

Fruit Trees

Management Highlights

- Target pH: 6.5
- Fertilize fruit trees in early spring one month before bloom for best response.
- Avoid overfertilizing pear trees to reduce the risk of fire-blight.
- Fertilize dwarf trees at ½ the rates recommended below.
- Red Delicious and Stayman apple trees may require a boron spray. Contact your local Cooperative Extension agent for details.

Soil pH and Liming

The target pH for fruit trees on Delaware soils is 6.5. When at all possible, soil pH problems should be corrected prior to planting trees since incorporation of lime which increases the effectiveness of the application will be more difficult once the trees are established. The lime recommendation for a particular site is calculated from the soil pH and buffer pH measurements using the steps outlined in *Calculating the Lime Requirement -- Chapter 4, Section 4.4*. Avoid overliming in order to encourage good plant growth and prevent deficiency of micronutrients such as iron.

In most cases, the lime requirement can be met by either calcitic or dolomitic limestone. *Dolomitic limestone* is recommended if:

- soil test Mg is less than 50 FIVs, or
- soil test Mg is between 50 and 100 FIVs *and less than soil test Ca*.

Calcitic limestone is recommended if:

- soil test Mg is greater than 100 FIVs, or
- soil test Mg is between 50 and 100 FIVs *and greater than soil test Ca*.

Lime should be applied in the fall. Do not spread more than 50 lbs lime/1000 square feet at a time. If more than 50 lbs/1000 square feet has been recommended, make two or more treatments of 40-50 lbs each several months apart until the full rate has been applied.

Nutrient Recommendations

Nutrient recommendations for fruit trees are based on the nutrient requirements of the plant as a function of tree type (standard or dwarf) and maturity and the soil test values for P and K. Immature, non-bearing trees are fertilized at twice the rate of mature trees to support rapid

growth and good development. Dwarf trees are fertilized at one-half the rate for standard trees due to their limited size, and thus, reduced nutrient requirements. Separate recommendations are also provided for pear trees since overfertilization may lead to a condition known as *fire-blight of pear*.

Trees should be fertilized in early spring approximately one month before bloom for best response. Fertilizer should be evenly spread over the soil surface from the trunk to the dripline of the tree and watered in.

To determine the nutrient recommendation for a specific site, select the **P-K Index Value** from Table 1 using the soil test P and soil test K values shown on the Soil Test Report Form. Next, using that index value, select the appropriate nutrient recommendation from Table 2 for apples, cherries, peaches, nectarines or plums, or from Table 3 for pears.

Special Notes:

- 1) Trees located in a lawn area that receives regular maintenance applications of fertilizer need no additional fertilizer. If the tree is mature but not yielding well, soil test and/or contact your Cooperative Extension agent for assistance.
- 2) A boron spray is recommended for Red Delicious and Stayman apples. Contact your Cooperative Extension agent for additional information.

Table 1. P-K Index value as a function of soil test P and soil test K.

Soil Test K (FIVs)	Soil Test P (FIV)s			
	1 - 25	26 - 50	51 - 100	101 - 150
1 - 25	1	2	3	4
26 - 50	5	6	7	8
51 - 100	9	10	11	12
101 - 150	13	14	15	16

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Table 2. Nutrient recommendations for standard fruit trees as a function of the P-K index value - except pears.

