

## GENERAL COMMENTS FOR SQUARE FOOT RECOMMENDATIONS

- 68 Broadcast Epsom salts (magnesium sulfate) at the rate of 0.5 lbs per 100 square feet or 5.0 lbs per 1,000 square feet or a fertilizer containing magnesium. (When lime is not recommended and soil test magnesium is low – omit 203)
- 69 Broadcast 5 lbs gypsum (calcium sulfate) per 100 square feet or 50 lbs per 1,000 square feet. (When lime is not recommended and soil test calcium is less than 400 lbs calcium per acre)
- 654 Soil test again next year if either phosphorus (P) or potassium (K) is high or excessive to monitor levels. (When P or K is high or excessive)
- 655 If either boron (B), manganese (Mn), or zinc (Zn) is low, use a leaf analysis to confirm deficiency. Contact the Home and Garden Information Center (1-888-656-9988) for more information. (When B or Mn or Zn is low)

## LAWNS AND SMALL AREA TURF

### *Crop Code No. 111*

### **Bentgrass Golf Green**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	452	452	452	453	453
Medium	452	452	452	453	453
Sufficient	454	454	454	455	455
High	454	454	454	455	455
Excessive	454	454	454	455	455

### **COMMENTS** (68, 69, 452, 453, 454, 455, 535, 654, 655)

- 452 In the fall, broadcast 2 lbs triple superphosphate (0-46-0) per and 10 lbs 10-10-10 per 1,000 square feet. In the winter, apply 10 lbs 10-10-10 per 1,000 square feet. Fertilize only in fall, winter, and very early spring months (September through February). In order to maintain desired growth and color, additional nitrogen or complete fertilizer (at the rate of 1 to 2 lbs nitrogen per 1,000 square feet) may be required. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 453 In the fall, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) per 1,000 square feet. In the winter, broadcast 3 lbs of the 30% nitrogen fertilizer per 1,000 square feet. Fertilize only in fall, winter, and very early spring months (September through February). In order to maintain desired growth and color, additional nitrogen fertilizer (at the rate of 1 to 2 lbs nitrogen per 1,000 square feet) may be required. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)

- 454 In the fall, broadcast 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet and repeat the same application in the winter. Fertilize only in fall, winter, and very early spring months (September through February). In order to maintain desired growth and color, additional nitrogen or complete fertilizer (at the rate of 1 to 2 lbs nitrogen per 1,000 square feet) may be required. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-H, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 455 In the fall, broadcast 3 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) per 1,000 square feet as needed to maintain color and vigor. Fertilize only in fall, winter, and very early spring months (September through February). In order to maintain desired growth and color, additional nitrogen fertilizer (at the rate of 1 to 2 lbs nitrogen per 1,000 square feet) may be required. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 118***

**Bermudagrass Golf Green or Tee**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	441	441	441	442	442
Medium	441	441	441	442	442
Sufficient	443	443	443	444	444
High	443	443	443	444	444
Excessive	443	443	443	444	444

**COMMENTS (68, 69, 441, 442, 443, 444, 535, 654, 655)**

- 441 In the spring, broadcast 3 lbs triple superphosphate (0-46-0) and 10 lbs 10-10-10 per 1,000 square feet. In order to maintain desired growth and color, broadcast additional nitrogen or complete fertilizer at the rate between 1 to 2 lbs nitrogen per 1,000 square feet. Fertilize only in spring, summer, and early fall months. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 442 In the spring, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) or equivalent turfgrass fertilizer per 1,000 square feet. In order to maintain desired growth and color, broadcast additional nitrogen fertilizer at the rate between 1 to 2 lbs nitrogen per 1,000 square feet. Fertilize only in spring, summer, and early fall months. Supplement with nitrogen as needed. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)

- 443 In the spring, broadcast 10 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. In order to maintain desired growth and color, broadcast additional nitrogen or complete fertilizer at the rate between 1 to 2 lbs nitrogen per 1,000 square feet. Fertilize only in spring, summer, and early fall months. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 444 In the spring, broadcast 3 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) per 1,000 square feet. In order to maintain desired growth and color, broadcast additional nitrogen fertilizer at the rate between 1 to 2 lbs nitrogen per 1,000 square feet. Fertilize only in spring, summer, and early fall months. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 093 or 094***

**Carpetgrass (093) or Centipede (094)**

Soil Groups 1, 2, 3, 4			Desired pH 5.5 – 6.0		
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	433	433	433	434	434
Medium	435	435	435	436	436
Sufficient	435	435	435	436	436
High	435	435	435	436	436
Excessive	435	435	435	436	436

**COMMENTS** (68, 69, 321, 433, 434, 435, 436, 437, 522, 535, 654, 655)

- 321 Do not over-fertilize with nitrogen or apply nitrogen fertilizer after August 15. To achieve darker green color, broadcast iron containing product or foliar apply on the turf a liquid solution of iron sulfate (dissolve 2 ounces iron sulfate in 4 gallons of water) including a surfactant (5 drops of a dishwasher detergent) per 1,000 square feet, or foliar apply a chelated iron source following label instructions. An iron solution treatment should be made as needed for green turf color between regular fertilizer applications in April and July for locations in the Piedmont and in March, July and September for the Coastal Plains (consider turf fertilizers that contain iron). Foliar apply the iron-containing solution in the late afternoon only when the air temperature is greater than 80°F and soil moisture is adequate for good turf growth.
- 433 When growth begins in the spring, broadcast 1 lb triple superphosphate (0-46-0) and 2 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. In July, broadcast 2 lbs 15-0-15 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S)

- 434 When growth begins in the spring, broadcast 1 lb triple superphosphate (0-46-0) and 1 lb of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) or equivalent fertilizer per 1,000 square feet. In July, broadcast 1 lb 34-0-0 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX)
- 435 When growth begins in the spring, broadcast 2 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. In July, broadcast 2 lbs 15-0-15 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are M-L, M-M, M-S, S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 436 When growth begins in the spring, broadcast 1 lb 34-0-0 or equivalent fertilizer per 1,000 square feet, and repeat the application in July. (Recommendation when phosphorus and potassium soil tests are M-H, M-EX, S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 437 The extent of growth can be controlled by the amount of nitrogen fertilizer applied, low maintenance at a rate less than 1 lb nitrogen per 1,000 square feet per year, high maintenance, between 1 and 2 lbs nitrogen per 1,000 square feet per year. If the grass clippings are removed, the amount of fertilizer applied should be increased by 25% and the turf soil tested every other fall to determine what addition of phosphate and/or potash fertilizer will be needed to sustain vigorous growth.
- 522 When the soil pH is greater than 7.0, iron, manganese and zinc availability decreases, resulting in their deficiency. The soil pH should be lowered cautiously and only when necessary because a pH less than 5.0 can also be detrimental. To lower the soil pH to an optimal range, consult the Home and Garden Information Center at 1-888-656-9988 for the recommended application rate of elemental sulfur or aluminum sulfate. (Recommendation when soil pH is greater than 7.0)
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 044***

**Cool-Season Grass Maintenance**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	407	407	407	408	408
Medium	407	407	407	408	408
Sufficient	409	409	409	410	410
High	409	409	409	410	410
Excessive	409	409	409	410	410

**COMMENTS** (68, 69, 407, 408, 409, 410, 411, 535, 654, 655)

- 407 In September, broadcast 2 lbs triple phosphate (0-46-0) and 6 lbs 16-4-8 or equivalent fertilizer per 1,000 square feet, and then if more growth or better color is desired in November, broadcast 6 lbs 16-4-8 or equivalent fertilizer per 1,000 square feet again. Broadcast 6 lbs 16-4-8 per 1,000 square feet again in mid to late February. Slow-release fertilizers preferred. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 408 In September, broadcast 2 lbs triple phosphate (0-46-0) and 3 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, or 29-2-5) per 1,000 square feet, and then repeat nitrogen application again in November if more growth or better color is desired. Repeat nitrogen application in mid to late February. Slow-release fertilizers preferred. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 409 In September, broadcast 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet, and then repeat application in November if more growth or better color is desired. Repeat application again in mid to late February. Slow-release fertilizers preferred. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 410 In September, broadcast 2 lbs 34-0-0 per 1,000 square feet, and then repeat in November if more growth or better color is desired. Broadcast 2 lbs 34-0-0 per 1,000 square feet in mid to late February. Slow-release fertilizers preferred. (Recommendation when phosphorus and potassium soil tests are H-H, H-EX, EX-H, EX-EX)
- 411 The extent of growth can be controlled by the amount of nitrogen fertilizer applied, low maintenance at the rate between 1 to 2 lbs nitrogen per 1,000 square feet per year, high maintenance between 2 to 3 lbs nitrogen per 1,000 square feet per year. If the grass clippings are removed, the amount of fertilizer applied should be increased by 25% and the turf soil tested every other fall to determine what additions of phosphate and/or potash will be needed to sustain vigorous growth.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 119***

**St. Augustinegrass**

Soil Groups 1, 2, 3, or 4			Desired pH 6.0 – 6.5		
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	389	389	389	390	390
Medium	389	389	389	390	390
Sufficient	391	391	391	392	392
High	391	391	391	392	392

