

Agricultural Service Laboratory
Clemson University
Comments used in Soil Reporting System
2/2/2015

- 1 Correct soil acidity by applying dolomitic limestone at the recommended rate. (When lime is recommended and soil test Ca and/or Mg is L. For all crop acreage codes except Blueberries (082))
- 4 Apply 100-150 lbs magnesium sulfate, or 20-30 lbs magnesium oxide, or 90-140 lbs sulfate-of-potash-magnesium per acre, or a mixed fertilizer to supply 10-15 lbs magnesium per acre. (When the soil test magnesium is low, and for Soil Codes 1, 2, or 3 when the soil pH is greater than 6.5 or for Soil Code 4 when the soil pH is greater than 7.0 or for Soil Code 6 when the soil pH is greater than 6.0. For all acreage agronomic except 099 and 098 and 092, fruits, vegetables, wildlife, plus 040, 041, 045, 046 – Recommendation on report – Mg - 10)
- 5 Apply 100-150 lbs magnesium sulfate, or 20-30 lbs magnesium oxide, or 90-140 lbs sulfate-of-potash-magnesium per acre, or a mixed fertilizer to supply 10-15 lbs magnesium per acre, or by applying 1,000 lbs dolomitic limestone per acre. (When the soil test magnesium is low, and for Soil Codes 1, 2, or 3 when the soil pH is between 5.9 and 6.6 or for Soil Code 4 when the soil pH is between 5.9 and 7.1 or for Soil Code 6 when the soil pH is 6.0. For all acreage agronomic except 099 and 098 and 092, fruits, vegetables, wildlife, plus 040, 041, 045, 046 – Recommendation on report – Mg - 10)
- 6 Apply 435 lbs gypsum per acre or a calcium-containing fertilizer to supply 100 lbs calcium per acre. (When the soil test calcium is low, and for Soil Codes 1, 2, or 3 when the soil pH is greater than 6.5 or for Soil Code 4 when the soil pH is greater than 7.0 or for Soil Code 6 when the soil pH is greater than 6.0. For all acreage agronomic except 099 and 098 and 092, fruits, vegetables, wildlife, plus 040, 041, 045, 046 – Recommendation on report – Ca - 100)
- 7 Apply 435 lbs gypsum per acre, or a calcium-containing fertilizer to supply 100 lbs calcium per acre, or 500 lbs dolomitic or calcitic limestone per acre. (When the soil test calcium is low, and for Soil Codes 1, 2, or 3 when the soil pH is between 5.9 and 6.6 or for Soil Code 4 when the soil pH is between 5.9 and 7.1 or for Soil Code 6 when the soil pH is 6.0. For all acreage agronomic except 099 and 098 and 092, fruits, vegetables, wildlife, plus 040, 041, 045, 046 – Recommendation on report – Ca 100)
- 8 This is a manganese sensitive crop. Apply 10 lbs manganese per acre with the fertilizer when manganese deficiency has been observed in previous years. If manganese deficiency symptoms are confirmed, apply foliar manganese as soon as possible (1 lb manganese per acre) and reapply if symptoms recur. (For crop codes 029, 030, 097 – Recommendation on report – Mn - 10*)
- 9 Apply 10 lbs sulfur per acre, or sufficient sulfur-containing fertilizer to supply this amount. (For Soil Codes 1 and 2. For these acreage crops: all agronomic crops (omit 001, 002, 012, 003, 008, 009, 098, 099), all vegetables (omit onions 067 and 068), and 040, 041, 045, 046, 013, 074 – Recommendation on report – S - 10)
- 10 Decrease nitrogen rate by 20 to 30 lbs nitrogen per acre when excessive growth, late maturity or boll rot occurs. When vegetative growth is inadequate, increase nitrogen rate by 20 to 30 lbs nitrogen per acre. When cotton follows soybeans or other legume

