

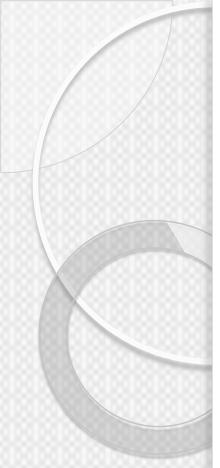


# **Unit B: Establishing a Fruit Garden**

## **Lesson 4: Growing and Maintaining Tree Fruits**

# Terms

- Bud scars
- Fruit thinning
- Modified-leader pruning system
- Open-center (vase) pruning system
- Heading back (tipping) pruning
- Thinning-out pruning
- Suckers or Watersprouts
- Fruiting habit

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- I. Fruit trees can be obtained either locally from a fellow grower or greenhouse or can be ordered through the mail.
    - A. Mail-order fruit trees are sold bare root packed in moist peat moss.
      - I. On arrival, unpack and place the roots in a tub of water, for no longer than two days.
        - a. If trees will be stored longer they should be heeled in.

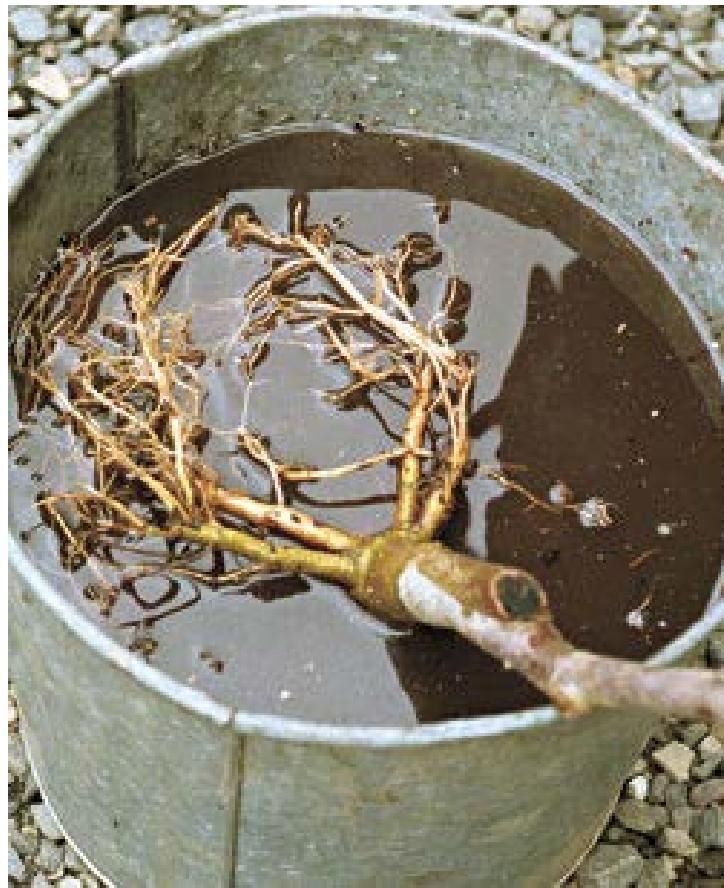
# PLANTING BARE ROOT TREES



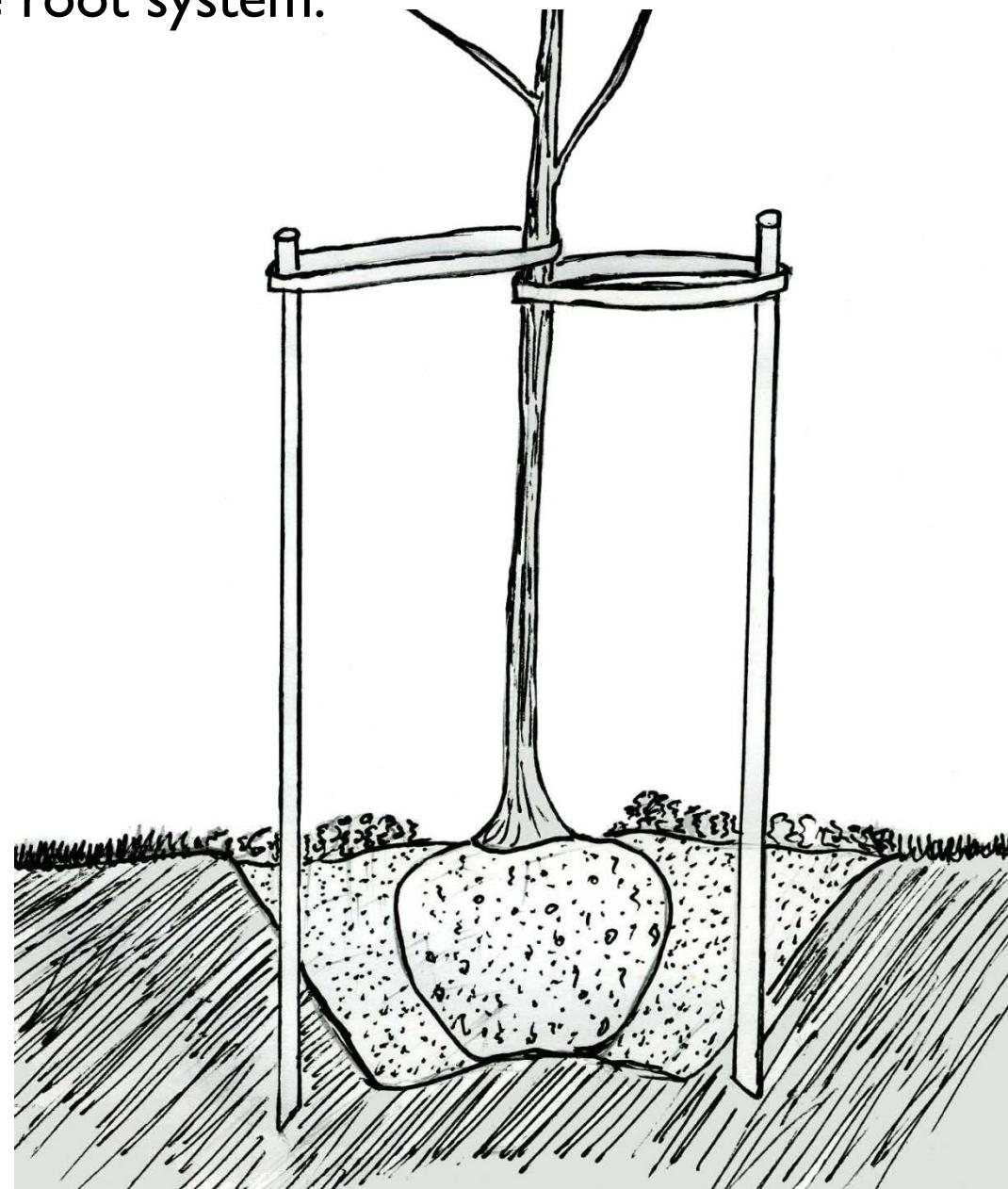
Bare root  
Hole mounded on bottom

Balled and burlapped  
Flat on bottom

- B. When weather and soil conditions permit, dig a hole large enough to accommodate the roots extended in their natural position.
- I. Before planting soak the roots in a bucket of water but not longer than one hour.



2. Dig a hole about 30 centimeters wider and the same depth as the root system.



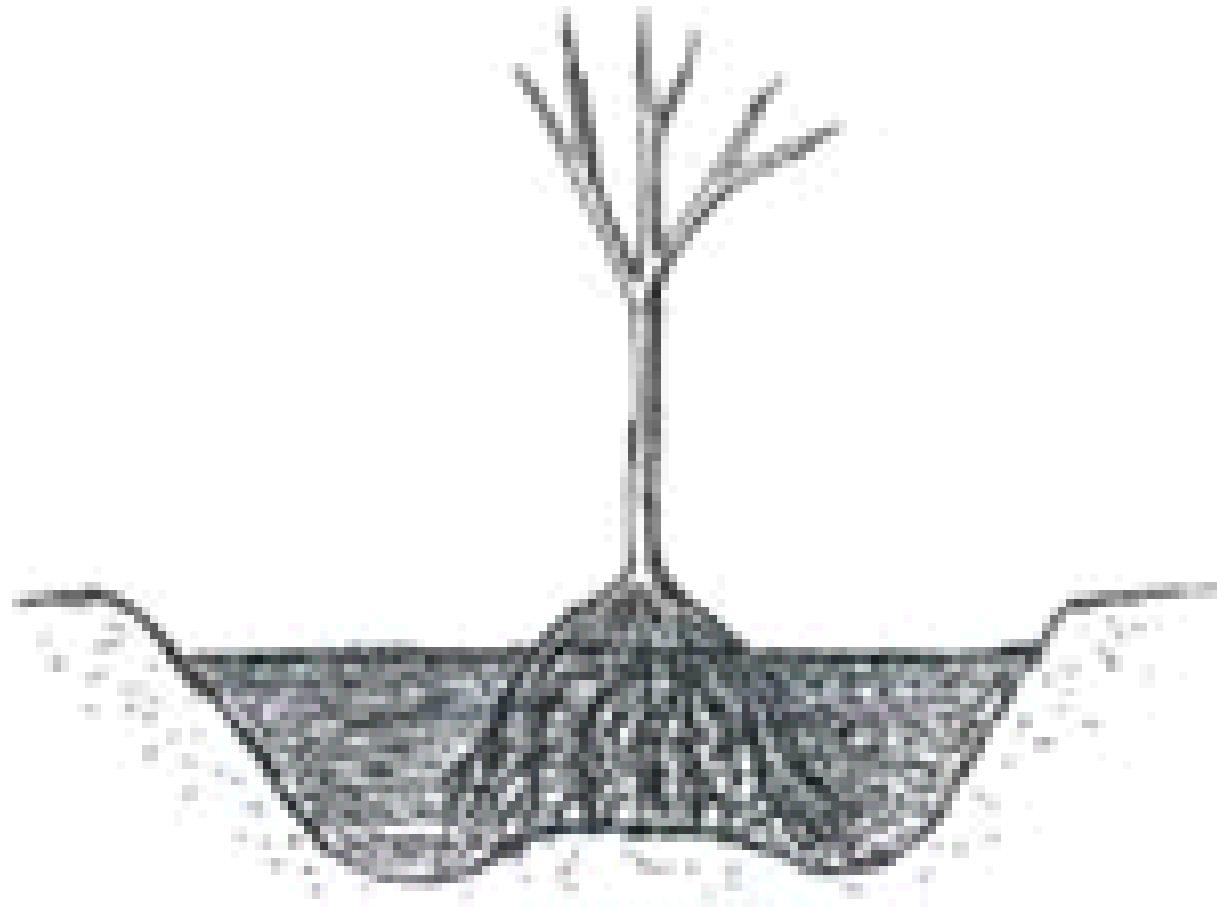
3. Remove any broken, damaged, dead, or diseased branches and roots.



