

# Unit D: Fruit and Vegetable Crop Production

## Lesson 1: Planning and Preparing a Vegetable Garden Site

# Terms

- Adequate sunlight
- Climate
- Compost
- Cool-season vegetables
- Cover crop
- Crop rotation
- Fertile soil
- Garden plan
- Ideal seedbed
- Intercropping
- Irrigation
- Loam
- Raised bed, wide row system
- Soil pH
- Strip tillage
- Succession planting
- Warm-season vegetables

# What factors are important in selecting an ideal site for a vegetable garden?

- Identify the important factors to consider in garden site selection.

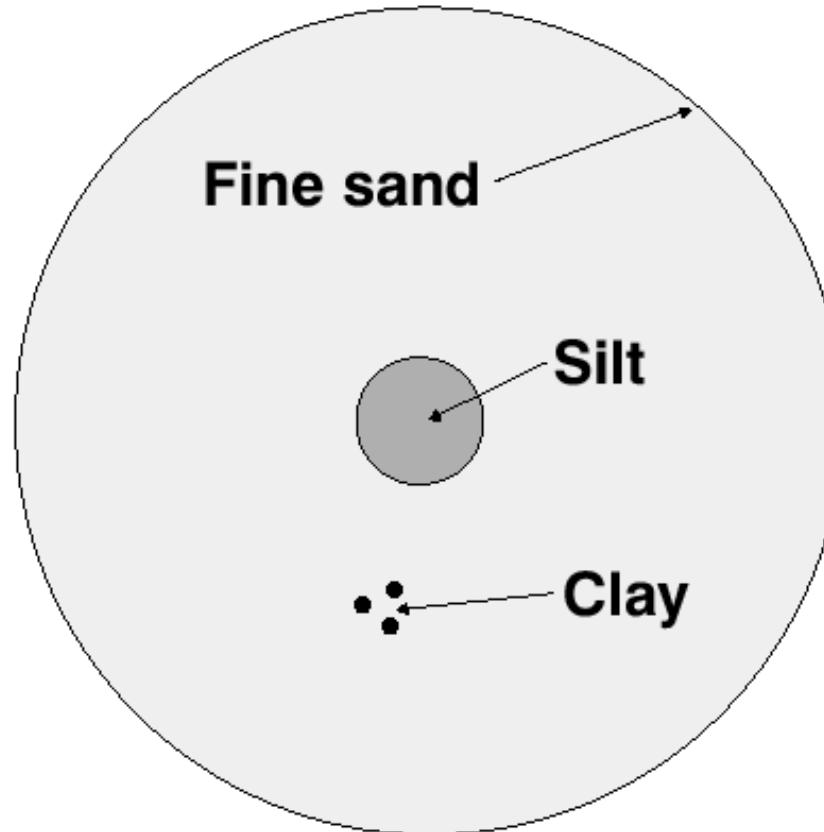
# Garden Site Selection

- **Adequate sunlight** for best yields would be a minimum of 8 to 10 hours of direct full sun each day.
  - Large trees and shrubs shade a garden and compete for nutrients and water.
  - If some areas are shaded, select vegetables for those locations that will grow in those conditions.