- in rotation, reduce nitrogen rate by 20 to 30 lbs nitrogen per acre. Apply one-fourth to one-third of the nitrogen at planting and sidedress the balance by June 15. If necessary to apply nitrogen after July 1, use a nitrate-nitrogen source at a low rate of 10 to 15 lbs nitrogen per acre. (Recommendation for crop codes C500, C1000)
- 11 For a 500 lbs per acre yield, apply 70 lbs nitrogen per acre and add 6 lbs nitrogen per acre for each additional 100 lbs per acre yield increase expected over 500 lbs. (For Crop Codes C500, C1000)
 - 12 This is a boron sensitive crop. Apply 0.4 lbs boron per acre in the fertilizer or in the insecticide spray in either one or several applications so long as the total boron applied does not exceed 1.0 lb boron per acre. (Recommendation for Crop Codes C500, C1000, 028 when soil test boron is not excessive. Recommendation on report - *)
 - 13 This is a manganese sensitive crop. Apply 10 lbs manganese per acre with the fertilizer when manganese deficiency has been observed in previous years. When manganese deficiency symptoms occur, confirm by a plant analysis. Apply manganese as a foliar spray either singularly or mixed with a pesticide. Make one or two applications of 1 lb manganese per acre. (Recommendation for crop codes C500, C1000, 002, S30, S40, S50, S60, S70, C80, 019, 055, 057, and 070, 076 – Recommendation on report – 10*)
 - 14 With each additional 100 lbs per acre yield increase over 500 lbs, increase the recommended potash rate by 5 lbs potash per acre. (For Crop Codes C500, C1000)
 - 15 When recommended rates of phosphate and potash are applied to a previous crop, additional phosphate and/or potash should not be needed for a following peanut or soybean crop. (Recommendation for Crop Codes 030, 021)
 - 16 Most profitable nitrogen rate depends on soil, rainfall, plant population, and cultural practices with 120 lbs nitrogen per acre suggested for most soils. For very sandy soils where the yield potential is 80 bushels per acre or less, 100 lbs nitrogen per acre rate is adequate. In river bottoms or locations where yields of 130 bushels per acre or more are often obtained, apply 150 lbs nitrogen per acre. (Recommendation for Crop Code 021)
 - 17 Preplant by broadcasting or at planting, 30 to 40 lbs nitrogen rate banded by the row. Sidedress balance of nitrogen when the plants are 18 to 30 inches tall. Following soybeans or other legumes in rotation, reduce the nitrogen rate by 20 to 30 lbs nitrogen per acre. (Recommendation for Crop Codes 021, 023, 024)
 - 18 With each 10 bushel per acre yield increase over 30 bushels per acre, the potash recommendation has been increased by 10 lbs per acre. (For Crop Code S30, S40, S50, S60, S70, S80)
 - 19 If silage is grown for more than 2 years, increase potash rate to equal 200 lbs potash per acre after the first year. (Recommendation for Crop Codes 019, 023, 024 and when soil test K level is low)
 - 20 If silage is grown for more than 1 year, increase potash rate to 100 lbs potash per acre after the first year. (Recommendation for Crop Codes 019, 023, 024 and when soil test K is medium)

