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Center for Smart Agriculture

Hydroponics technology



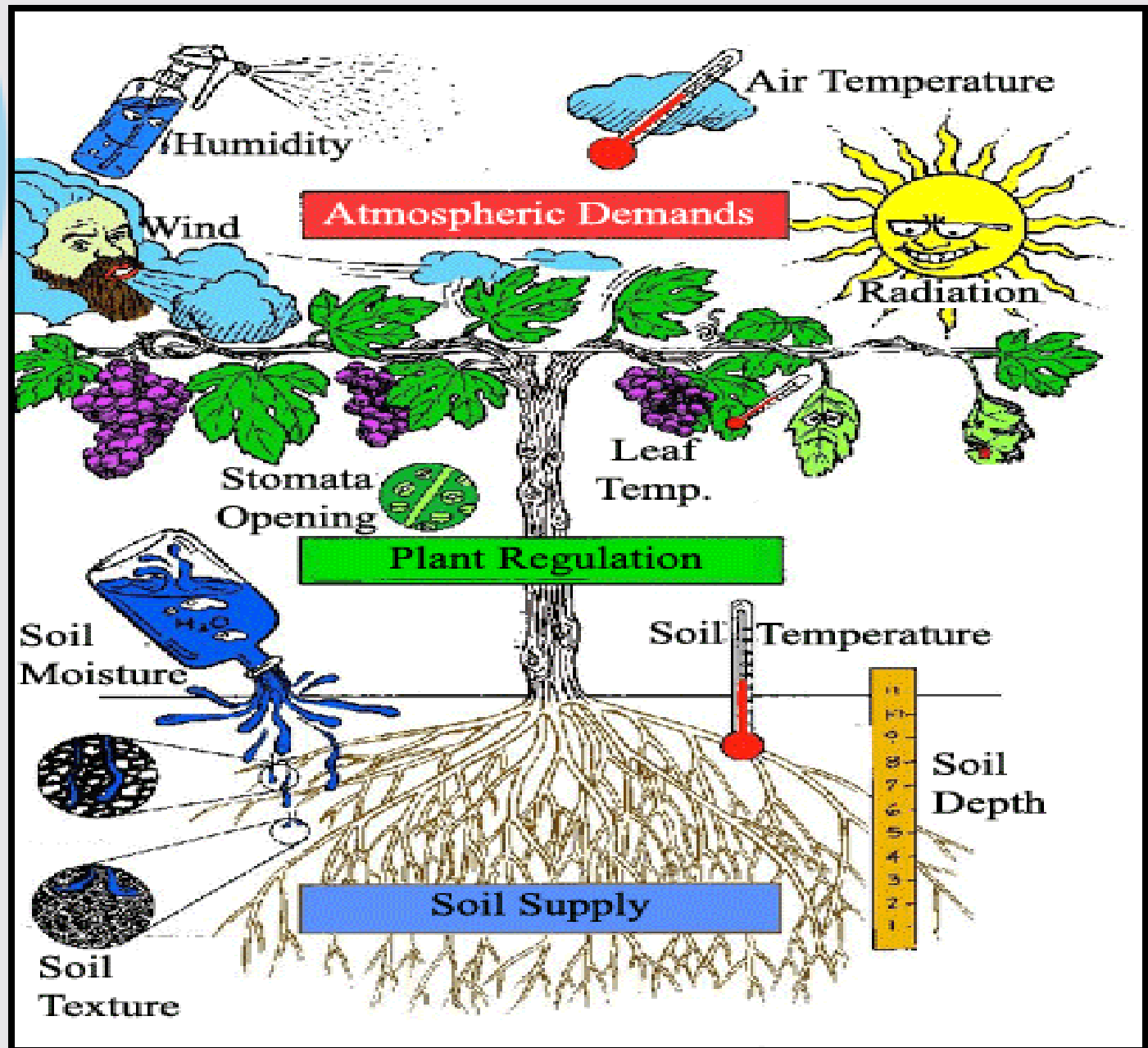
Module 1: Prerequisites for hydroponics technology