**COMMENTS** (68, 69, 321, 389, 390, 391, 392, 411, 535, 654, 655)

- 321 Do not over-fertilize with nitrogen or apply nitrogen fertilizer after August 15. To achieve darker green color, broadcast iron containing product or foliar apply on the turf a liquid solution of iron sulfate (dissolve 2 ounces iron sulfate in 4 gallons of water) including a surfactant (5 drops of a dishwasher detergent) per 1,000 square feet, or foliar apply a chelated iron source following label instructions. An iron solution treatment should be made as needed for green turf color between regular fertilizer applications in April and July for locations in the Piedmont and in March, July and September for the Coastal Plains (consider turf fertilizers that contain iron). Foliar apply the iron-containing solution in the late afternoon only when the air temperature is greater than 80°F and soil moisture is adequate for good turf growth.
- 389 In the spring when the grass is fully green, broadcast 1 lb triple superphosphate (0-46-0) and 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet, and then repeat 15-0-15 application in July. (Recommendation when phosphorus and potassium soil test are L-L, L-M, L-S, M-L, M-M, M-S)
- 390 In the spring when the grass is fully green, broadcast 1 lb triple superphosphate (0-46-0) and 2 lbs of a fertilizer containing around 30% nitrogen (such as 29-2-2, 29-2-5, 28-4-4, 29-2-5, or equivalent) per 1,000 square feet, and then repeat nitrogen application in July. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 391 In the spring when the grass is fully green, broadcast 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet, and then repeat in July. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 392 In the spring when the grass is fully green, broadcast 2 lbs 34-0-0 per 1,000 square feet, and then repeat in July. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 411 The extent of growth can be controlled by the amount of nitrogen fertilizer applied, low maintenance at the rate between 1 to 2 lbs nitrogen per 1,000 square feet per year, high maintenance between 2 to 3 lbs nitrogen per 1,000 square feet per year. If the grass clippings are removed, the amount of fertilizer applied should be increased by 25% and the turf soil tested every other fall to determine what additions of phosphate and/or potash will be needed to sustain vigorous growth.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

*Crop Code No. 047***Turf Establishment**

6.0 – 6.5 for St. Augustinegrass and others

Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	414	414	414	415	415
Medium	414	414	414	415	415
Sufficient	416	416	416	417	417
High	416	416	416	417	417
Excessive	416	416	416	417	417

**COMMENTS** (68, 69, 414, 415, 416, 417, 536, 654, 655)

- 414 Before planting, broadcast 15 lbs 10-10-10 per 1,000 square feet. **THIS MUST BE MIXED INTO THE TOP 4 INCHES OF SOIL.** About 5 weeks after the grass is established, broadcast 5 lbs 10-10-10 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 415 Before planting, broadcast 4 lbs triple superphosphate (0-46-0) and 5 lb 30-3-3 or 34-0-0 or equivalent fertilizer per 1,000 square feet. **THIS MUST BE MIXED INTO THE TOP 4 INCHES OF SOIL.** Five weeks after the grass is established, broadcast 2 lbs 30-3-3 or equivalent fertilizer per 1000 square feet. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 416 Before planting, broadcast 10 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. **THIS MUST BE MIXED INTO THE TOP 4 INCHES OF SOIL.** Five weeks after the grass is established, broadcast 2 lbs 30-3-3 or equivalent fertilizer per 1000 square feet. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 417 Before planting, broadcast 2 lbs 34-0-0 per 1,000 square feet. **THIS MUST BE MIXED INTO THE TOP 4 INCHES OF SOIL.** Five weeks after the grass is established, broadcast 2 lbs 34-0-0 per 1000 square feet. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 536 Before planting, broadcast dolomitic limestone as recommended and mix into the top 4 inches of soil.

***Crop Code No. 048***

**Warm Season Grass Maintenance**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	425	425	425	426	426
Medium	425	425	425	426	426

Sufficient	427	427	427	428	428
High	427	427	427	428	428
Excessive	427	427	427	428	428

**COMMENTS** (68, 69, 425, 426, 427, 428, 429, 535, 654, 655)

- 425 When growth begins in the spring, broadcast 3 lbs triple superphosphate (0-46-0) and 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. In July, broadcast 6 lbs 16-4-8 or equivalent fertilizer per 1,000 square feet. (Recommendations when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 426 When growth begins in the spring, broadcast 3 lbs triple superphosphate (0-46-0) and 3 lbs 34-0-0 per 1,000 square feet. In July, broadcast 3 lbs 34-0-0 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 427 When growth begins in the spring, broadcast 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. In July, broadcast 6 lbs 16-4-8 or equivalent fertilizer per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 428 When growth begins in the spring, broadcast 3 lbs 34-0-0 per 1,000 square feet. In July, broadcast 3 lbs 34-0-0 per 1,000 square feet. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 429 The extent of growth can be controlled by the amount of nitrogen fertilizer applied, low maintenance at a rate between 1 to 2 lbs nitrogen per 1,000 square feet per year, high maintenance, between 3 to 5 lbs nitrogen per 1,000 square feet per year. If the grass clippings are removed, the amount of fertilizer applied should be increased by 25% and the turf soil tested every other fall to determine what levels of phosphate and/or potash will be needed to sustain vigorous growth.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

**SHRUBS AND FLOWERS**

*Crop Code No. 017*

**Annual Flowers, Wild Flowers, and Roses**

Soil Groups 1, 2, 3 or 4					
Desired pH 6.0 – 6.5					
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	314	314	314	316	316
Medium	314	314	314	316	316
Sufficient	317	317	317	318	318

High	317	317	317	318	318
Excessive	317	317	317	318	318

**COMMENTS** (68, 69, 118, 300, 314, 316, 317, 318, 323, 535, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 300 As a precaution against fertilizer burn, water the plants immediately after the fertilizer is applied.
- 314 Broadcast 2 cups 10-10-10 per 100 square feet when spring growth begins and repeat monthly (or 1 ½ cups 14-14-14 slow release or equivalent fertilizer every other month) until August 1. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 316 Broadcast ½ cup triple super phosphate (0-46-0) and either 1.5 cups calcium nitrate (15.5-0-0) or ¾ cups 34-0-0 per 100 square feet when spring growth begins, broadcast either 1 cup calcium nitrate (15.5-0-0) or ½ cup 34-0-0 per 100 square feet monthly until August 1. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 317 Broadcast 1-1/2 cups 15-0-15 or equivalent fertilizer per 100 square feet when spring growth begins and repeat the fertilizer application until August 1. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 318 Broadcast either 1-1/2 cups calcium nitrate (15.5-0-0) or ¾ cups 34-0-0 per 100 square feet when spring growth begins and repeat the fertilizer application until August 1. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 323 Uniformly spread fertilizer over the area and soak into the soil. If applied before planting, mix in the top 6 inches.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 096***

**Azalea, Camellia, Rhododendron**

Soil Groups 1, 2, 3, or 4			Desired pH 5.5 – 6.0		
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	341	341	341	342	342
Medium	341	341	341	342	342

Sufficient	343	343	343	344	344
High	343	343	343	344	344
Excessive	343	343	343	344	344

**COMMENTS** (44, 68, 69, 118, 300, 310, 311, 312, 313, 320, 341, 342, 343, 344, 345, 535, 654, 655)

- 44 Lower soil pH by applying elemental sulfur mixed with builder's sand for easier spreading. **Caution** - sulfur dust may irritate the eyes. (Recommendation when soil pH is greater than 6.0)
- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 300 As a precaution against fertilizer burn, water the plants immediately after the fertilizer is applied.
- 310 Soil pH too high for acid-loving plants. To lower the soil pH, apply 1.5 lbs aluminum sulfate per 10 square feet when soil pH is between 6.0 and 6.5. Increase recommended rate by one-half for clay soils and reduce by one-third for sandy soils. If elemental sulfur is used to lower the soil pH, use one-seventh of the recommended aluminum sulfate rate. Always use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate which will help lower pH. (Recommendation when soil pH is greater than 6.0 and less than 6.6)
- 311 Soil pH too high for acid-loving plants. To lower the soil pH, apply 2.1 lbs aluminum sulfate per 10 square feet when soil pH is between 6.5 and 7.0. Increase recommended rate by one-half for clay soils and reduce by one-third for sandy soils. If elemental sulfur is used to lower the soil pH, use one-seventh of the recommended aluminum sulfate rate. Always use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate which will help lower pH. (Recommendation when soil pH is greater than 6.5 and less than 7.1)
- 312 Soil pH too high for acid-loving plants. To lower the soil pH, apply 2.7 lbs aluminum sulfate per 10 square feet when the soil pH is between 7.0 and 7.5. Increase the recommended rate by one-half for clay soils and reduce by one-third for sandy soils. If elemental sulfur is used to lower the soil pH, use one-seventh of the recommended aluminum sulfate rate. Always use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate which will help lower pH. (Recommendation when soil pH is greater than 7.0 and less than 7.6)
- 313 Soil pH too high for acid-loving plants. To lower the soil pH, apply 3.3 lbs aluminum sulfate per 10 square feet when the soil pH is greater than 7.5. Increase the recommended rate by one-half for clay soils and reduce it by one-third for sandy soils. If elemental sulfur is used to lower the soil pH, use one-seventh of the recommended aluminum sulfate rate. Always use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate which will help lower pH. (Recommendation when soil pH is greater than 7.5)
- 320 If plants show iron deficiency symptoms (yellow leaf tissue between green veins on upper leaves), foliar apply a chelated iron solution following label directions, or

dissolve 2 ounces of ferrous sulfate in 4 gallons of water plus 5 drops of a dishwasher detergent. Apply the iron-containing solution to the foliage in the late afternoon when the air temperatures are warm and only to plants that are being adequately watered and fertilized. (Recommendation when soil pH is greater than 6.0)

