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SP307-A-Fertilizing & Liming Fruit Trees

The University of Tennessee Agricultural Extension Service

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Fruits & Nuts

Fertilizing and Liming Fruit Trees

David W. Lockwood, Professor, Plant and Soil Science

Application of fertilizer to fruit trees is essential to maintain adequate tree growth and good fruit production. Insufficient amounts of fertilizer result in a decrease in tree vigor, fruiting intensity and fruit quality. Excessive amounts of fertilizer may mean a loss of fruit quality, primarily due to shading and poor spray coverage resulting from the lush growth.

Prior to planting fruit trees, a soil sample should be taken to determine soil pH and phosphorus and potassium levels in the soil. Fruit trees perform best at a soil pH of 6.0-6.5. If soil test results indicate a need for lime or phosphorus, application of these materials should be made prior to planting the tree. Additional soil tests should be taken every fourth or fifth year on established trees. Pull samples from the upper 8 inches of soil. In preplant situations, a second sample at the 8- to 16-inch depth would show conditions in the subsoil which could be addressed before trees are set. Materials and information regarding soil testing may be obtained from your local county Extension office.

In most situations, fruit trees should be fertilized every year, including the year of planting. For the year of planting, apply fertilizer about three weeks after the trees are set. For established trees, apply fertilizers about one month prior to the start of growth in spring.

With newly-set trees, do not apply fertilizers within 10 to 12 inches of the trunk (Diagram 1). This will help to prevent trunk damage caused by fertilizers accumulating against the tree trunk. For established trees, apply fertilizers under the tree from close to the trunk to the drip line (outer edge of the branches) (Diagram 2).

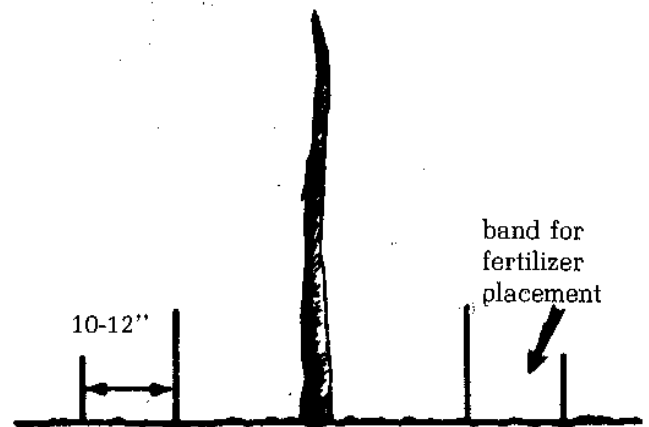


Diagram 1. Fertilizer placement for newly set trees.

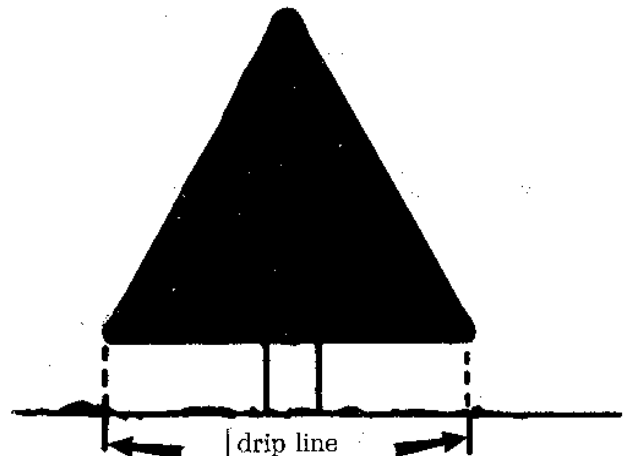


Diagram 2. Fertilizer placement for established trees.

Fertilizer may be broadcast on the soil surface where rainfall or supplemental watering will aid in getting it into the soil. It is also possible to bore small holes in the soil and put some fertilizer in each hole. If this is done, holes should be about 6 inches deep and 12 to 18 inches apart and cover the same area recommended for the placement of broadcast fertilizers.

Fertilizer rates are dependent on the type of tree, vigor, last year's growth and fruiting and the ground cover under and around the tree. For most fruit trees that are grown in sod except pears, use a basic rate of 0.1 pound actual nitrogen per year of tree age. Level off rates at about the sixth to seventh year. When tree age is not known, use a basic rate of 0.1 pound actual nitrogen per inch of trunk diameter measured one foot above ground. Level off rates at 0.6 to 0.7 pound actual nitrogen. Although other fertilizer materials besides nitrogen may be needed, recommendations

are based on nitrogen, as it is the element found to be most frequently growth-limiting. Fertilize pear trees at one-half the basic rate.

The basic fertilizer rate may need to be adjusted up or down, depending on growth and fruiting of the tree the previous year. If trees are making less growth than indicated below, fertilize heavier than the basic rate. If tree growth is excessive, reduce the basic rate to try to bring growth back into desirable limits. The following table indicates the optimum growth rates for various types of fruit trees.

Terminal elongation refers to the length of last year's growth at the ends of the main limbs.

Desirable Growth Ranges for Fruit Trees

Type of Tree	Optimum Growth (Terminal Elongation)	Other Criteria
Peach & Nectarine		
Non-bearing	18 to 24 inches	foliage color dark green
Bearing	12 to 18 inches	fruit size and quality good
Apple		
Non-bearing	15 to 30 inches	
Bearing, non-spur type	at least 6 to 8 inches, preferably 12 to 18 inches	
Bearing, spur type	6 to 10 inches	3/4 inch elongation on non-fruiting spurs
Plum & Sweet Cherry		
Non-bearing	22 to 36 inches	
Bearing	about 8 inches	
Tart Cherry		
Non-bearing	12 to 24 inches	
Bearing	about 8 inches	
Pear Trees		
Non-bearing	15 to 30 inches	
Bearing	12 to 16 inches	



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Agricultural Extension Service
Billy G. Hicks, Dean