# Site Selection Cont.

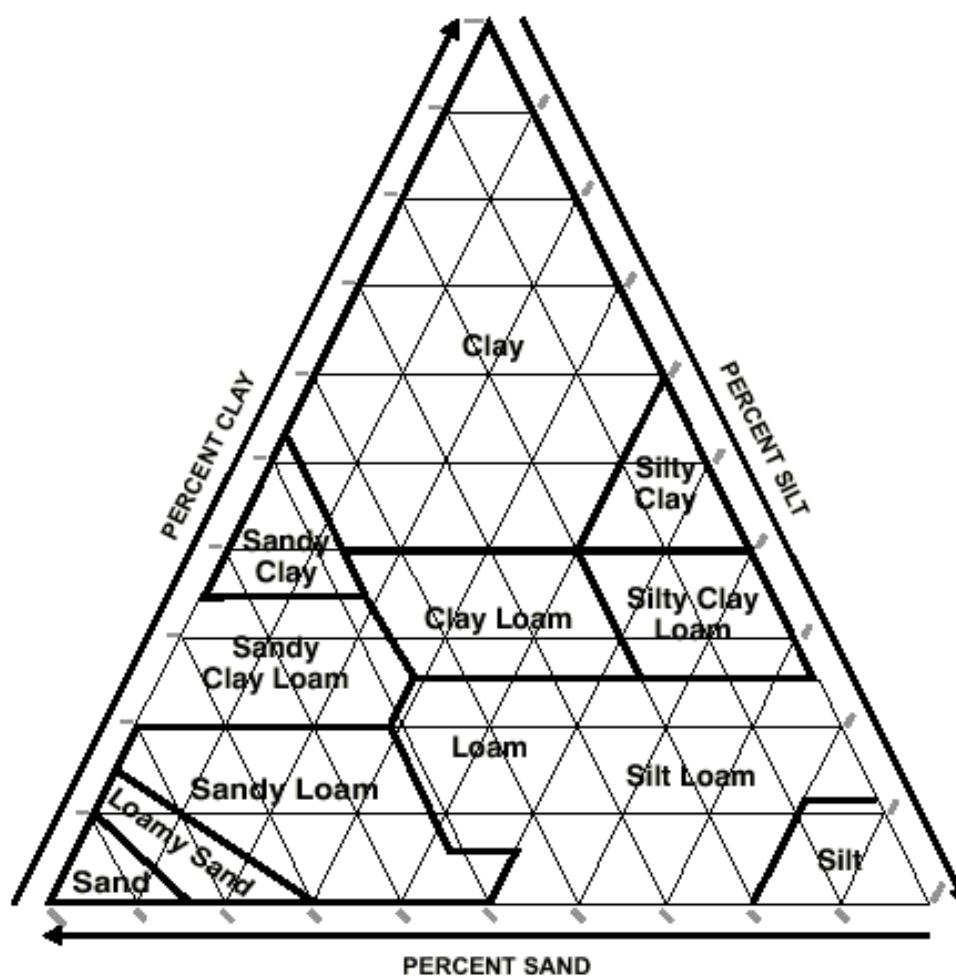
- **Well-drained** soil is needed.
  - If a 30 centimeters wide by 45 centimeters deep trench filled with water drains away in an hour or so, the soil is classified as well-drained.
- The best soil is a loam.
  - **Loam** is a soil that has a combination of sand, silt, and clay particles along with the pore space that results from the combination of particle sizes.
  - The combination of particles sizes results in soils that are well-drained with good aeration while also having high nutrient and water holding capacity.

## The Relative Sizes of Sand, Silt, and Clay Particles



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# Soil Triangle



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# Soil Cont.

- Planting a **cover crop** in the fall of rye or oats that are plowed under or tilled in the spring can add organic matter.
  - Using a cover crop is sometimes referred to as a green manure because the results are addition of organic matter and nutrients very similar to the use of livestock manure.

# Compost

- Compost can be used instead of a cover crop.
  - **Compost** is made by piling alternate layers 10 to 15 centimeters deep of plant material (grass clippings, old sod straw, or leaves) and soil. Adding nitrogen fertilizer and keeping the pile moist speeds up the decay.
  - Organic matter added by the cover crop or compost helps keep the soil loose, adds nutrients, improves drainage, and increases moisture holding capacity.

# Compost Bin



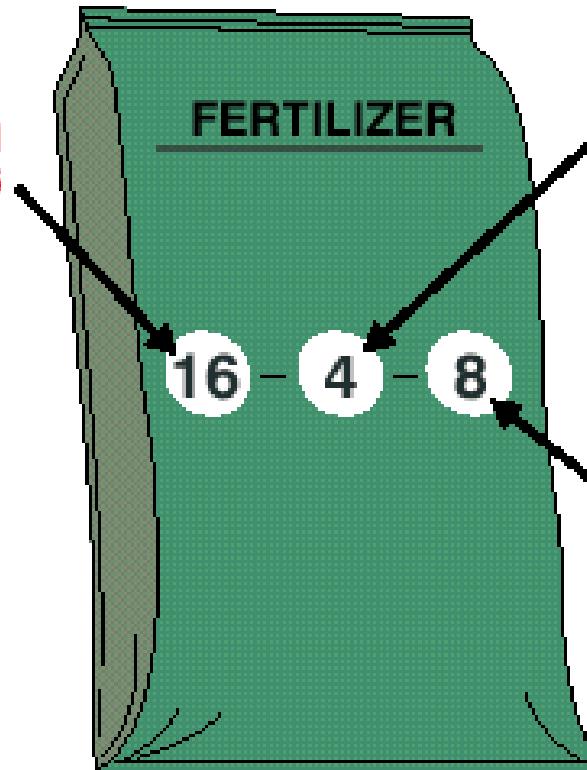
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# Site Selection Cont.

