

BEES Info #100

**Lime and Fertilizer Recommendations
for the Various Crops of Tennessee**

*Chapter V
Commercial Fruit and Nut Production*

Compiled by:

Hubert J. Savoy, Jr.

And

Debbie Joines

Reviewed: September, 2008

Chapter V, Table of Contents

Page

Commercial Fruit and Nut Production

Apples	3
Blueberries.....	4
Brambles (Commercial).....	5
Grapes	6
Peaches and Nectarines	7
Tart Cherries and Plums.....	7
Pears.....	8
Pecans and Nut Trees.....	8
Strawberry.....	8

APPLES

Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	90	60	30	0	90	60	30	0	1,2,3	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 1

1. One-tenth (0.1) pound of actual N per inch of trunk diameter measured one foot above ground, applied 4-6 weeks before bud swell in the spring should provide the following desired growth per tree:
 Non-bearing trees - 15 to 30 inches terminal growth.
 Mature, non-spur trees - 12 to 14 inches terminal growth.
 Mature, spur type trees - 6 to 10 inches terminal growth with 1/2 to 3/4 inch of growth and 6-10 healthy leaves on non-fruiting spurs.
 If the previous years growth is not as indicated above, the N rate should be adjusted accordingly. N rates should not be increased after trees reach 8-10 years of age.
2. For commercial orchards apply boron annually in the first two cover sprays at the rate of 1.0 pound Solubor per 100 gallons water in a dilute spray. For home orchards, every three years apply one ounce of Borax per inch of trunk diameter measured one foot above ground.
3. For commercial orchards, add two to three pounds of calcium chloride or two to four pounds of calcium nitrate per 100 gallons water for at least the last four to six cover sprays. Do not use calcium nitrate on Red Delicious or other nitrate sensitive varieties.

BLUEBERRIES

Soil Test Recommendations for N, P₂O₅ and K₂O at Various Soil Test Levels*

Practice	Phosphate (P ₂ O ₅)	Potash (K ₂ O)	Note
1. Establishment and Maintenance	L	L	1,2,3
	L	M	1,2,3
	L	H	1,2,3
	L	V	1,2,3
	M	L	1,2,3
	M	M	1,2,4
	M	H	1,2,4
	M	V	1,2,4
	H	L	1,2,3
	H	M	1,2,4
	H	H	1,2
	H	V	1,2
	V	L	1,2,3
	V	M	1,2,4
	V	H	1,2
V	V	1,2	

* L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 8.

- Soil pH should be within the range of 4.8 to 5.5. If the pH is above this range, apply two (2.0) pounds of elemental sulfur per 1000 square feet for each one-tenth (0.1) unit the pH is above 5.5 (for medium-textured, silt-loam soils). Use 1/3 more sulfur for fine-textured (clay) soils or 1/3 less sulfur for coarse-textured (sandy) soils than the amount required for medium-textured soils. Apply sulfur at least three months before planting and work into the top three inches of soil. When more than thirty (30.0) pounds of sulfur per 1000 square feet is required, it would be advisable to split the application. Apply two-thirds of the recommended amount and after about three months re-test the soil. If the pH has not been sufficiently reduced, apply the remainder of the material.
- For maintenance apply the following (per 1,000 square ft.): First spring after planting: two pounds of 15-15-15 or equivalent.
Second spring after planting: three pounds of 15-15-15 or equivalent.
Third spring after planting: four pounds of 15-15-15 or equivalent.
Remaining springs after planting: five pounds of 15-15-15 or equivalent.
At least six and twelve weeks after the above maintenance fertilizer applications, apply three pounds of ammonium nitrate per 1000 square feet. Maintain the soil pH near 5.0.
- At establishment apply 6 pounds 15-15-15 or equivalent per 1000 square feet.
- At establishment apply 3 pounds 15-15-15 or equivalent per 1000 square feet.

BRAMBLES (COMMERCIAL)

Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	45-60	90	60	30	0	90	60	30	0	1,2	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 3

1. Broadcast lime and fertilizer in a four-foot band in the row area prior to establishment. A distance of 10,890 linear feet by 4 feet width equals one acre.
2. Apply 45 to 60 pounds of N per acre at planting and after the first year sidedress with 45 to 60 pounds of nitrogen per acre annually when first blooms appear.