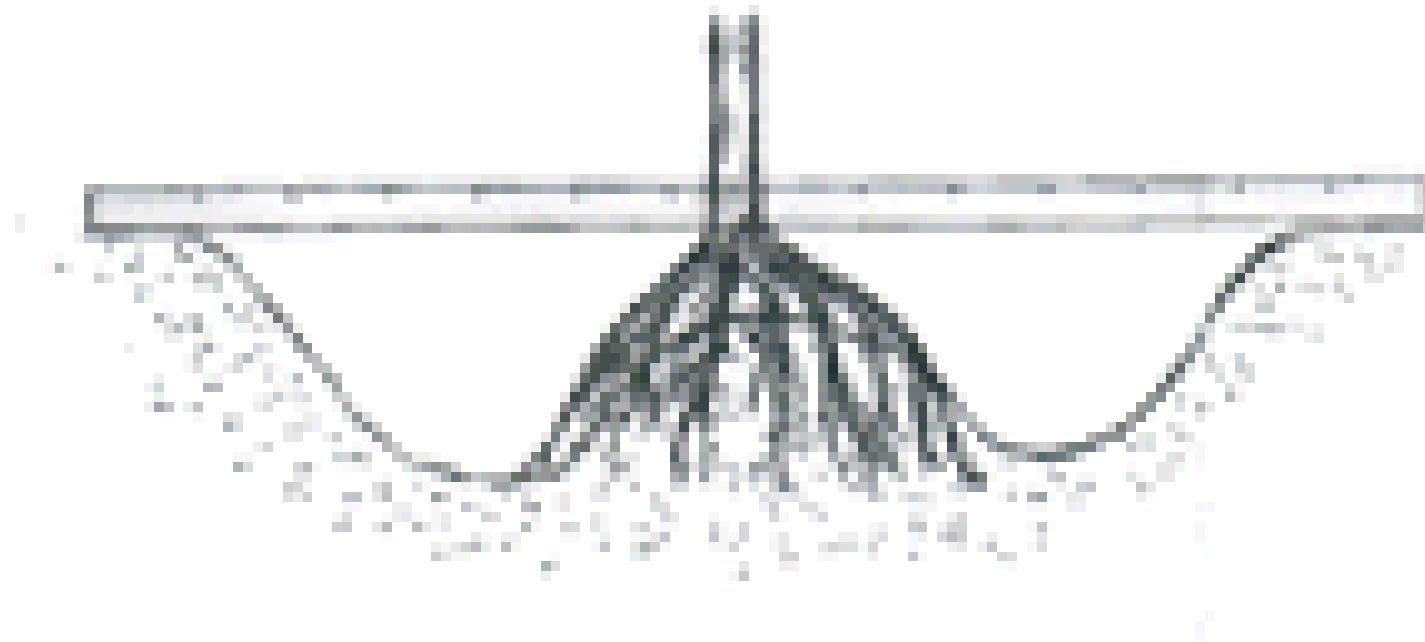
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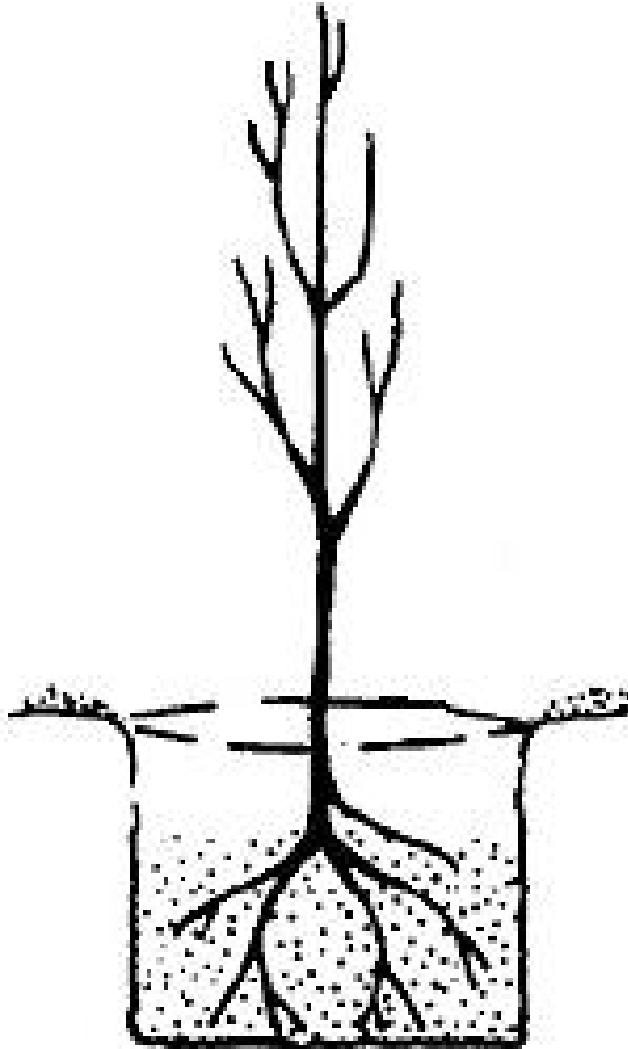
4. Set on a firm mound of soil and then backfill the hole.