- 21 FOR IRRIGATED CORN - at planting, apply 30 to 40 lbs nitrogen per acre banded by the row. Sidedress the balance of the nitrogen in three applications. Apply the first portion of the balance when corn plants are 12 inches tall, apply the second portion when the plants are 24 – 30 inches tall, and apply the third portion 2 weeks later through the irrigation system. When following soybeans or other legumes in rotation, reduce the nitrogen rate by 20 to 30 lbs nitrogen per acre. (Recommendation for crop codes C110, C120, C130, C140, C150, C160, C170, C180, C190, C200, C210, C220, C230, C240, C250)
- 22 FOR NON IRRIGATED CORN - At planting, apply 30 to 40 lbs nitrogen per acre banded by the row. Sidedress the balance of nitrogen in two applications. Apply the first half of the balance when corn plants are 12 inches tall and the second half of the balance when corn plants are 24 – 30 inches tall. When following soybeans or other legumes in rotation, reduce the rate by 20 to 30 lbs nitrogen per acre. (Recommendation for Crop Codes C80, C90, C100, C110, C120, C130, C140, C150)
- 23 Higher yield goals may only be obtainable through irrigation and other proper cultural practices. (Recommendation for crop codes C120, C130, C140, C150, C160, C170, C180, C190, C200, C210, C220, C230, C240, C250)
- 24 Apply 10 lbs sulfur per acre, or sufficient sulfur containing fertilizer to supply this amount. (For crop codes 001 and 002. Recommendation on report – S - 10)
- 25 Broadcast recommended phosphate and potash fertilizer, and magnesium-, zinc- and sulfur-containing fertilizer when recommended, during land preparation prior to planting. (Recommendation for all acreage corn crops)
- 27 Petiole analysis can be used to monitor nitrogen during the season for making in-season adjustments. Leaf blade analysis can also be used to determine the nutrient status of cotton prior to bloom or for troubleshooting anytime during the season. Contact the lab for sampling and interpretation guidelines. (For crop codes 001 and 002)
- 26 Broadcast the recommended phosphate and/or potash fertilizer and work in during soil preparation. (Recommendation for Crop Code 024 when P or K is recommended)
- 28 This is a boron sensitive crop. Apply 0.5 lbs boron per acre in fertilizer. (For crop codes C80, C90, C100, C110, C120, C130, C140, C150, C160, C170, C180, C190, C200, C210, C220, C230, C240, C250, 021, 023, 074, 095, 073 when soil test boron is less than 3.0 lbs per acre – Recommendation on report – B – 0.5)
- 29 When soil test potassium levels are in the 40-60 lb per acre range, a yield response to potassium application is likely only for high yield production (>4,000 lbs per acre) on sandy soils (depth to clay >15 inches) where subsoil reserves of potassium are less accessible. Potash application can interfere with calcium uptake by the pods. If potash application is necessary prior to peanut planting, it should be incorporated with a disk harrow to reduce the concentration in the pegging zone. In peanut rotations, if the previous crop is fertilized to the medium or high potash level, no potash will be necessary prior to planting peanuts. (For crop code 008)
- 30 For virginia-type peanuts and all seed peanuts, at bloom, broadcast 1,500 lbs gypsum per acre (or 750 lbs per acre in a 16 – 18 inch band applied over the row). For Spanish and runner types, at bloom, broadcast 1,000 lbs gypsum per acre if soil test calcium is below 700 lbs per acre. (Recommendation for Crop Code 008)

- 31 This is a boron sensitive crop. Apply 0.5 lbs boron per acre with the broadcast fertilizer or as a tank-mix foliar treatment 30 – 45 days after planting unless the soil test boron level is sufficient. Do not exceed a total of 0.5 lb boron per acre. This is recommended when the fall soil test boron is less than 2.0 lbs per acre. (Recommendation when soil test boron is less than 2.0 lbs per acre for Crop Codes 008, 009 – Recommendation on report – 0.5*)
- 32 Apply inoculum on soybean seed when soybeans have not been planted within 3 years or when planted in sandy soils. (Recommendation for Crop Codes 019, S30, S40, S50, S60, S70, S80)
- 33 Reduce nitrogen fertilizer rate by 20 lbs nitrogen per acre for Piedmont soils. (Recommendation for Crop Codes 019, 029, 030 on Soil Group 4)
- 34 Broadcast one-half of recommended nitrogen prior to or at planting, and then the remainder as a sidedress. (Recommendation for Crop Codes 025, 026, 027, 028)
- 35 When not grazed, apply 30 lbs nitrogen per acre and recommended rate of phosphate and potash at planting. Apply the balance of nitrogen as a top-dress in February. Depending on soil type and residual nitrogen levels, optimal yield response typically occurs at 90 lbs per acre for dryland wheat and 120 lbs per acre for irrigated wheat. When grazed, apply 60 lbs nitrogen per acre in the fall at planting and 60 lbs nitrogen per acre in February. Increase nitrogen rate by 80 to 100 lbs nitrogen per acre for above normal stocking rates. (Recommendation for Crop Codes 029, 030)
- 36 Apply 105 lbs nitrogen per acre as urea pre-flood to a dry soil surface at 5-leaf followed by flooding and 45 lbs nitrogen per acre as urea into the flood water about 4 to 5 weeks after flooding. (For Crop Code 012)
- 37 Fertilizer recommended sufficient for 2 years. (Recommendation for Crop Codes 010, 011 and when P soil test is low or medium and when K soil test is low or medium)
- 38 When establishing new stand, apply 20 lbs nitrogen per acre. (Recommendation for Crop Codes 010, 011)
- 39 Broadcast recommended nitrogen, phosphate and potash fertilizer before growth begins. Apply 60 lbs nitrogen per acre each time forage is grazed or hay is cut. (Recommendation for Crop Code 039)
- 40 Broadcast 100 lbs nitrogen per acre at planting and 60 lbs nitrogen per acre in early spring for small grain or ryegrass planted in early September for grazing on fallowed fields. (Recommendation for Crop Code 038)
- 41 For ryegrass and crimson clover mixtures, make 3 equal nitrogen applications. In early fall, apply no more than 50 lbs nitrogen per acre. In the spring, a third nitrogen application will increase total yield and length of grazing period when ryegrass is present. When arrow leaf clover or hairy vetch is seeded with small grain, apply all of the nitrogen (60-100 lbs nitrogen per acre) at planting. (Recommendation for Crop Code 006)
- 42 Broadcast recommended lime and phosphate fertilizer and incorporate into soil. Broadcast on the surface the recommended nitrogen and potash which will move into the soil profile by