- The garden should be located near a supply of water in case irrigation is necessary.
  - **Irrigation** is the addition of water to supplement natural rainfall.
- **Fertile soil** is soil high in nutrients such as nitrogen (N), phosphorus (P), and potassium (K).
  - Soil tests should be taken to determine nutrient levels.
  - Fertilizer is applied as needed according the test results and the crops you plan to raise.

# FERTILIZER COMPOSITION

16% nitrogen (N)—  
If it is a 100 pound  
bag, it contains 16  
pounds of nitrogen.



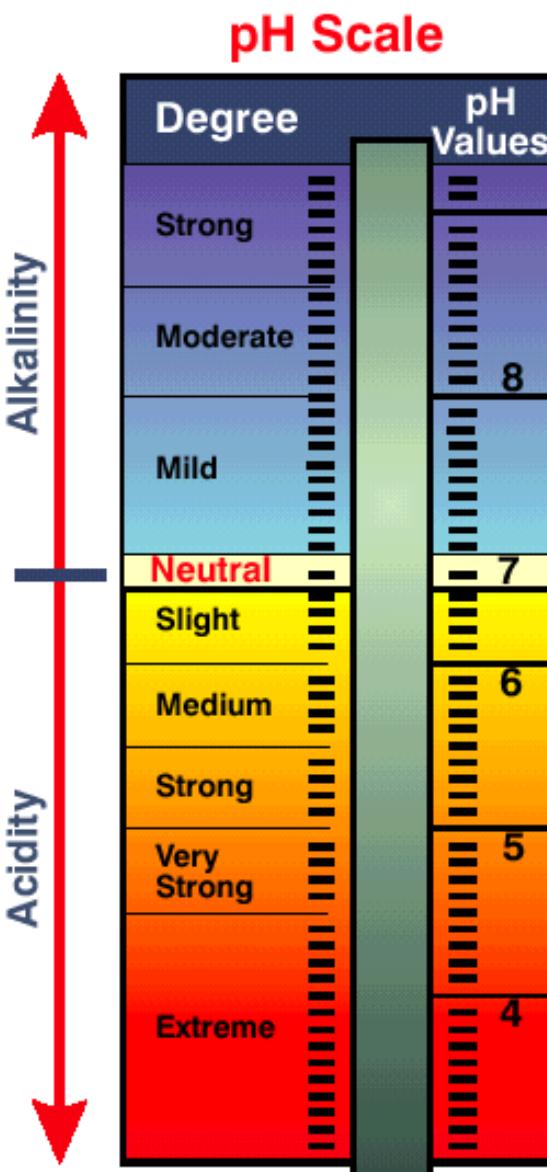
4% phosphoric acid  
(as P<sub>2</sub>O<sub>5</sub>)—If it is a 100  
pound bag, it  
contains 4 pounds of

8% potash (as K<sub>2</sub>O)—  
If it is a 100 pound  
bag, it contains 8  
pounds of potash.

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# Site Selection Cont.

- Soil pH is a measure of the acid content of the soil (concentration of the hydrogen ion).
  - Most vegetables grow best in a pH range of 6.0 to 6.5.
  - Limestone is used to raise the pH and sulfur or gypsum is used to lower the pH.
- A good garden site should be free of weeds and protected from animals.
  - Fencing may be needed to keep pets and wildlife from damaging your plants.



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# What and How Much Should be Planted ?

- Determine what and how much to grow.

# Factors

- Space available
- Time available
- What you like to eat
- Size of your family
- **Climate** (temperature, sunlight, rainfall, and day length)
- Soil type (percentage of sand, silt, and clay)

# Guidelines

- Vegetables can be planted in flower pots, flower boxes, patio containers, flower beds, or various size garden beds.
  - Seed catalogues, seed packets and transplant tags provide information about space requirements for vegetable varieties.