- 341 In early spring, broadcast 2 cups triple superphosphate (0-46-0) and 2 cups 12-6-6 or 14-7-7 or equivalent fertilizer per 100 square feet. In early summer, broadcast either 2 cups 12-6-6 or 14-7-7 or equivalent fertilizer per 100 square feet. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 342 In early spring, broadcast 2 cups triple superphosphate (0-46-0) and 1 ½ cups ammonium sulfate or equivalent fertilizer per 100 square feet. In the early summer, broadcast 1 ½ cups ammonium sulfate per 100 square feet. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 343 In early spring, broadcast 2 cups 15-0-15 or equivalent fertilizer per 100 square feet. In the early summer, broadcast 1 ½ cups ammonium sulfate per 100 square feet. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 344 In early spring, broadcast 1 ½ cups ammonium sulfate per 100 square feet and then repeat in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 345 Uniformly spread fertilizer over area beginning 6 inches from the trunk and extending well beyond end of branch spread. Not necessary to remove the mulch before applying the fertilizer. Brush or rinse the fertilizer from the leaves and stems. When the soil test levels for phosphorus and potassium are medium or higher, use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate to lower pH if needed.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

***Crop Code No. 016***

**Perennial flowers, Ivy, Wildflowers**

Soil Groups 1, 2, 3, or 4			Desired pH 6.0 – 6.5		
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	301	301	301	302	302
Medium	301	301	301	302	302
Sufficient	303	303	303	304	304
High	303	303	303	304	304

**COMMENTS** (68, 69, 118, 300, 301, 302, 303, 304, 306, 535, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 300 As a precaution against fertilizer burn, water the plants immediately after the fertilizer is applied.
- 301 Broadcast 1-1/2 cups triple superphosphate (0-46-0) and 2 cups 15-0-15 or equivalent fertilizer per 100 square feet in early spring and then in early summer, broadcast either 2 cups 12-6-6 or 11-7-7 or equivalent fertilizer per 100 square feet. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 302 Broadcast 1-1/2 cups triple superphosphate (0-46-0) and either 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early spring and then in early summer, broadcast either 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 303 Broadcast 2 cups 15-0-15 or equivalent fertilizer per 100 square feet in early spring and then repeat in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 304 Broadcast either 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early spring and repeat in early summer. (However, if pH is greater than 7.0, use 1 ½ cups ammonium sulfate instead per 100 square feet and repeat in early summer.) See below for application instructions. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 306 Uniformly spread fertilizer over the area. Not necessary to remove the mulch before applying the fertilizer. Brush or rinse the fertilizer from the leaves and stems.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

**Crop Code No. 015**

**Shrubs, Tea Olives, Oleander**

Soil Groups 1, 2, 3, or 4			Desired pH 6.0 – 6.5		
Phosphorus	Potassium			High	Excessive
	Low	Medium	Sufficient		
	<i>Comment Numbers</i>				
Low	301	301	301	302	302

Medium	301	301	301	302	302
Sufficient	303	303	303	304	304
High	303	303	303	304	304
Excessive	303	303	303	304	304

**COMMENTS** (68, 69, 118, 300, 301, 302, 303, 304, 309, 535, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 300 As a precaution against fertilizer burn, water the plants immediately after the fertilizer is applied.
- 301 Broadcast 1-1/2 cups triple superphosphate (0-46-0) and 2 cups 15-0-15 or equivalent fertilizer per 100 square feet in early spring and then in early summer, broadcast either 2 cups 12-6-6 or 11-7-7 or equivalent fertilizer per 100 square feet. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 302 Broadcast 1-1/2 cups triple superphosphate (0-46-0) and 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early spring and then in early summer, broadcast either 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 303 Broadcast 2 cups 15-0-15 or equivalent fertilizer per 100 square feet in early spring and then repeat in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 304 Broadcast either 2 cups calcium nitrate (15.5-0-0) or 1 cup 34-0-0 per 100 square feet in early spring and repeat in early summer. See below for application instructions. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 309 Uniformly spread fertilizer over area beginning 6 inches from the trunk and extending well beyond end of branch spread. Not necessary to remove the mulch before applying the fertilizer. Brush or rinse the fertilizer from the leaves and stems.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

**TREES AND HOME ORCHARDS**

*Crop Code No. 205*

**Apple Trees**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	590	590	590	591	591
Medium	590	590	590	591	591
Sufficient	592	592	592	593	593
High	592	592	592	593	593
Excessive	592	592	592	593	593

**COMMENTS** (68, 69, 118, 535, 590, 591, 592, 593, 598, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.
- 590 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, S-L, M-M, M-S)
- 591 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 592 Prior to planting, broadcast 3 lbs muriate of potash 0-0-60 and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 593 No phosphate or potash fertilizer is required. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 598 About one month after planting, broadcast over a 2-foot circle 1 cup 10-10-10 fertilizer. In June following planting, broadcast another cup 10-10-10 around the tree. In early spring of the second season, broadcast 2 cups 10-10-10 over a three-foot circle. Repeat the application again in June. In succeeding years, the following guidelines for the different trees are:  
**Standard trees:** Increase the diameter of the broadcast circle and the amount of 10-10-10 fertilizer by 2 cups per year. When the tree is 6 years old or older, only nitrogen fertilizer is needed. Apply 4 cups 34-0-0 per tree for trees 6 to 8 years old and 1/2 cups for trees 9 years old and older.  
**Semi-dwarf trees:** Increase the diameter of the broadcast circle and the amount of 10-10-10 fertilizer by 2 cups per year. Once the trees reach 4 years of age, apply 8

cups 10-10-10 per tree. Apply this amount in years 5 through 7. For trees 8 years old or older, apply 4 cups 34-0-0 fertilizer per tree.

**Dwarf trees:** During the third and fourth season, broadcast over a 4-foot circle 4 cups 10-10-10 fertilizer around each tree each year. Trees in their fifth and sixth seasons should receive 6 cups 10-10-10 per tree broadcast over a 5-foot diameter circle. Seven year old or older trees should receive only nitrogen at a rate of about 2 cups 34-0-0) per tree. Broadcast this over a 5-foot diameter area.

Once the trees begin to bear, use shoot growth as a measure to determine need to either reduce or supplement the fertilization rates previously suggested. Ten to 16 inches of growth are ideal for bearing trees. If growth is greater than this, reduce the rate of fertilization. If growth is less, apply a little extra fertilizer the next season.

**CAUTION:** When fertilizing, never dump large amounts in a small area. Root bum may result. Also, keep fertilizer 6 inches or more away from the trunk. Always broadcast the fertilizer evenly over the recommended area.

If in any given year, the trees are severely pruned, do not apply any fertilizer that year. Likewise, if growth is excessive, omit fertilizer for a year or two until growth is reduced to a desirable terminal growth on bearing trees averaging 10 to 16 inches per year.

If soil test magnesium level is low and lime recommended, use dolomitic limestone.

**Crop Code No. 202**

**Blackberries**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	601	601	601	602	602
Medium	601	601	601	602	602
Sufficient	603	603	603	604	604
High	603	603	603	604	604
Excessive	603	603	603	604	604

**COMMENTS** (68, 69, 118, 535, 601, 602, 603, 604, 605, 606, 654, 655)

118 One pint (2 cups) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.

535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

601 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)

602 Prior to planting, broadcast 4 lb triple superphosphate (0-46-0) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)

603 Prior to planting, broadcast 3 lbs muriate of potash (0-0-60) and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-H, H-L, H-M, H-S, EX-L, EX-M, EX-S)

604 No phosphate or potash fertilizer is required. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

605 **Trailing or Semi-erect Blackberries (6 to 8 feet apart):**

Fertilize brambles twice a year. About one month after planting, sprinkle 1/6 cup 10-10-10 in a 24-inch circle around each plant. In June, sprinkle 1/2 cup 10-10-10 over a 30-inch circle.

The nutritional needs of the plants in the second year should be supplied as follows:

1. In early March, sprinkle 1 cup 10-10-10 over a 5-foot circle around each plant.
2. In June, sprinkle 1 cup 10-10-10 over the same 5-foot circle around each plant.

Fertilizer in succeeding years as follows:

1. In early March, sprinkle 2 cups 10-10-10 over a 6-foot circle around each plant.
2. In June, sprinkle 1 cup 10-10-10 over the same 6-foot circle around each plant. If new cane growth is excessive (over 12 feet for individual canes), omit this application.