- rainfall. Apply 60 lbs nitrogen per acre when sprigging and topdress with 60 lbs nitrogen per acre after clipping. (Recommendation for Crop Code 035)
- 44 Lower soil pH by applying elemental sulfur mixed with builder's sand for easier spreading. **Caution** - sulfur dust may irritate the eyes. (Recommendation for Crop Code 096 and when soil pH > 6.0)
 - 45 Broadcast recommended phosphate and potash fertilizer and 60-100 lbs nitrogen per acre when growth begins in the spring and 60-100 lbs nitrogen per acre after each harvest. With four harvests, applying 240 lbs nitrogen per acre should produce 4 to 5 tons hay per acre and applying 400 lbs nitrogen per acre should produce 6 to 7 tons per acre on good coastal sod in years with normal rainfall. To reduce chances of winter kill, split the potash application, one-half in the spring and one-half after the second or third clipping. All the phosphate may be applied in the spring or at the same time potash is applied. (Recommendation for Crop Code 036)
 - 46 Broadcast lime, phosphate and potash fertilizer and work into the soil three months before seeding. Maintenance fertilizer and lime rates should be applied after the first cutting. (Recommendation for Crop Code 007, 005)
 - 47 Broadcast recommended rate of phosphate and potash fertilizer and 60 lbs nitrogen per acre. Repeat nitrogen application as required to produce sufficient forage up to September. If stocking rate is changed, adjust nitrogen rate accordingly. (Recommendation for Crop Codes 033, 034)
 - 48 This is a boron sensitive crop. When reseeding clover or for clover seed harvest, apply 1 to 1.5 lbs boron per acre. (Recommendation for Crop Codes 005, 007 when soil test boron is less than 3.1. Recommendation on report - 1)
 - 49 Broadcast lime, phosphate and potash fertilizer and work into the soil three months before seeding alfalfa. Maintenance fertilizer and lime rates should be applied after the first cutting. To extend the life of any alfalfa stand, apply 100 lbs potash per acre in two equal applications, one-half after the first cutting and one-half after the third cutting. (Recommendation for Crop Code 050)
 - 50 Inoculate the legume seed at planting. (Recommendation for Crop Codes 050, 007, 005, 006)
 - 51 This is a boron sensitive crop. Apply 3 lbs boron per acre annually. (Recommendation when soil test boron is less than 3.1 lbs per acre. For Crop Code 050. Recommendation on report - 3)
 - 52 Use a liquid in-furrow inoculant at planting on land not planted in peanuts within the previous three years. (For Crop Code 008)
 - 53 Broadcast all of the phosphate and potash fertilizer in the fall. Broadcast 100 lbs nitrogen per acre, one-half or not more than 60 lbs nitrogen per acre in late August and balance in February. Profitable nitrogen rates depend on stocking rate and forage needs. If stocking rate is reduced, adjust nitrogen rate accordingly. (Recommendation for Crop Codes 031, 032)
 - 54 For grass-legume mixtures where the legume is less than one-third of ground cover, apply 60 lbs nitrogen per acre in late August and again in the spring if additional

production is needed. If legumes represent one-third or more of the ground cover, do not apply nitrogen. Stocking rate should be adequate to use forage as it is produced on grass-legume pastures. (Recommendation for Crop Code 037)