GRAPES
Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P₂O₅)				Potash (K₂O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	60	30	0	0	120	60	30	0	1,2,3	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 2

1. For establishment of grapes, apply recommended amounts of lime, phosphate and potash to the entire area and incorporate into the soil before setting. Broadcast all nitrogen and maintenance applications of lime, phosphate and potash under the vines.
2. Apply N in the early spring at the rate of one-tenth (0.1) pound of actual N per vine for vines of medium vigor. For weaker vines, apply two-tenths (0.2) pound N per vine.
3. When lime is recommended, use dolomitic limestone to supply magnesium. If lime is not needed but soils test less than 40 pounds of magnesium per acre or magnesium deficiencies occur, apply magnesium sulfate (Epsom Salts) at the rate of 16 pounds salt in 100 gallons water. Make two applications - the first immediately after bloom and the second two weeks later.

Computer Codes:
1. PEACH

PEACHES AND NECTARINES
Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	90	60	30	0	90	60	30	0	1	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 1

1. Apply N to peaches and nectarines at the rate of one-tenth (0.1) pound of actual N per year of tree age. Adjust the rate according to growth the previous year. Non-bearing trees should make at least 18 inches of terminal growth and have good leaf color. Bearing trees should make 10 to 15 inches of terminal growth annually. Do not increase N rates for trees 10 years or older.

Computer Codes:
1. PLUM

TART CHERRIES AND PLUMS
Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	90	60	30	0	90	60	30	0	1,2	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 1

1. Apply N to cherries at the rate of one-tenth (0.1) pound of actual N per year of tree age. Adjust the rate according to growth the previous year. Non-bearing trees should make at least 18 inches of terminal growth and have good leaf color. Bearing trees should make 10 to 15 inches of terminal growth annually. Do not increase N rates for trees 10 years or older.
2. To plums, apply one-third (0.3) pound of actual N per tree for non-bearing trees and one (1.0) pound N for bearing trees.

Computer Codes:
PEAR

PEAR

Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	90	60	30	0	90	60	30	0	1	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 1

1. Apply one ounce of actual N per year of tree age or per inch of trunk diameter. Adjust this rate according to growth produced the previous year. Trees should make 12 to 16 inches of terminal growth. Do not increase N rates after trees reach 15 years of age.

Computer Codes:
1. NUT

PECANS AND NUT TREES

Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment and Maintenance	0	90	60	30	0	90	60	30	0	1,2	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 2

1. Apply one-tenth (0.1) pound of actual nitrogen per tree for new plantings and also the second and third years. Apply the fertilizer 4-6 weeks before bud break to an area extending three feet from the tree trunk. Do not apply fertilizer within 12 inches of the trunk. The fourth and fifth years apply one and one-half (1.5) pounds of N per tree in the early spring to an area extending from the trunk out to the drip line. For trees six years and older, apply two pounds of nitrogen per tree in the early spring. Adjust nitrogen rates if necessary to obtain about 12 inches of new growth on terminal shoots.
2. For pecan trees, apply two pounds of zinc sulfate per 1,000 square feet.

Computer Codes:

1. STE

2. STM

STRAWBERRIES**Soil Test Recommendations for N, P₂O₅ and K₂O (Pounds Per Acre Per Year)**

Practice	Nitrogen	Phosphate (P ₂ O ₅)				Potash (K ₂ O)				Notes	
	Soil Test Levels*										
	NT	L	M	H	V	L	M	H	V		
1. Establishment	30	300	150	50	0	75	25	0	0	1,2,4	
2. Renovation	30	100	50	0	0	75	25	0	0	1,3	

*NT = Not Tested L = Low M = Medium H = High V = Very High

Notes: Lime recommendations from Lime Chart 3

1. To matted-row strawberries, apply an additional 30-45 pounds of nitrogen per acre annually as a sidedressing in August.
2. To matted-row strawberries, apply an additional 30 pounds of nitrogen per acre at annual renovation after the first year.
3. Phosphorus must be worked into the soil for availability to lower root zone.
4. If strawberries are being grown on plastic with fertigation, apply all of the recommended phosphate and 1/2 of the recommended nitrogen and potash prior to installing the plastic. Distribute the remaining nitrogen and potash recommendations weekly over the spring production and harvest season (8 to 10 weeks) beginning when plants break dormancy in the spring.