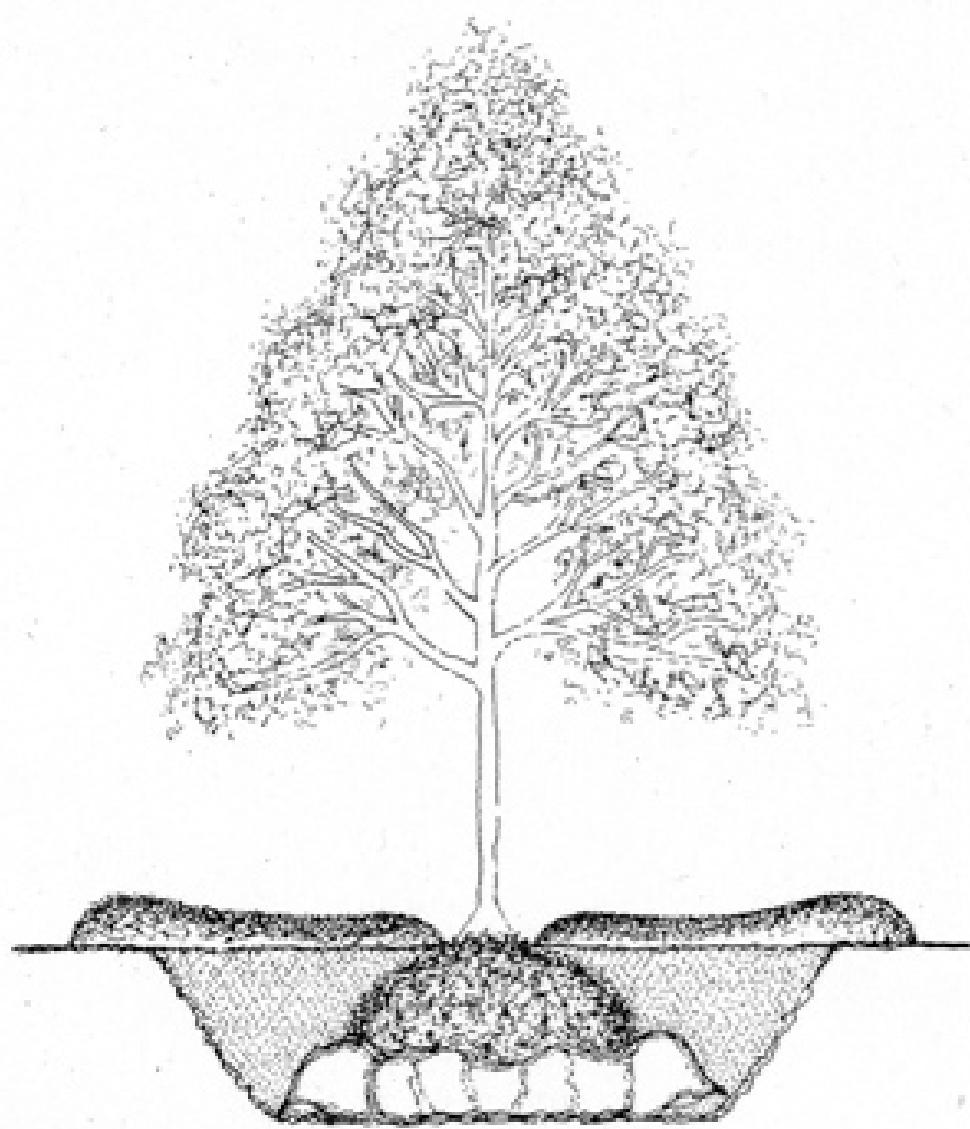
5. Plant the tree at the same depth as grown in the nursery, never deeper.