**Hedgerow Planting of Erect Blackberries:**

During the year of establishment, fertilize the planting in March, June, and August (if needed). Apply 4-1/2 lbs 10-10-10 per each 100 feet of row at each application. This fertilizer should be sprinkled evenly over a 2-foot wide band where the plants or root cuttings are planted.

Fertilization the second year, and thereafter, should consist of two applications annually, applying 11 lbs 10-10-10 per each 100 feet of row over a 3-foot wide band in early March, and in June, applying 5-1/2 lbs 10-10-10 per each 100 feet of row evenly over a 3-foot wide band. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S, L-H, L-EX, M-H, M-EX, S-L, S-M, S-H, H-L, H-M, H-S, EX-L, EX-M, EX-S)

606 **Trailing or Semi-erect Blackberries (6 to 8 feet apart):**

Fertilize brambles twice a year. About a month after planting, sprinkle 1/6 cup calcium nitrate (15.5-0-0) fertilizer in a 24-inch circle around each plant. In June, sprinkle 1/6 cup calcium nitrate (15.5-0-0) fertilizer over a 30-inch circle.

The nutritional needs of the plants in the second year should be supplied as follows:

1. In early March, sprinkle 2/3 cup calcium nitrate (15.5-0-0) fertilizer over a five-foot circle around each plant.
2. In June, sprinkle 2-1/3 cup calcium nitrate (15.5-0-0) fertilizer over the same five-foot circle around each plant.

**Fertilization in succeeding years should be as follows:**

1. In early March, sprinkle 1-1/3 cups calcium nitrate (15.5-0-0) fertilizer over a six-foot circle around each plant.
2. In June, sprinkle 2/3 cup calcium nitrate (15.5-0-0) fertilizer over the same six-foot circle around each plant. If new cane growth is excessive (over 12 feet for individual canes), omit this application.

### Hedgerow Planting of Erect Blackberries:

During the year of establishment, fertilize the planting in March, June, and August (if needed). Apply 1.5 lbs 34-0-0 per each 100 feet of row at each application. This fertilizer should be sprinkled evenly over a 2-foot wide band where the plants or root cuttings are planted.

Fertilization the second year, and thereafter, should consist of two applications annually. Apply 3.5 lbs 34-0-0 per each 100 feet of row over a 3-foot wide band in early March. In June, apply 1.5 lbs 34-0-0 per each 100 feet of row evenly over a 3 foot wide band. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

### Crop Code No. 203

### Blueberries

Soil Groups 1, 2, 3, or 4		Desired pH 4.5 – 5.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	670	670	670	671	671
Medium	670	670	670	671	671
Sufficient	672	672	672	673	673
High	672	672	672	673	673
Excessive	672	672	672	673	673

### COMMENTS (69, 118, 275, 596, 654, 655, 670, 671, 672, 673)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 275 It may be necessary to lower the soil pH for best growth of acid-loving plants, such as blueberries. Wettable sulfur (90% S) may be used to decrease soil pH. The best soil pH for rabbiteye blueberries is between 4.5 and 5.5. To lower the soil pH, apply sulfur before planting if the soil pH is above 5.5, and thoroughly mix sulfur within the soil of the planting area. If applied around established blueberry plants, thoroughly water-in sulfur after application, taking care to wash off all above-ground plant parts. Acid-forming fertilizers, such as those containing ammonium sulfate, can assist in lowering soil pH. For more information regarding the amount of sulfur to apply, based on soil type and soil pH, call the Clemson Home & Garden Information Center at 1-888-656-9988. (Recommendation when soil pH above 5.5)
- 596 **Before planting**, broadcast Epsom salts (magnesium sulfate) at the rate of 5 lbs per 1,000 square feet and mix to a depth of 6 inches.  
**Already planted**, apply 0.5 lbs (1 cup) Epsom salts per 100 foot of row around the plants in the row, or apply 1 tablespoon (1/2 ounce) of Epsom salts evenly distributed over a 20-inch diameter circle around the plant, or evenly distributed to encompass the branch diameter. (Recommended when magnesium soil test level is L or M)

- 670 **Prior to planting**, broadcast 4 lbs triple superphosphate (0-45-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Set blueberry bushes in the early spring into the soil at the same depth that they were grown in the nursery, spreading the roots apart if pot bound, planting in rows 8 to 10 feet apart with 5 to 6 feet distance between plants in the row.
- Already planted**, in March apply 1 lb of 10-10-10 fertilizer per 100 foot of row spread evenly around the plants in the row, or 2 tablespoons (1 ounce) 10-10-10 fertilizer evenly distributed over a 12-inch diameter circle around the plant. In March of the second year, apply 2 lbs of 10-10-10 fertilizer per 100 foot of row spread evenly around the plants in the row, or apply 4 tablespoons (2 ounces) 10-10-10 fertilizer evenly distributed over a 12-inch diameter circle around the plant.
- 3 to 6 year-old plants**, in March apply 2 lbs of 10-10-10 and 3 lbs ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 4 tablespoons (2 ounces) 10-10-10 and 6 tablespoons (3 ounces) ammonium sulfate fertilizers evenly distributed over a 20-inch diameter circle around the plant.
- 7 years and older**, in March apply 2 lbs 10-10-10 and 4 lbs ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or apply 4 tablespoons (2 ounces) of 10-10-10 and 8 tablespoons (4 ounces) ammonium sulfate fertilizers evenly distributed over the branch diameter of each plant.
- Avoid the use of nitrate-nitrogen (such as calcium nitrate or potassium nitrate).  
(Recommended when phosphorus and potassium soil test levels are L-L, L-M, L-S, M-L, M-M, M-S)
- 671 **Prior to planting**, broadcast 4 lbs triple superphosphate (0-45-0) per 1,000 square feet and mix to a depth of 6 inches. Set blueberry bushes in the early spring into the soil at the same depth that they were grown in the nursery, spreading the roots apart if pot bound, planting in rows 8 to 10 feet apart with 5 to 6 feet distance between plants in the row.
- Already planted**, in March apply 0.5 lbs triple superphosphate (0-45-0) and 0.5 lb ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 1 tablespoon (1/2 ounce) triple superphosphate (0-45-0) and 1 tablespoon (1/2 ounce) ammonium sulfate fertilizers evenly distributed over a 12-inch diameter circle around the plant. In March of the second year, apply 0.5 lbs triple superphosphate (0-45-0) and 1 lb ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 1 tablespoon (1/2 ounce) triple superphosphate (0-45-0) and 2 tablespoons (1 ounce) ammonium sulfate fertilizer evenly distributed over a 12-inch diameter circle around the plant.
- 3 to 6 year-old plants**, in March apply 1 lb triple superphosphate (0-45-0) and 4 lbs ammonium sulfate per 100 foot of row spread evenly around the plants in the row, or 2 tablespoons (1 ounce) triple superphosphate (0-46-0) and 6 tablespoons (3 ounces) ammonium sulfate fertilizers evenly distributed over a 20-inch diameter circle around the plant.
- 7 years and older**, in March apply 1 lb triple superphosphate (0-45-0) and 5 lbs ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 2 tablespoons (1 ounce) triple superphosphate (0-46-0) and 8 tablespoons (4 ounces) ammonium sulfate fertilizers evenly distributed around the plant to encompass the branch diameter.
- Avoid the use of nitrate-nitrogen, such as calcium nitrate or potassium nitrate.  
(Recommended when phosphorus and potassium soil test levels are L-H, L-EX, M-H, M-EX)

672 **Prior to planting**, broadcast 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Set blueberry bushes in the early spring into the soil at the same depth that they were grown in the nursery, spreading the roots apart if pot bound, planting in rows 8 to 10 feet apart with 5 to 6 feet distance between plants in the row.

**Already planted**, in March apply 1.5 lbs muriate of potash (0-0-60) and 0.5 lb ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 3 tablespoons (1.5 ounce) muriate of potash (0-0-60) and 1 tablespoon (1/2 ounce) ammonium sulfate fertilizers evenly spread evenly over a 12-inch diameter circle around the plant. In March of the second year, apply 1.5 lbs muriate of potash (0-0-60) and 1 lb ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row apply, or 2 tablespoons (1 ounce) muriate of potash (0-0-60) and 2 tablespoons (1 ounce) ammonium sulfate fertilizers evenly distributed over a 12-inch diameter circle around the plant.

**3 to 6 year-old plants**, in March apply 1.5 lbs muriate of potash (0-0-60) and 4 lbs ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 3 tablespoons (1.5 ounces) muriate of potash (0-0-60) and 7 tablespoons (3.5 ounces) ammonium sulfate fertilizers evenly distributed over a 20-inch diameter circle around the plant.

**7 years and older**, in March apply 1.5 lbs muriate of potash (0-0-60) and 5 lbs ammonium sulfate fertilizers per 100 foot of row spread evenly around the plants in the row, or 3 tablespoons (1.5 ounces) muriate of potash (0-0-60) and 8 tablespoons (4 ounces) ammonium sulfate fertilizer evenly distributed to encompass the branch diameter.

Avoid the use of nitrate-nitrogen, such as calcium nitrate or potassium nitrate. (Recommended when phosphorus and potassium soil test levels are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)

673 **Prior to planting**, no phosphorus or potassium fertilizer is needed. Set blueberry bushes in the early spring into the soil at the same depth that they were grown in the nursery, spreading the roots apart if pot bound, planting in rows 8 to 10 feet apart with 5 to 6 feet distance between plants in the row.