# Guidelines Cont.

- If your time is limited, it is better to plant a small well maintained garden than a large poorly maintained one.
  - Keep in mind vegetables that ripen for one harvest such as potatoes require less time than vegetables such as cucumbers that have several harvests over time.
- Plant vegetables that you and your family likes to eat. Calculate the amount of seed or plants needed and the number of feet of row space that must be planted to achieve the needed yield.

# Guidelines Cont.

- The climate and season of the year also must be considered in the planting decisions. Some areas around the world have to worry about Frost.
  - ***Cool-season vegetables***, such as cabbage, can be planted 2 to 4 weeks before the average frost-free date for your area.
  - They germinate well in cool soil and can withstand light frosts.

# Climate Cont.

- Cool season vegetables can also be planted in the cool fall weather.
- ***Warm-season vegetables*** need to be planted on or after the frost-free date in your area.
- These vegetables germinate and grow only in warm soil.

# Guidelines Cont.

- Your plan for using the vegetables is very important in determining the amount to plant.
  - Determine whether you will only eat fresh vegetables or if you will be canning and drying produce for the winter months.

# What factors are considered in arranging vegetables and developing a garden plan?

- Develop and draw a garden plan.

# Garden Plan

- Scale drawing (preferably on graph paper) of the garden plot with vegetables, row lengths, and row widths included.
- The garden plan saves time by giving direction to purchases and garden planting work.
- Planning will result in a more attractive and productive garden.

# Garden Plan Cont.

- Arrange the garden in rows for the best sun exposure.
  - Plant low-growing varieties on the south or east so they will not be shaded by tall—growing plants such as maize
- Rows for small plants can be closer together than for larger plants.
  - Vine-type plants need wider spacing than bush-type plantings.
  - Follow seed company spacing recommendations.

# Garden Plans Cont.

- Group vegetables according to maturity (early, mid-season, and late or long season).
  - **Intercropping** is the practice of growing rapidly maturing crops in the same row or between rows of late maturing crops.
    - Growing green onions between cabbage plants is an example.

# Grouping Cont.

- **Succession planting** is getting two crops from one garden row in the same growing season.
  - Turnips, for example, could be planted after green beans have completed their production.
  - Succession planting can also be used to describe the case when two or three plantings of sweet corn are made 7 to 10 days apart to provide a continuous supply.

# Garden Plans Cont.

- Two planting systems that are gaining popularity are the **strip tillage** and **raised bed, wide row system**.
  - **Strip tillage** is the practice of planting garden areas separated by a strip of sod.
  - The **raised bed, wide row system** involves raising the soil level in a row 0.6 to 1.2 meters wide and planting vegetables in the entire row area.
    - The result is up to three or four times as much production per foot of row.
    - Also the raised beds mean the soil dries and warms quicker in the spring allowing earlier planting.

# Garden Plans Cont.

- Long term planning should include a three or four year crop rotation.
  - **Crop rotation** means not planting the same vegetables in a given spot two years in a row.
  - Mixed planting of vegetables helps lower insect and disease outbreaks.
    - Insects often zero in on plants by detecting odors associated with a given plant.
    - Mixed plants tend to confuse the bugs by the great number of odors that are given off.

# What is the Ideal Seedbed and How is it Prepared?

- Prepare the planting seedbed.

# Ideal Seedbed

- Loose soil providing a desirable medium for:
  - Seedbed germination
  - Root development
  - Open enough to absorb water and air
  - High organic matter to prevent crusting

# Seedbed Preparation

- Take soil tests to determine nutrient levels in the soil.
  - Use a spade or trowel to dig a small hole about six to eight inches deep.
  - Mix eight samples from well scattered locations together.
  - Have the soil tested for pH, phosphorus, and potassium.

# Seedbed Preparation Cont.

- Apply limestone, phosphate, and potash according to the soil test and the crop to be planted.
  - Add composted organic matter and nitrogen as needed for the crops to be planted.

# Seedbed Preparation

- For small garden areas, use a spade or hand spade to loosen the soil and a rake to smooth the surface.
- Larger areas can be prepared using a garden tiller.
- Commercial size gardens are chisel plowed or disked with a leveling harrow.

# Review/Summary

- What factors are important in selecting an ideal site for a vegetable garden?
- What and how much should be planted?
- What factors are considered in arranging vegetables and developing a garden plan?
- What is the ideal seedbed and how is it prepared?