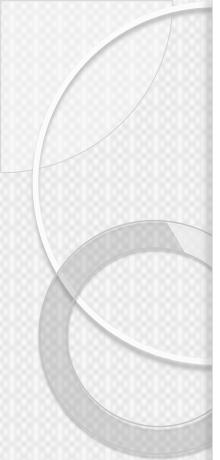


6. Fill the hole  $\frac{3}{4}$  full with backfill and water; tamp with hands.



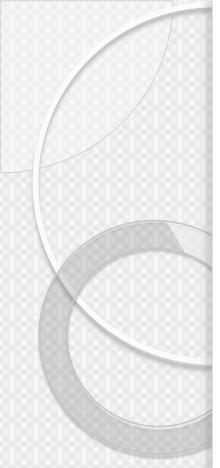
7. Reform the basin, fill with mulch and fertilize.





C. Trees should be planted so that they are about 5 centimeters deeper in the soil than they were in the nursery.

- I. Apple trees grafted high on dwarfing rootstocks should be planted 18 to 25 centimeters deeper than they were growing in the nursery.
  - a. Remember to keep the graft of any fruit trees above ground to prevent the standard from sprouting.

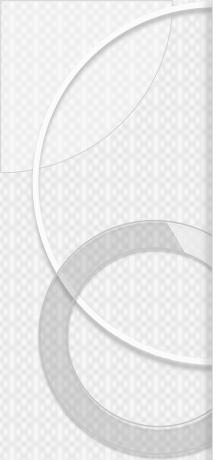


D. Leave a saucer shaped surface with a collar built around the edge of the saucer.

- I. This serves as a catch basin for watering the tree.
2. Fill the basin with mulch (wood chips, sawdust, or ground corncobs).

E. Apply 0.15 kilograms of mixed fertilizer such as 10-10-10 to each tree.

- I. Spread the fertilizer in a circular band  $\frac{1}{4}$  to  $\frac{1}{2}$  meter from the trunk.

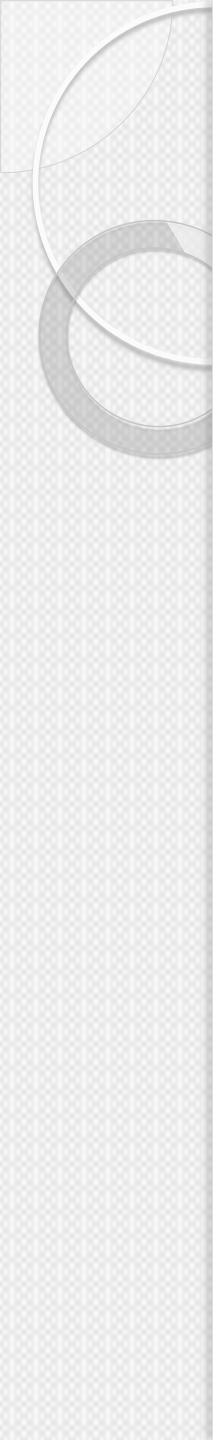


F. Nursery or garden center fruits  
trees typically will be larger.

1. They are either balled and burlapped or container grown.
2. Remove the twine from the balled and burlapped tree and the container from the container grown tree.
3. Use the same planting procedure as with the bare root tree.

II. Proper maintenance of a fruit tree and the entire orchard is very important and will improve the quality of fruit and length of life of an orchard. Many practices are used to properly maintain an orchard.

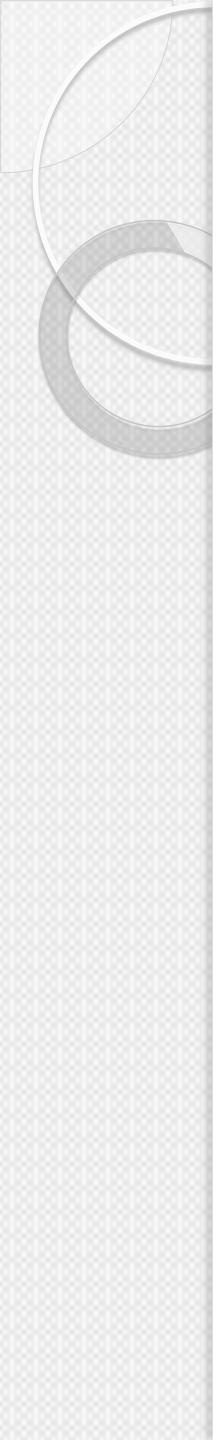
- A. Orchard maintenance begins with the care of young trees. Young fruit trees have difficulty competing with weeds and grass for nutrients and water.
  - I. An area extending 1 meter in all directions from the trunk should be cultivated and mulched.
  - 2. At least the first year watering is needed to supplement rainfall.
    - a. Water once a week if at least 3 centimeters of rainfall does not occur.

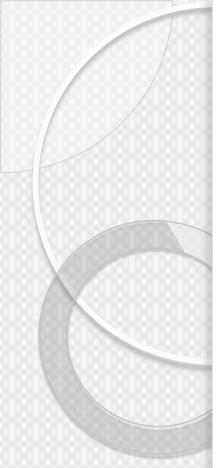
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- B. Mature tree maintenance includes fertilization, pest control, fruit thinning, and pruning.
  - C. Fertilize in early spring as the buds begin to swell.
    - I. Broadcast the fertilizer in a circular band starting about 30 centimeters from the trunk and extending out to the spread of the branches.