**Already planted**, in March apply 0.5 lb ammonium sulfate per 100 foot of row spread evenly around the plants in the row, or 1 tablespoon (1/2 ounce) ammonium sulfate fertilizer evenly distributed over a 12-inch diameter circle around the plant. In March of the second year, apply 1 lb ammonium sulfate per 100 foot of row spread evenly around the plants in the row, or apply 2 tablespoons (1 ounce) ammonium sulfate fertilizer evenly distributed over a 12-inch diameter circle around the plant.

**3 to 6 year-old plants**, in March apply 4 lbs ammonium sulfate per 100 foot of row spread evenly around the plants in the row, or 7 tablespoons (3.5 ounces) ammonium sulfate fertilizer evenly distributed over a 20-inch diameter circle around the plant.

**7 years and older**, in March apply 5 lb ammonium sulfate per 100 foot of row spread evenly around the plants in the row, or 8 tablespoons (4 ounces) ammonium sulfate fertilizer evenly distributed to encompass the branch diameter.

Avoid the use of nitrate-nitrogen (such as calcium nitrate or potassium nitrate). (Recommended when phosphorus and potassium soil test levels are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

## Figs

Soil Groups 1, 2, 3, or 4	Desired pH 6.0 – 6.5				
Phosphorus	Potassium			High	Excessive
	Low	Medium	Sufficient		
<i>Comment Numbers</i>					
Low	590	590	590	591	591
Medium	590	590	590	591	591
Sufficient	592	592	592	593	593
High	592	592	592	593	593
Excessive	592	592	592	593	593

**COMMENTS** (68, 69, 118, 535, 590, 591, 592, 593, 599, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.
- 590 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 591 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 592 Prior to planting, broadcast 3 lbs muriate of potash 0-0-60 and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 593 No phosphate or potash fertilizer is required. Once planted, follow the procedures given below. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 599 For plants 1 to 2 years old, apply 1/3 lb 10-10-10 fertilizer per tree each month from the beginning of growth through the end of July. For a bush 12 to 15 feet tall, apply 4 lbs 10-10-10 per tree in late April, early June, and mid-July. For trees less than 12 feet in height, apply about 1 lb 10-10-10 per tree for each foot of height and split into 3 applications at the times given above. If the fruit are not reaching maturity and ripening properly, excess fertilizer or drought may be the cause and fertilization should be reduced. If soil test magnesium level is low and lime recommended, use dolomitic limestone.

## Grapes

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	590	590	590	591	591
Medium	590	590	590	591	591
Sufficient	592	592	592	593	593
High	592	592	592	593	593
Excessive	592	592	592	593	593

**COMMENTS** (68, 69, 118, 535, 590, 591, 592, 593, 597, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.
- 590 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 591 Prior to planting, broadcast 4 lbs triple superphosphate (0-46-0) per 1,000 square feet and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 592 Prior to planting, broadcast 3 lbs muriate of potash 0-0-60 and mix to a depth of 6 inches. Once planted, follow the procedures given below. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 593 No phosphate or potash fertilizer is required. Once planted, follow procedures given below. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 597 After new plants have been thoroughly watered and before growth begins, apply 1/2 cup 10-10-10 fertilizer around each plant. Keep the fertilizer at least 6 inches from the trunk. Repeat at monthly intervals until mid July. On two-year old vines, double the first year rate and use the same monthly intervals. Bearing vines will need from 1 to 4 lbs 10-10-10 per plant applied in March. If growth is poor on producing vines, apply 1 lb 10-10-10 per plant in May. Some South Carolina soils are inherently low in magnesium and foliar magnesium deficiency frequently becomes noticeable in mid-summer. This deficiency is characterized by a yellowing between the leaf veins on mature and older leaves. If the soil pH is sufficiently low to warrant liming, use dolomitic limestone to help prevent magnesium deficiency in future years. Otherwise, Epsom salts (magnesium sulfate)

should be applied and watered in. For young plant, apply 1/4 cup Epsom salts around each vine, keeping the material 6 or more inches away from the trunk. Apply 1/2 to 1 cup Epsom salts per mature, bearing vine. It may require 2 to 3 years of magnesium application to increase the level sufficiently for best plant performance.

***Crop Code No. 212***

**Palm Trees**

Soil Groups 1, 2, 3, or 4		Desired pH 5.5 – 6.0			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	91	91	92	92	92
Medium	91	91	92	92	92
Sufficient	93	93	94	94	94
High	93	93	94	94	94
Excessive	93	93	94	94	94

**COMMENTS** (68, 69, 88, 91, 92, 93, 94, 98, 99, 654, 655)

- 88 Do not lime the soil unless the soil pH is less than 5.5. Consult the Home and Garden Information Center at 1-888-656-9988 for liming recommendations if the soil pH is less than 5.5. When liming, use dolomitic limestone. (Recommendation when the soil pH is less than 5.5)
- 91 Evenly apply over a 10 by 10 foot area around the tree, 1.0 lbs 12-4-12 or comparable fertilizer, preferably a slow-release formulation when spring growth begins. In the sandy soils of the southern half of the state, repeat the fertilizer application 3 times during the growing season (April to September) and do not apply fertilizer after September 1. For trees planted in the Piedmont, reduce the application times to 2, cut the fertilizer rate in half for clay soils, and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, M-L, M-M)
- 92 Evenly apply over a 10 by 10 foot area around the tree, 1.0 lbs 12-6-6 or comparable fertilizer, preferably a slow-release formulation. In the sandy soils of the southern half of the state, repeat the fertilizer application 3 times during the growing season (April to September) and do not apply fertilizer after September 1. For trees planted in the Piedmont, reduce the application times to 2, cut the fertilizer rate in half for clay soils, and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are L-S, L-H, L-EX, M-S, M-H, M-EX)
- 93 Evenly apply over a 10 by 10 foot area around the tree, 0.8 lb 15-0-15 or comparable fertilizer, preferably a slow-release formulation containing iron. In the sandy soils of the southern half of the state, repeat the fertilizer application 3 times during the growing season (April to September) and do not apply fertilizer after September 1. For trees planted in the Piedmont, reduce the application times to 2,

cut the fertilizer rate in half for clay soils, and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, H-L, H-M, EX-L, EX-M)

- 94 Evenly apply over a 10 by 10 foot area around the tree, 0.4 lbs 34-0-0 or comparable fertilizer, preferably a slow-release formulation. In the sandy soils of the southern half of the state, repeat the fertilizer application 3 times during the growing season (April to September) and do not apply fertilizer after September 1. For trees planted in the Piedmont, reduce the application times to 2, cut the fertilizer rate in half for clay soils, and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are S-S, S-H, S-EX, H-S, H-H, H-EX, EX-S, EX-H, EX-EX)
- 98 Trees are sensitive to magnesium deficiency, therefore follow the magnesium fertilizer recommendation when given. Magnesium may be included in an applied fertilizer formulation. (Recommendation when soil test magnesium is low)
- 99 **Caution:** Trees are sensitive to “over-fertilization,” particularly for nitrogen and phosphorus. Care is advised when surrounding turf or ornamental plants are being fertilized, by keeping applied turf and ornamental fertilizer at least 30 feet from the base of the tree. Do not apply fertilizer to a newly planted tree until new growth begins. Do not apply fertilizer during the winter months. Do not place the fertilizer in a band around the tree, but evenly distribute over the application area.

***Crop Code No. 208 or 209***

**Peach (208) or Plum (209)**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5				
Phosphorus	Potassium					
	Low	Medium	Sufficient	High	Excessive	
<i>Comment Numbers</i>						
Low	611	611	611	612	612	
Medium	611	611	611	612	612	
Sufficient	613	613	613	614	614	
High	613	613	613	614	614	
Excessive	613	613	613	614	614	

**COMMENTS** (68, 69, 118, 535, 611, 612, 613, 614, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.
- 611 Adjust the soil pH before planting by mixing lime to a depth of one foot over an area approximately 100 square feet plus 1 cup triple superphosphate (0-46-0) and ½ muriate of

potash (0-0-60) where the tree will be planted. After new plants have been thoroughly watered, broadcast over an area 3 feet in diameter 1 cup of 10-10-10 fertilizer in March. In early June and again in early August, broadcast over an area 2 feet in diameter 1/2 cup calcium nitrate (15.5-0-0). Beginning the second year, and in succeeding years, fertilize twice annually. The first application should be made in early March and the second around the first of August, following these procedures:

**March application** - apply 1 cup 10-10-10 fertilizer for each year of tree age to a maximum of 10 cups for mature trees.

**August application** - apply 1 cup calcium nitrate (15.5-0-0) per tree per year of tree age to a maximum of 4 cups for mature trees. If soil test magnesium level is low and liming recommended, use dolomitic limestone. (Recommendation for Crop Codes when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)

- 612 Adjust the soil pH before planting by mixing lime to a depth of one foot over an area approximately 100 square feet plus 1 cup triple superphosphate (0-46-0) where the tree will be planted. After new plants have been thoroughly watered, broadcast over an area 3 feet in diameter 1 cup of 10-10-10 fertilizer in March. In early June and again in early August, broadcast over an area 2 feet in diameter 1/2 cup calcium nitrate (15.5-0-0). Beginning the second year, and in succeeding years, fertilize twice annually. The first application should be made in early March and the second around the first of August, following these procedures:

**March application** - apply 1 cup 10-10-10 fertilizer for each year of tree age to a maximum of 10 cups for mature trees.