P-K Index Value	Nutrient Recommendation	
1	Bearing trees:	Apply 2 cups (approximately 1 lb) of 10-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 20 cups or 10 lbs.
	Non-bearing Trees:	Apply 4 cups (approximately 2 lbs) of 10-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree.
2,3,4, 7,8	Bearing trees:	Apply 1½ cups (approximately ¾ lb) of 12-4-8 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 15 cups or 7.5 lbs.
	Non-bearing Trees:	Apply 3 cups (approximately 1½ lbs) of 12-4-8 or equivalent water-soluble fertilizer per year of tree age to each tree.
5,9,13	Bearing trees:	Apply 2-3 cups (approximately 1-1½ lb) of 5-10-5 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 30 cups or 15 lbs.
	Non-bearing Trees:	Apply 4-6 cups (approximately 2-3 lbs) of 5-10-5 or equivalent water-soluble fertilizer per year of tree age to each tree.
6,10,14	Bearing trees:	Apply 1-2 cups (approximately ½-1 lb) of 10-6-4 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 15 cups or 7.5 lbs.
	Non-bearing Trees:	Apply 2-4 cups (approximately 1-2 lbs) of 10-6-4 or equivalent water-soluble fertilizer per year of tree age to each tree.
11,12, 15,16	Bearing trees:	Apply ½ cup (approximately 4 oz.) of urea (46-0-0) or ⅔ cup (approximately 6 oz.) of ammonium nitrate (34-0-0) or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 5 cups or 2.5 lbs.
	Non-bearing Trees:	Apply 1 cup (approximately ½ lb) of urea (46-0-0) or 1½ cup (approximately ¾ lb) of ammonium nitrate (34-0-0) or equivalent water-soluble fertilizer per year of tree age to each tree.

NOTE: Fertilize dwarf cultivars at ½ the appropriate rate specified above.

Table 3. Nutrient recommendations for standard pear trees as a function of the P-K index value.

P-K Index Value	Nutrient Recommendation
1	<p>Bearing trees: Apply 2 cups (approximately 1 lb) of 5-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 20 cups or 10 lbs.</p> <p>Non-bearing Trees: Apply 4 cups (approximately 2 lbs) of 5-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree.</p>
2,3,4	<p>Bearing trees: Apply 1 cup (approximately ½ lb) of 10-10-10 or equivalent water-soluble fertilizer <i>plus</i> 1/3 cup (approximately 5 oz.) muriate of potash (0-0-60) per year of tree age to each tree. Maximum application: 10 cups and 3 cups, respectively. One cup equals approximately ½ lb of fertilizer.</p> <p>Non-bearing Trees: Apply 2 cups (approximately 1 lb) of 10-10-10 or equivalent water-soluble fertilizer <i>plus</i> 2/3 cups (approximately 10 oz.) of muriate of potash (0-0-60) per year of tree age to each tree.</p>
5,9,13	<p>Bearing trees: Apply 1-2 cups (approximately ½-1 lb) of 5-10-5 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 15 cups or 7.5 lbs.</p> <p>Non-bearing Trees: Apply 2-4 cups (approximately 1-2 lbs) of 5-10-5 or equivalent water-soluble fertilizer per year of tree age to each tree.</p>
6,7,8, 10,14	<p>Bearing trees: Apply ½-1 cups (approximately 4-8 oz.) of 10-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 10 cups or 5 lbs.</p> <p>Non-bearing Trees: Apply 1-2 cups (approximately ½-1 lb) of 10-10-10 or equivalent water-soluble fertilizer per year of tree age to each tree.</p>
11,12, 15,16	<p>Bearing trees: Apply ¼ cup (approximately 2 oz.) of urea (46-0-0) or ⅓ cup (approximately 5 oz.) of ammonium nitrate (34-0-0) or equivalent water-soluble fertilizer per year of tree age to each tree. Maximum application: 3 cups or 1½ lbs.</p> <p>Non-bearing Trees: Apply ½ cup (approximately 4 oz.) of urea (46-0-0) or ⅔ cup (approximately 6 oz.) of ammonium nitrate (34-0-0) or equivalent water-soluble fertilizer per year of tree age to each tree.</p>

NOTE: Fertilize dwarf cultivars at ½ the appropriate rate specified above.

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Additional Information

See Soil Test Notes 1 and 12 (Appendix APP-7) for additional information about the nutrient management of fruit trees. Fact sheets about fruit trees in the home garden are also available at your local Cooperative Extension office.