Session-2: Plant Growth Requirements, Importance of light, temperature and humidity



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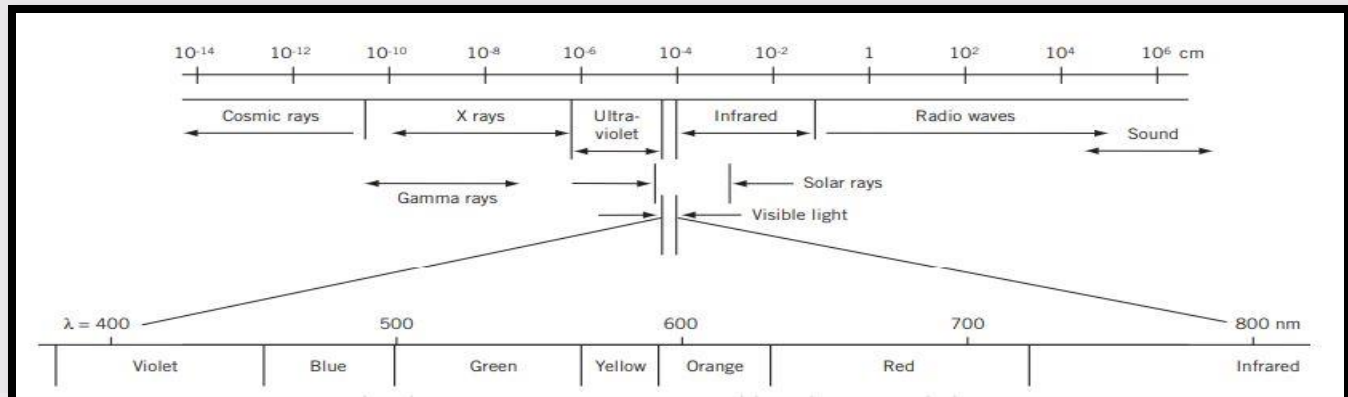




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Importance of light to the plants