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2. If the tree is heavily pruned, reduce or omit the fertilization for that year.
  - a. Nitrogen is the nutrient required in greatest amount, but must be applied with care.
  - b. Too much causes excessive vegetative growth, less fruit set, and less flavor. Too little nitrogen causes slower shoot growth and smaller, lower quality fruit.

- c. Soil levels of phosphorus and potassium similar to a garden are recommended along with a pH of 5.6 to 7.0.
  - i. Ammonium nitrate is a good nitrogen fertilizer choice if phosphorus and potassium levels are already sufficient.
  - ii. To determine the need for nitrogen, measure the previous year's shoot growth. This measurement is done in early spring before the buds open.
  - iii. Last year's growth will be a more intense color (bright red or yellow) starting with the **bud scars** (compressed scars that circle the twig) and extend to the tip.

- d. Apples, plums, apricots, and cherries need 0.1 to 0.22 kilograms of mixed fertilizer (such as 10-10-10) per year of tree age with a maximum of 4.5 kilograms per tree.
  - i. Peaches and nectarines need 0.22 to 0.50 kilograms per year of tree age with a 4.5 kilogram maximum.
- e. Pears do best without fertilizer because of the danger of fire-blight disease.
  - i. If you fertilize, limit it to 0.1 kilograms per year of tree age with a maximum of 1.8 kilograms per year.

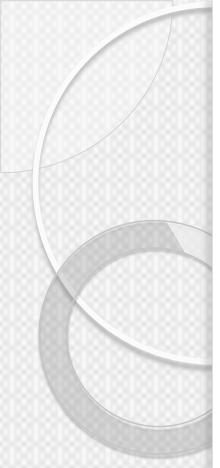
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- 3. Pest control is essential to the successful harvest of fruit trees.**
    - a. Fruit trees differ in the severity of insect and disease attacks and the length of time from bloom to harvest.**
    - b. Generally speaking, the flowers and fruits must be protected from insects and diseases by sprays applied from blossom time until harvest.**
    - c. Some varieties also require a dormant oil spray to prevent borer damage.**

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- 4. *Fruit thinning*** is hand picking during late May and in June of misshaped, damaged, diseased, and excess fruit which will result in larger, higher quality fruit.
- a. Trees not thinned will have potential limb breakage and lower fruit bud set for next year.
  - b. In some cases the tree may go to alternate year bearing.

5. Pruning is a skill acquired through knowledge of the plant to be pruned, practice, and observation of the results of pruning.



- a. Pruning has many purposes which include
  - i. improving the size and quality of the fruit
  - ii. developing a strong tree framework capable of supporting the fruit load, shape the tree, and adjust or partially control size of the tree to facilitate spraying and harvesting.
  - iii. Unpruned trees tend to produce fruit only on the outer edges and the top where sunlight reaches.
  - iv. The interior of the tree becomes a tangled mass that is difficult to spray and harvest.

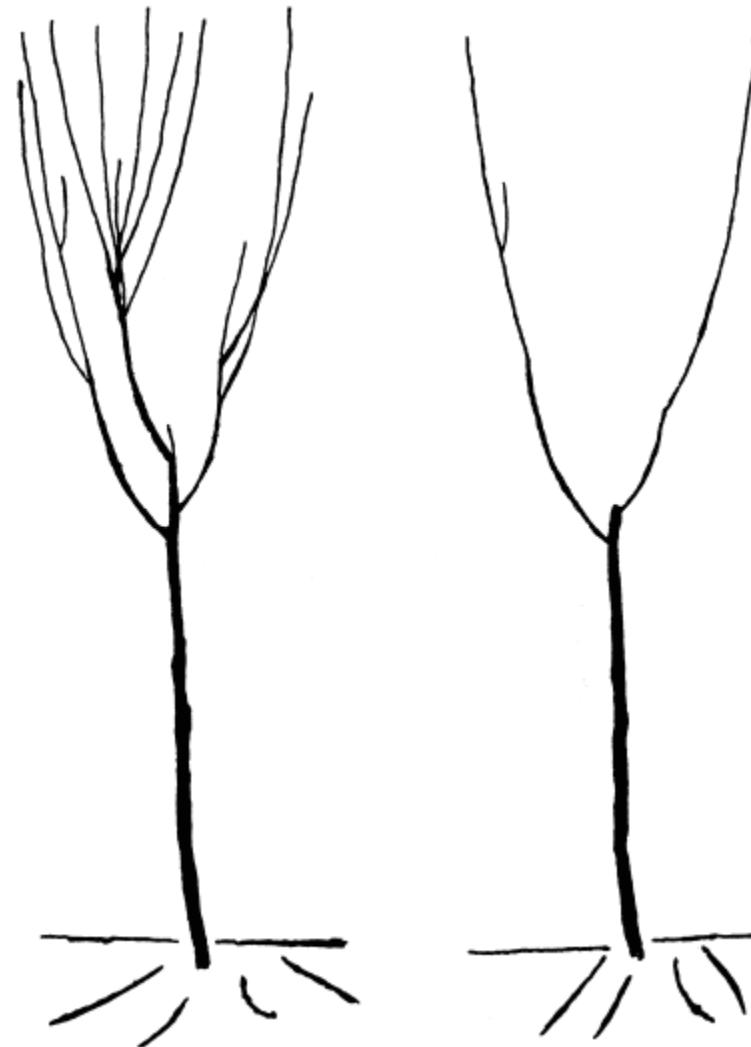
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- b. There are various methods of pruning utilized in an orchard. The names of the methods are presented here and the practice will be discussed in a future lesson.
    - i. Light pruning may be done any time of the year, but heavy pruning should be limited to the latter part of the dormant season. Summer pruning has a dwarfing effect on the tree.

