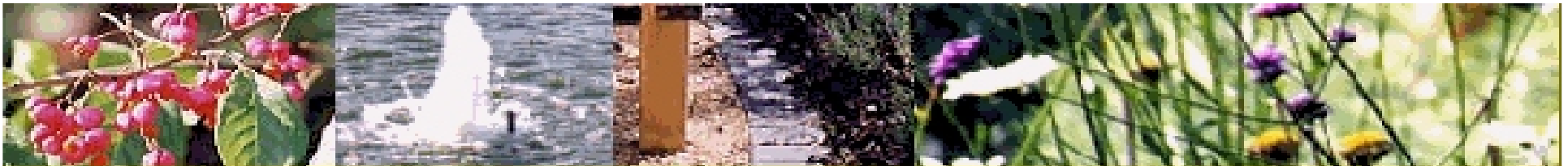
Water is a raw material of food manufacture by plants.

Photosynthesis proceed at the highest efficiency in those cells adequately filled with moisture.



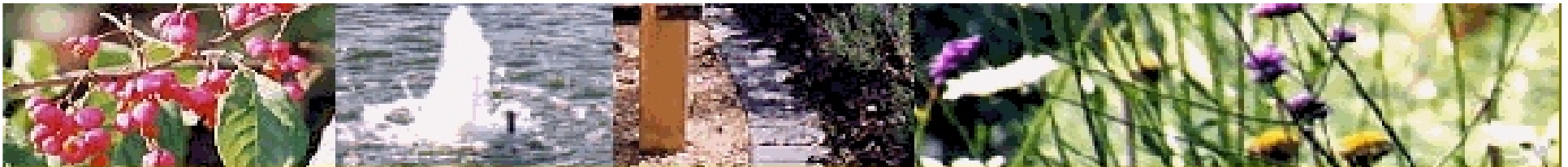
Plant Diseases and Insects

- Anytime plants are being attacked by diseases and insects, productions are reduced.



Gases and Air Particles

- **Carbon dioxide** is vital for plant growth and food production. So far there is no severe shortage of carbon dioxide to cause damage to plants.
- Some air pollutants are very damaging to plants. **Sulphur dioxide** and **Carbon monoxide** are known to reduce plant growth and can even kill the plants.



THANK YOU.