**August application** - apply 1 cup calcium nitrate (15.5-0-0) per tree per year of tree age to a maximum of 4 cups for mature trees. If soil test magnesium level is low and liming recommended, use dolomitic limestone. (Recommendation for Crop Codes when phosphate and potassium soil tests are L-H, L-EX, M-H, M-EX)

- 613 Adjust the soil pH before planting by mixing lime to a depth of one foot over an area approximately 100 square feet plus 1/2 cup muriate of potash (0-0-60) where the tree will be planted. After planted and the soil thoroughly watered, broadcast over an area 3 feet in diameter, 1/2 cup calcium nitrate (15.5-0-0) in March, then early June, and again in early August, broadcasting over an area 2-feet in diameter. Beginning the second year and in succeeding years, fertilize the trees twice annually. The first application in early March and the second around the first of August, following these procedures:

**March application** - apply 2/3 cup calcium nitrate (15.5-0-0) for each year of tree age to a maximum of 6 cups for mature trees.

**August application** - apply 1 cup calcium nitrate (15.5-0-0) per tree per year of tree age to a maximum of 4 cups for mature trees. If soil test magnesium level is low and liming recommended, use dolomitic limestone. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)

- 614 Adjust the soil pH before planting by mixing lime to a depth of one foot over an area approximately 100 square feet where the tree will be planted. After new plants have been thoroughly watered, broadcast over an area 3 feet in diameter 1 cup of 10-10-10 fertilizer in March. In early June and again in early August, broadcast over an area 2 feet in diameter 1/2 cup calcium nitrate (15.5-0-0). Beginning the second year, and in succeeding years, fertilize twice annually. The first application should be made in early March and the second around the first of August, following these procedures:

**March application** - apply 1 cup 10-10-10 fertilizer for each year of tree age to a maximum of 10 cups for mature trees.

**August application** - apply 1 cup calcium nitrate (15.5-0-0) per tree per year of tree age to a maximum of 4 cups for mature trees. If soil test magnesium level is low and liming recommended, use dolomitic limestone. (Recommendation for Crop Codes when P and K soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

**Crop Code No. 207**

**Pears**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	607	607	607	608	608
Medium	607	607	607	608	608
Sufficient	609	609	609	610	610
High	609	609	609	610	610
Excessive	609	609	609	610	610

**COMMENTS** (68, 69, 118, 535, 607, 608, 609, 610, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.
- 607 Fertilize annually in split applications. Broadcast 1 cup 10-10-10 fertilizer per tree per year of tree age with a maximum application of 12 cups. Half of the recommended amount should be applied before growth begins and the other after fruit set. Each application is broadcast over the area at the drip line of the tree. If there is no fruit set, do not apply the second half of the application. If the trees are pruned heavily, reduce the amount of fertilizer applied in relation to the severity of pruning. Heavily pruned trees most likely will not need fertilizer for a year or two. Also, if the pear trees make too much vegetative growth, reduce the rate of fertilization for the next year. Shoot growth on bearing pear trees should average about 6 inches annually. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 608 Fertilize annually in split applications. Broadcast ¼ cup triple superphosphate (0-46-0) and 1/2 cup calcium nitrate (15.5-0-0) per tree per year of tree age with a maximum application of 2 cups triple superphosphate (0-46-0) and 6 cups calcium nitrate (15.5-0-0). Half of the recommended amount should be applied before growth begins and the other after fruit set. Each application is broadcast over the area at the drip line of the tree. If there is no fruit set, do not apply the second half of the application. If the trees are pruned heavily, reduce the amount of fertilizer applied in relation to the severity of pruning. Heavily pruned trees most likely will not need fertilizer for a year or two. Also, if the pear tree has too much vegetative growth, reduce the rate of fertilization for the next year. Shoot growth on bearing pear trees should average only about 6 inches annually.

(Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)

- 609 Fertilize annually in split applications. Broadcast 3/4 cup 15-0-15 or equivalent fertilizer per tree per year of tree age with a maximum application of 6 cups. Half of the recommended amount should be applied before growth begins and the other after fruit set. Each application is broadcast over the area at the drip line of the tree. If there is no fruit set, do not apply the second half of the application. If the trees are pruned heavily, reduce the amount of fertilizer applied in relation to the severity of pruning. Heavily pruned trees most likely will not need fertilizer for a year or two. Also, if the pear tree has too much vegetative growth, reduce the rate of fertilization for the next year. Shoot growth on bearing pear trees should average only about 6 inches annually. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 610 Fertilize annually in split applications. Broadcast 3/4 cup calcium nitrate (15.5-0-0) per tree per year of tree age with a maximum application of 6 cups. Half of the recommended amount should be applied before growth begins and the other after fruit set. Each application is broadcast over the area at the drip line of the tree. If there is no fruit set, do not apply the second half of the application. If the trees are pruned heavily, reduce the amount of fertilizer applied in relation to the severity of pruning. Heavily pruned trees most likely will not need fertilizer for a year or two. Also, if the pear tree has too much vegetative growth, reduce the rate of fertilization for the next year. Shoot growth on bearing pear trees should average only about 6 inches annually. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

***Crop Code No. 210***

**Pecan Trees**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	630	630	630	631	631
Medium	630	630	630	631	631
Sufficient	632	632	632	633	633
High	632	632	632	633	633
Excessive	632	632	632	633	633

**COMMENTS** (68, 69, 118, 535, 630, 631, 632, 633, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

- 630 **Establishment:** broadcast dolomitic limestone if recommended and 3 lbs 10-10-10 per 1,000 square feet over the area where the pecan tree(s) will be planted and mix into the soil to a depth of 10-12 inches.  
**For young trees:** broadcast 1 lb 10-10-10 fertilizer distributed in a circle around the tree. Repeat the application in June or July. The following February, broadcast 4 lbs 10-10-10 for each inch of trunk diameter (measured 1 foot above soil surface) in a circle around the tree. If the terminal growth is less than 2 to 4 feet, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 per inch of trunk diameter in June or July. Do not place fertilizer within 12 inches of the trunk. Broadcast 1 lb zinc sulfate per tree for the first three years following planting, spreading the zinc sulfate in a circle around the tree outside of the planting hole. .  
**For bearing trees:** broadcast 4 lbs 10-10-10 fertilizer per tree for each inch of trunk diameter (measured 4-1/2 feet above soil level) in mid-to-late February. For good nut production, terminal growth should be approximately 6 inches each year. If the desired terminal growth is not obtained, adjust the fertilizer rate accordingly. Zinc nutrition is very important for tree growth and nut production, best determined by analysis of leaves taken in July or early August. Contact the Home and Garden Information Center at 1-888-656-9988 for leaf sampling and sample submitting procedures. In the absence of a plant analysis recommendation, each year soil broadcast 1 lb zinc sulfate to young trees and 3 to 5 lbs zinc sulfate for larger trees. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)
- 631 **Establishment:** broadcast dolomitic limestone if recommended and 1 lb triple superphosphate (0-46-0) and ¼ lb 34-0-0 per 1,000 square feet over the area where the pecan tree(s) will be planted and mix into the soil to a depth of 10-12 inches.  
**For young trees:** broadcast 1 lb triple superphosphate (0-46-0) and ¼ lb 34-0-0 fertilizer distributed in a circle around the tree. Repeat the application in June or July. The following February, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 for each inch of trunk diameter (measured 1 foot above soil surface) in a circle around the tree. If the terminal growth is less than 2 to 4 feet, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 per inch of trunk diameter in June or July. Do not place fertilizer within 12 inches of the trunk. Broadcast 1 lb zinc sulfate per tree for the first three years following planting. Spread the zinc sulfate in a circle around the tree outside of the planting hole.  
**For bearing trees:** broadcast 2-1/2 lbs 16-4-8 fertilizer per tree for each inch of trunk diameter (measured 4-1/2 feet above soil level in mid-to-late February, distributing the fertilizer in a circle around the tree. For good nut production, terminal growth should be approximately 6 inches each year. If the desired terminal growth is not obtained, adjust the fertilizer rate accordingly. Zinc nutrition is very important in pecan production, best determined by analysis of leaves taken in July or early August. Contact the Home and Garden Information Center at 1-888-656-9988 for leaf sampling and sample submitting procedures. In the absence of a plant analysis recommendation, each year soil broadcast 1 lb zinc sulfate for young trees and 3 to 5 lbs zinc sulfate for larger trees.  
(Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 632 **Establishment:** broadcast dolomitic limestone if recommended and 2 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet over the area where the pecan tree(s) will be planted and mix into the soil to a depth of 10-12 inches.  
**For young trees:** broadcast 2 lbs 15-0-15 or equivalent fertilizer distributed in a circle around the tree. Repeat the application in June or July. The following February, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 for each inch of trunk

diameter (measured 1 foot above soil surface) in a circle around the tree. If the terminal growth is less than 2 to 4 feet, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 per inch of trunk diameter in June or July. Do not place fertilizer within 12 inches of the trunk. Broadcast 1 lb zinc sulfate per tree for the first three years following planting. Spread the zinc sulfate in a circle around the tree outside of the planting hole.