ii. The ***modified-leader pruning system*** creates a main leader branch and three to four lateral branches which are all treated with equal importance.

- I. Apple, pear, cherry, and sweet cherry trees use this system.



iii. The ***open-center (vase) pruning system*** is used to allow good light penetration for fruiting of inner branches.

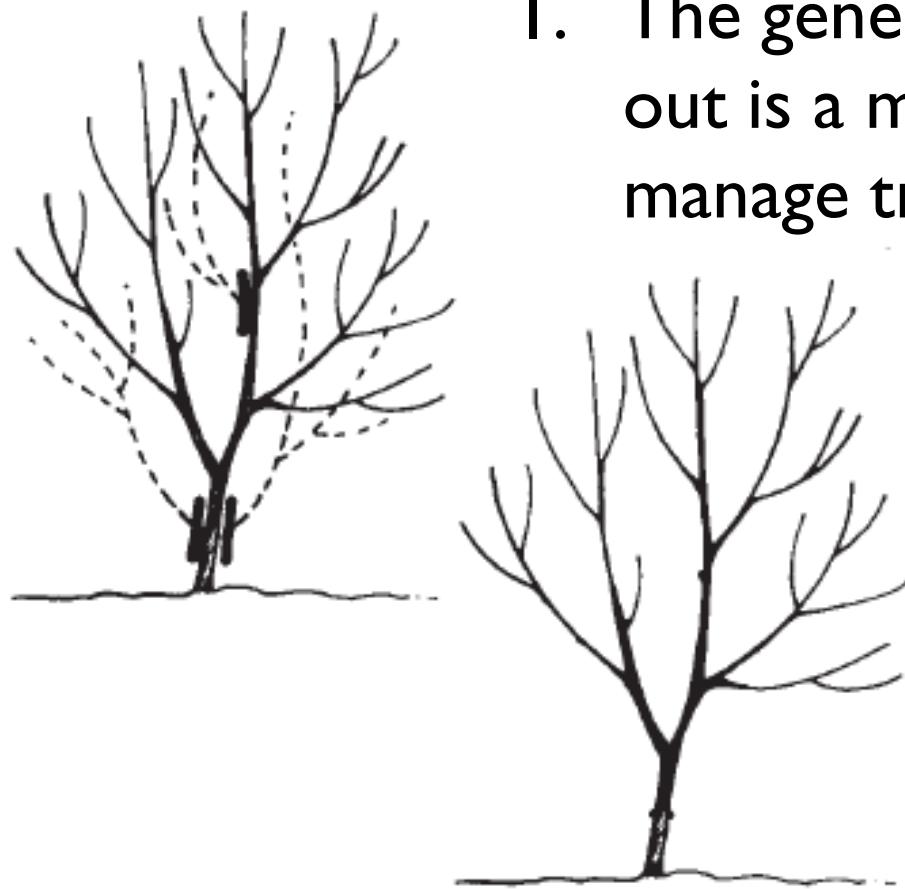


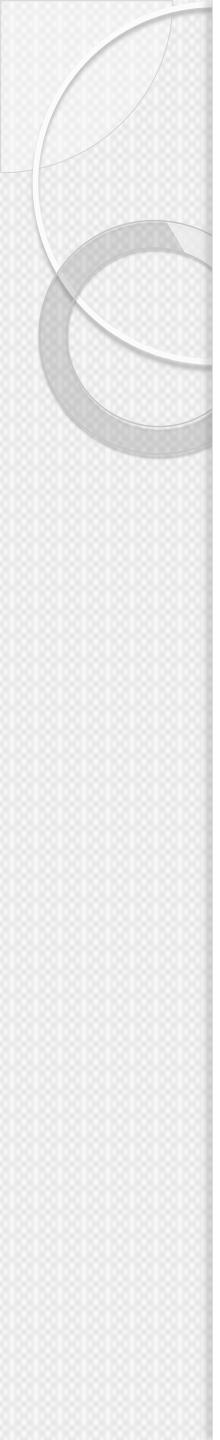
**iv. *Heading back (tipping) pruning***  
encourages the growth of lateral (side)  
branches.



v. ***Thinning-out pruning*** is the removal of an entire branch, shortening of a branch, and reduction of the number of laterals growing from branches.