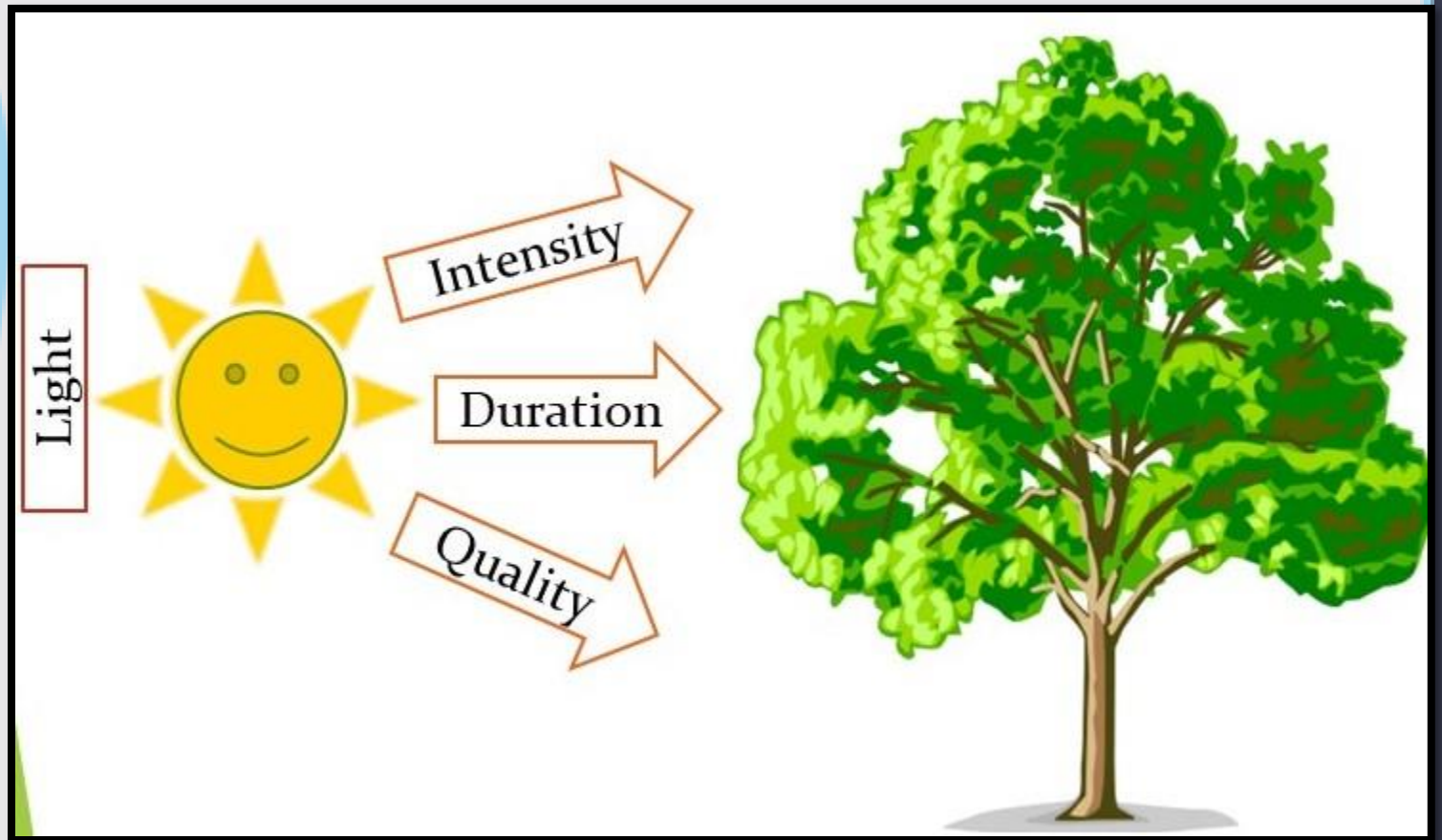
- ▶ Light is an essential factor in maintaining plants.
- ▶ The rate of growth and length of time a plant remains active is dependent on the amount of light it receives.
- ▶ Light energy is used in photosynthesis, the plant's most basic metabolic process.
- ▶ When determining the effect of light on plant growth there are three areas to





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Light affects plant growth in three different ways:

- a. Intensity
- b. Duration
- c. Quality



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Importance of temperature on crop plants

Growth and development

Leaf production, expansion and flowering

Physical and chemical processes within the plants

Enzymatic activities

Biochemical reactions in crops

Temperature



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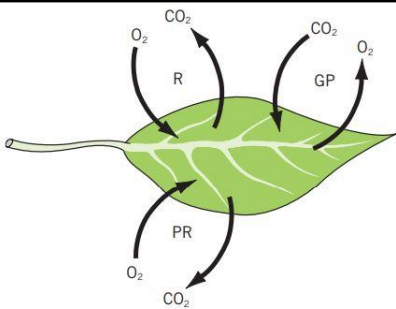
Effects of humidity on crops

Humidity

Keeping the stomata open

Cooling of the plant

Reduce transpiration loss





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Horizontal air flow fans are a good way of moving air to avoid varied temperatures in the greenhouse



Source: Premier Tech Horticulture



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Improving the microclimate

- ▶ To improve the microclimate, you can keep extra humidity in the plants by providing good coverage.
- ▶ In addition, it can also be improved by watering.
- ▶ An irrigation pipe is the best option to moisten the top layer of the substrate than an irrigation tube.
- ▶ Especially for countries with a warmer climate, it is therefore necessary to have an irrigation pipe to improve the microclimate.
- ▶ By moistening the top layer of the substrate, water from the substrate can evaporate better, which improves the microclimate.



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Thank you...