**For bearing trees:** broadcast 2-1/2 lbs 16-4-8 fertilizer per tree for each inch of trunk diameter (measured 4-1/2 feet above soil level in mid-to-late February, distributing the fertilizer in a circle around the tree. For good nut production, terminal growth should be approximately 6 inches each year. If the desired terminal growth is not obtained, adjust the fertilizer rate accordingly. Zinc nutrition is very important in pecan production, best determined by analysis of leaves taken in July or early August. Contact the Home and Garden Information Center at 1-888-656-9988 for leaf sampling and sample submitting procedures. In the absence of a plant analysis recommendation, each year soil broadcast 1 lb zinc sulfate for young trees and 3 to 5 lbs zinc sulfate for larger trees.

(Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)

- 633 **Establishment:** broadcast dolomitic limestone if recommended and 2 lbs 15-0-15 or equalivent fertilizer per 1,000 square feet over the area where the pecan tree(s) will be planted and mix into the soil to a depth of 10-12 inches.

**For young trees:** broadcast ¼ lb 34-0-0 fertilizer distributed in a circle around the tree. Repeat the application in June or July. The following February, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 for each inch of trunk diameter (measured 1 foot above soil surface) in a circle around the tree. If the terminal growth is less than 2 to 4 feet, broadcast either 2 lbs calcium nitrate (15.5-0-0) or 1 lb 34-0-0 per inch of trunk diameter in June or July. Do not place fertilizer within 12 inches of the trunk. Broadcast 1 lb zinc sulfate per tree for the first three years following planting. Spread the zinc sulfate in a circle around the tree outside of the planting hole.

**For bearing trees:** broadcast 2-1/2 lbs 16-4-8 fertilizer per tree for each inch of trunk diameter (measured 4-1/2 feet above soil level in mid-to-late February, distributing the fertilizer in a circle around the tree. For good nut production, terminal growth should be approximately 6 inches each year. If the desired terminal growth is not obtained, adjust the fertilizer rate accordingly. Zinc nutrition is very important in pecan production, best determined by analysis of leaves taken in July or early August. Contact the Home and Garden Information Center at 1-888-656-9988 for leaf sampling and sample submitting procedures. In the absence of a plant analysis recommendation, each year soil broadcast 1 lb zinc sulfate for young trees and 3 to 5 lbs zinc sulfate for larger trees.

(Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

### *Crop Code No. 211*

#### **Pine Trees**

Soil Groups 1, 2, 3, or 4	Desired pH 5.0 – 5.5				
	Phosphorus		Potassium		
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	100	100	101	101	101
Medium	100	100	101	101	101

Sufficient	102	102	103	103	103
High	102	102	103	103	103
Excessive	102	102	103	103	103

**COMMENTS** (68, 69, 95, 98, 99, 100, 101, 102, 103, 106, 654, 655)

- 95 Do not lime the soil unless the soil pH is less than 5.0. Consult the Home and Garden Information Center at 1-888-656-9988 for liming recommendations if the soil pH is less than 5.0. When liming, use dolomitic limestone. (Recommendation when the soil pH is less than 5.0)
- 98 Trees are sensitive to magnesium deficiency, therefore follow the magnesium fertilizer recommendation when given. Magnesium may be included in an applied fertilizer formulation. (Recommendation when soil test magnesium is low)
- 99 **Caution:** FOR SQUARE FOOTAGE: Trees are sensitive to “over-fertilization,” particularly for nitrogen and phosphorus. Care is advised when surrounding turf or ornamental plants are being fertilized, by keeping applied turf and ornamental fertilizer at least 30 feet from the base of the tree. Do not apply fertilizer to a newly planted tree until new growth begins. Do not apply fertilizer during the winter months. Do not place the fertilizer in a band around the tree, but evenly distribute over the application area.
- 100 FOR SQUARE FOOTAGE: Evenly apply over a 10 by 10 foot area around the tree, 0.5 lbs 12-4-12 or comparable fertilizer, preferably a slow-release formulation when spring growth begins. In the southern half of the state, repeat the fertilizer application one more time during the growing season (April to September), and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, M-L, M-M)
- 101 FOR SQUARE FOOTAGE: Evenly apply over a 10 by 10 foot area around the tree, 0.5 lbs 12-6-6 or comparable fertilizer, preferably a slow-release formulation. In the southern half of the state, repeat the fertilizer application one more time during the growing season (April to September), and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are L-S, L-H, L-EX, M-S, M-H, M-EX)
- 102 FOR SQUARE FOOTAGE: Evenly apply over a 10 by 10 foot area around the tree, 0.5 lb 15-0-15 or comparable fertilizer, preferably a slow-release formulation. In the southern half of the state, repeat the fertilizer application one more time during the growing season (April to September), and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, H-L, H-M, EX-L, EX-M)
- 103 FOR SQUARE FOOTAGE: Evenly apply over a 10 by 10 foot area around the tree, 0.25 lbs 34-0-0 or comparable fertilizer, preferably a slow-release formulation. In the southern half of the state, repeat the fertilizer application one more time during the growing season (April to September), and do not apply fertilizer after August 1. (Recommendation when phosphorus and potassium soil tests are S-S, S-H, S-EX, H-S, H-H, H-EX, EX-S, EX-H, EX-EX)

106 FOR ACREAGE: Pine tree fertilization is justified on phosphorus deficient flatwood sites where pine straw is to be aggressively raked annually or semi-annually for a period of 5 to 10 years and late rotation (post thinning) where one is putting extra wood on higher value products (sawtimber and poles).

Needle samples should be taken in the dormant season (mid-December to early-February) from at least 6 – 10 dominant (tallest with good crown) trees per stand. Collect samples from the south side, upper 1/3 of the crown, and first flush growth from a primary lateral branch. Results can be used to determine the nutrient element status of the tree and provide justification for needed fertilization of the stand.

PRIOR TO PLANTING: Broadcast 185 lbs P2O5 per acre.

FOR ESTABLISHED STANDS: The timing and application rate for fertilization will depend on the stand conditions, age, plant spacing, stand use (pulp wood or lumber), and if an undergrowth exists. Fertilization may benefit the undergrowth rather than the trees, depending on tree density and age. Fertilization is recommended only when soil test phosphorus is low, broadcasting 100 lbs P2O5 per acre or when visual symptoms of phosphorus deficiency are evident including light green to yellow needles, sparse and/or short needles, few branches, and very poor growth (short trees with small diameters). Nitrogen fertilization is not recommended when there exists a substantial under growth. Therefore, do not apply nitrogen fertilizer unless there is excellent hardwood brush control. The use of diammonium phosphate (DAP, 18-46-0) at 250 lbs per acre is recommended to stimulate growth if weed control chemicals have been applied 30 to 60 days prior of application.

***Crop Code No. 201***

**Strawberries**

Soil Groups 1, 2, 3, or 4		Desired pH 6.0 – 6.5			
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	470	470	470	471	471
Medium	470	470	470	471	471
Sufficient	472	472	472	473	473
High	472	472	472	473	473
Excessive	472	472	472	473	473

**COMMENTS** (68, 69, 118, 470, 471, 472, 473, 535, 654, 655)

118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.

470 Prior to setting plants, broadcast recommended limestone to correct low soil pH and then broadcast 4 lbs triple superphosphate (0-46-0) and 3 lbs muriate of potash (0-0-60) per 1,000 square feet and mix to a depth of 6 inches.

Once established (1-year-old for fall planted and 6 to 8 months old for spring planted) in the early stages of growth, follow these procedures:

***For Fall Plantings:***

When growth begins in the spring, broadcast 3 lbs 10-10-10 per 1,000 square feet, and then immediately after harvest, broadcast 1 lb 10-10-10 per 1,000 square feet.

***For Spring Plantings:***

In mid-June and late September, broadcast 3 lb 10-10-10 per 1,000 square feet.

Apply fertilizer when the plant foliage is dry.

***Second and Succeeding Years:***

Broadcast 3 lbs 10-10-10 per 1,000 square feet in mid July and then in mid to late September. Just prior to the beginning of growth in late winter, broadcast 1 lb 10-10-10 per 1,000 square feet. Continue this schedule for the life of the planting.

(Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)

- 471 Prior to setting plants, broadcast recommended limestone to correct low soil pH and then broadcast 4 lbs triple superphosphate (0-46-0) per 1,000 square feet and mix to a depth of 6 inches.

Once established (1-year-old for fall planted and 6 to 8 months old for spring planted) in the early stages of growth, follow these procedures:

***For Fall Plantings:***

When growth begins in the spring, broadcast 1 lb 34-0-0 or equivalent fertilizer per 1,000 square feet, and then immediately after harvest, apply ½ lb 34-0-0 per 1,000 square feet.

***For Spring Plantings:***

In mid-June and late September, broadcast 1 lb 34-0-0 or equivalent fertilizer per 1,000 square feet. Apply fertilizer when the plant foliage is dry.