I. The general effect of thinning-out is a more open, easier to manage tree.

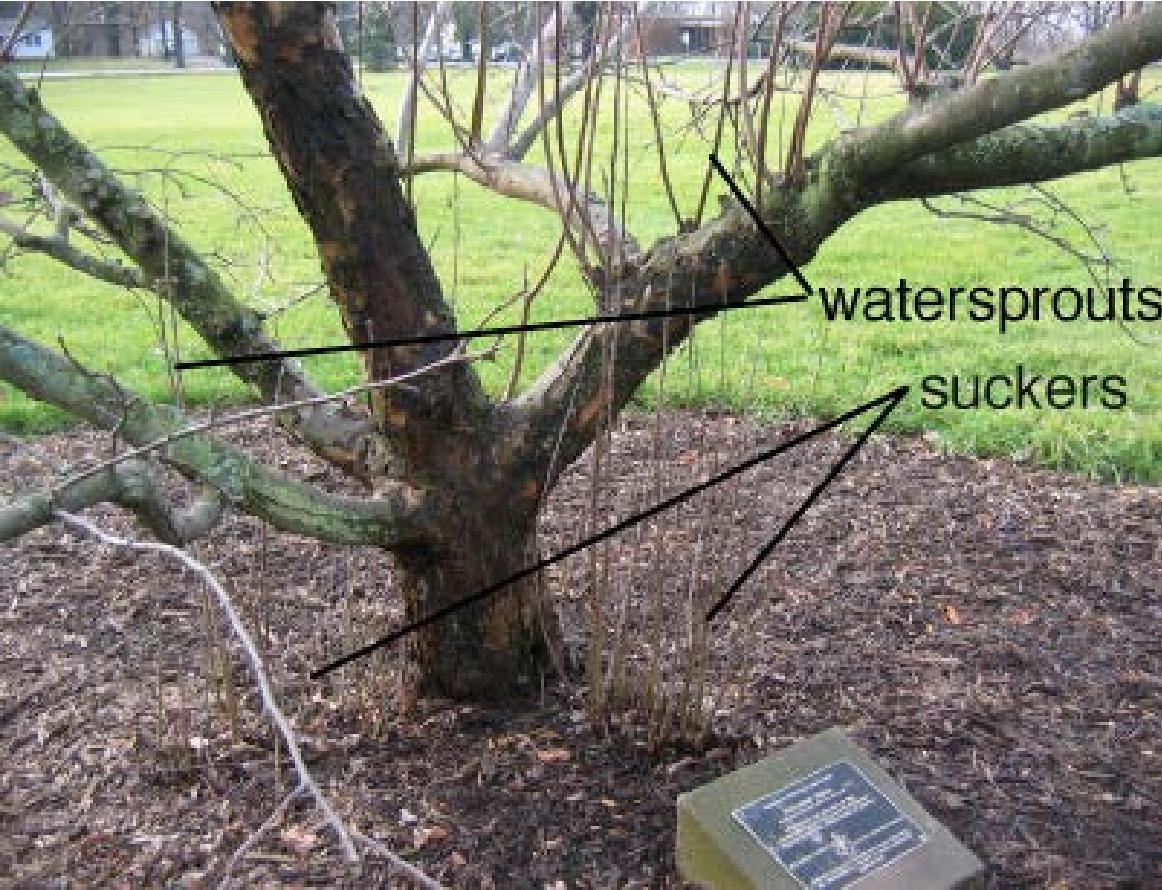


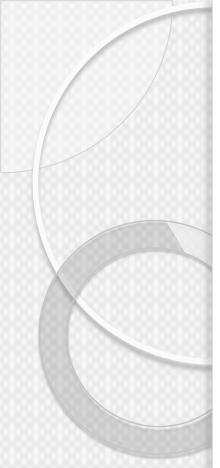


vi. Annual pruning is needed to keep the trees productive and prevent trees from becoming too large and too dense.

**vii. Suckers or watersprouts** are rapidly growing young shoots arising from the roots, trunk, or scaffold branches.

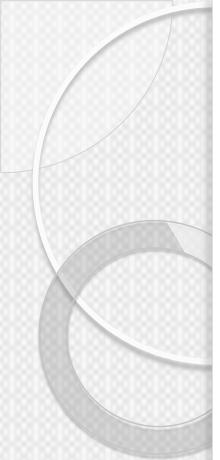
- I. They grow straight upward and should be removed whenever they occur.





6. The ***fruiting habit*** is the location where fruit is borne—laterally along the branch or terminally at the tip on one-year-old twigs or on fruit spurs produced on older wood.

- a. When you prune keep in mind where the fruit is borne.
- b. Apples and pears produce most of their fruits terminally on spurs from two year old or older wood.



# Review/Summary

1. What is the correct way to plant a fruit tree?
2. What are some practices used to maintain a fruit orchard?