***Second and Succeeding Years:***

Broadcast 1 lb 34-0-0 or equivalent fertilizer per 1,000 square feet in mid July and then in mid to late September. Just prior to the beginning of growth in late winter, broadcast 1/2 lb 34-0-0 or equivalent fertilizer per 1,000 square feet. Continue this schedule for the life of the planting.

(Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)

- 472 Prior to setting plants, broadcast recommended limestone to correct low soil pH and then broadcast 3 lbs muriate of potash (0-0-60) and mix to a depth of 6 inches.

Once established (1-year-old for fall planted and 6 to 8 months old for spring planted) in the early stages of growth, follow these procedures:

***For Fall Plantings:***

When growth begins in the spring, broadcast 1 lb 15-0-15 or equivalent fertilizer per 1,000 square feet, and then immediately after harvest, broadcast 1 lb 15-0-15 or equivalent fertilizer per 1,000 square feet.

***For Spring Plantings:***

In mid-June and late September, broadcast 1 lb 15-0-15 or equivalent fertilizer per 1,000 square feet. Apply fertilizer when the plant foliage is dry.

***Second and Succeeding Years:***

Broadcast 1 lb 15-0-15 or equivalent fertilizer per 1,000 square feet in mid July and then in mid to late September. Just prior to the beginning of growth in late winter, broadcast 1 lb 15-0-15 or equivalent fertilizer per 1,000 square feet. Continue this schedule for the life of the planting.

(Recommendation when phosphorus and potassium soil tests are M-L, M-M, M-S, S-L, S-M, S-S, H-L, H-M, H-S)

- 473 Prior to setting plants, broadcast recommended limestone to correct low soil pH. No phosphate or potash fertilizer is required. Once established (1-year-old for fall planted and 6 to 8 months old for spring planted) in the early stages of growth, follow these procedures:  
**For Fall Plantings:**  
 When growth begins in the spring, broadcast 1 lb 34-0-0 per 1,000 square feet, and then immediately after harvest, broadcast 1 lb 34-0-0 per 1,000 square feet.  
**For Spring Plantings:**  
 In mid-June and late September, broadcast 1 lb 34-0-0 per 1,000 square feet. Apply fertilizer when the plant foliage is dry.  
**Second and Succeeding Years:**  
 Broadcast 1 lb 34-0-0 per 1,000 square feet in mid July and then in mid to late September. Just prior to the beginning of growth in late winter, broadcast 1 lb 34-0-0 per 1,000 square feet. Continue this schedule for the life of the planting. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

**Crop Code No. 018**

**Trees, Ornamental and Shade**

Soil Groups 1, 2, 3, or 4	Desired pH 6.0 – 6.5				
	Phosphorus	Potassium			
	Low	Medium	Sufficient	High	Excessive
	<i>Comment Numbers</i>				
Low	330	330	330	331	331
Medium	330	330	330	331	331
Sufficient	332	332	332	333	333
High	332	332	332	333	333
Excessive	332	332	332	333	333

**COMMENTS** (68, 69, 330, 331, 332, 333, 334, 535, 654, 655)

- 330 Layout a rectangular area to be fertilized around the tree so that the entire branch spread is included. Determine the area of the rectangle and in the early spring (March 1 –April 15); broadcast 50 lbs 10-10-10 per 1,000 square feet. (Recommendation when soil test phosphorus and potassium are L-L, L-M, L-S, M-L, M-M, M-S)
- 331 Layout a rectangular area to be fertilized around the tree so that the entire branch spread is included. Determine the area of the rectangle and in the early spring (March 1 –April 15), broadcast 10 lbs triple superphosphate (0-46-0) and either 15 lbs 30-0-0 or 30 lbs calcium nitrate (15.5-0-0) fertilizer per 1,000 square feet. (Recommendations when soil test phosphorus and potassium are L-H, L-EX, M-H, M-EX)

- 332 Layout a rectangular area to be fertilized around the tree so that the entire branch spread is included. Determine the area of the rectangle and in the early spring (March 1-April 15), broadcast 32 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet. (Recommendations when soil test phosphorus and potassium are S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 333 Phosphate and potash fertilization are not necessary. If annual growth does not meet expectations for the type of tree, nitrogen fertilization will be beneficial. Layout a rectangular area to be fertilized around the tree so that the entire branch spread is included. Determine the area of the rectangle and in the early spring (March 1-April 15); broadcast either 30 lbs calcium nitrate (15.5-0-0) or 15 lbs 34-0-0 per 1,000 square feet. (Recommendation when phosphorus and potassium are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 334 If grass, ivy, or other plants under the trees are fertilized, it will not be necessary to add fertilizer for the tree.
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring.

## VEGETABLE GARDEN

### *Crop Code No. 090*

#### **Home Garden – Includes Herbs (Inorganic Fertilizer)**

Soil Groups 1, 2, 3, or 4	Desired pH 6.0 – 6.5				
Phosphorus	Potassium				
	Low	Medium	Sufficient	High	Excessive
<i>Comment Numbers</i>					
Low	171	171	171	172	172
Medium	171	171	171	172	172
Sufficient	173	173	173	174	174
High	173	173	173	174	174
Excessive	173	173	173	174	174

### **COMMENTS** (68, 69, 118, 171, 172, 173, 174, 537, 654, 655)

- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound.
- 171 Before planting, broadcast and work into the soil 10 lbs 10-10-10, 2-1/2 lbs muriate of potash (0-0-60) and 8 lbs triple superphosphate (0-46-0) per 1,000 square feet (or for each 300 feet of row). Three weeks after appearance of first new leaves, apply four inches from base of the plants, 15 lbs 10-10-10 per 300 feet of row in a continuous band. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, L-S, M-L, M-M, M-S)

- 172 Before planting, broadcast and work into the soil 9 lbs triple superphosphate (0-46-0) and 3 lbs 34-0-0 or 6 lbs calcium nitrate (15.5-0-0) or equivalent fertilizer per 1,000 square feet (or for each 300 feet of row). Three weeks after appearance of first new leaves, apply four inches from base of the plants, either 10 lbs calcium nitrate (15.5-0-0) or 5 lbs 34-0-0 per 300 feet of row in a continuous band. (Recommendation when phosphorus and potassium soil tests are L-H, L-EX, M-H, M-EX)
- 173 Before planting, broadcast and work into the soil either 6 lbs 15-0-15 or equivalent fertilizer per 1,000 square feet (or for each 300 feet of row). Three weeks after appearance of first new leaves, apply four inches from base of the plants, 10 lbs 15-0-15 or equivalent fertilizer per 300 feet or row in a continuous band. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, S-H, H-L, H-M, H-S, EX-L, EX-M, EX-S)
- 174 Before planting, broadcast and work into the soil either 6 lbs calcium nitrate (15.5-0-0) or 3 lbs 34-0-0 per 1,000 square feet (or for each 300 feet of row). Three weeks after appearance of first new leaves, apply four inches from base of the plants, either 10 lbs calcium nitrate (15.5-0-0) or 5 lbs 34-0-0 per 300 feet or row in a continuous band. (Recommendation when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)
- 537 Broadcast dolomitic limestone as recommended, in the fall or at least 6 to 8 weeks prior to planting and mix into the soil to the planting depth.

***Crop Code No. 091***

**Home Garden – Includes Herbs (Organic Fertilizer)**

Soil Groups 1, 2, 3, or 4

Desired pH 6.0 – 6.5

**COMMENTS (68, 69, 500, 537)**

500 For optimum growth of garden plants, maintain at least a sufficient soil test level for phosphorus, potassium, magnesium, and calcium that can be accomplished by applying compost, manures, lawn clippings, etc. throughout the year. If any of the plant nutrient elements indicated in the soil test report fall into either the high or excessive category, do not apply any material that contain a substantial quantity of that element. If any of the plant nutrient elements indicated on the soil test report fall into either the low or medium category, the following materials may be added per 100 square feet to bring their level back to the sufficient level:

**Phosphorus:** 10 lbs bone meal or rock phosphate per 100 square feet.

**Potassium:** 10 lbs granite dust or green sand per 100 square feet. Wood ash is high in potassium but should be used sparingly and only on acid soils (pH less than 6.0) due to its potential to make the soil alkaline.

**Magnesium:** if lime recommended to correct low soil pH, use dolomitic limestone. If limestone is not recommended, add 10 lbs Epsom salts (magnesium sulfate) per 100 square feet.

**Calcium:** applying lime recommended to correct low soil pH will also correct a low calcium level. If lime is not recommended, add 10 lbs gypsum (calcium sulfate) per 100 square feet.

**Nitrogen:** if a nitrogen-rich material, such as compost or green manure (especially from legumes), has been incorporated into the garden soil within a few weeks before planting, little or no further nitrogen will be required. Otherwise, incorporate in the row any of the following materials soon before planting: 5 lbs blood meal, 5 lbs fish meal, 10 lbs soybean seed meal, 10 lbs cotton seed meal, or 15 to 25 lbs poultry manure per 100 square feet.

- 537 Broadcast dolomitic limestone as recommended, in the fall or at least 6 to 8 weeks prior to planting and mix into the soil to the planting depth.