- 56 Subsoil is sufficient in magnesium for good plant growth if hardpans disrupted, depth to the subsoil no greater than 20 inches, subsoil soil pH not less than 5.0, and the crop capable of growing roots into the subsoil. (When subsoil (soil code 5) test magnesium is greater than 46 lbs magnesium per acre.)
- 57 Subsoil potassium is sufficient for good plant growth if root restricting hardpans are disrupted, depth to the subsoil no greater than 20 inches, subsoil soil pH not less than 5.0, and the crop capable of growing roots into the subsoil. When subsoil potassium tests high or excessive, reduce the recommended top soil potash rate by one-half. (When subsoil (soil code 5) test potassium is greater than 156 lbs potassium per acre.)
- 58 Subsoil sulfur is sufficient for good plant growth if root restricting hardpans are disrupted, depth to the subsoil no greater than 20 inches, subsoil soil pH not less than 5.0, and the crop capable of growing roots into the subsoil. (When subsoil (soil code 5) test sulfur is greater than or equal to 40 lbs sulfur per acre.)
- 59 Since subsoil sulfur level is low, fertilizer should contain sufficient sulfur to supply 10 to 15 lbs sulfur per acre. (When subsoil (soil code 5) test sulfur is less than 40 lbs sulfur per acre – Recommendation on report – S - 10)
- 60 For small grain following legume, reduce the N recommendation by 20 lbs nitrogen per acre. Apply 30-50 lbs nitrogen per acre in the fall and the remaining nitrogen in the spring.
- The quality of harvested silage will be affected by the stage of growth at harvest, whether in the boot, milk, or dough stage. Percent of dry weight crude protein and *in vitro* digestibility will decrease with increased maturity, while tons per acre of dry matter will increase.
- The small grain, whether wheat, oats, or rye, will affect both the yield and quality of silage and its acceptability for livestock type. Seek the advice of an animal specialist. (For Crop Code 097)
- 61 Apply 10 to 15 lbs magnesium per acre with the cotton fertilizer. (When lime is not recommended on Soil Groups 1, 2, or 3 and soil test magnesium medium for Crop Codes C500, C1000 – Recommendation on report – Mg - 10)
- 62 If the pH is less than 6.5, generally zinc is not recommended under standard management. If the pH is greater than or equal to 6.5 or if zinc deficiency symptoms occur and if the zinc soil test levels are not excessive, apply 5 – 10 lbs zinc per acre. Once trees are established, zinc may be foliar applied if needed.
- 63 This is a zinc sensitive crop. Fertilizer should contain sufficient zinc to supply 5 to 10 lbs zinc per acre. (Recommendation for all corn crops including 075, pecans (088), and Christmas Trees (092). If soil test zinc is low – Recommendation on report – Zn - 5)
- 64 This is a zinc sensitive crop. Fertilizer should contain sufficient zinc to supply 5 to 10 lbs zinc per acre if soybeans is following crop. (When soil test zinc is low for Crop Code 021)

- 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 for Crop Codes 098 and all sq ft Codes except 203)
- 69 Broadcast 5 lbs gypsum (calcium sulfate) per 100 square feet or 50 lbs gypsum per 1,000 square feet. (When lime is not recommended and soil test calcium is less than 400 lbs calcium per acre for Crop Code 098 and all sq ft Codes)
- 70 Apply 100-150 lbs magnesium sulfate (Epsom salts), or 20-30 lbs magnesium oxide, or 90-140 lbs sulfate of potash-magnesium per acre, or as a mixed fertilizer containing sufficient magnesium to supply 10 to 15 lbs magnesium per acre. (When lime is not recommended and soil test magnesium is low and the Crop Codes are 099 or 092 – Recommendation on report – Mg – 10*)
- 71 Apply 220 lbs Epsom Salts (magnesium sulfate) per acre or a fertilizer containing magnesium. (When lime is not recommended and soil test magnesium is low for crop codes 042, 043, 112, 113, 114, 105, 106, 107, 117, 110, 108, and 109 – Recommendation on report – Mg - *)
- 72 Apply 435 lbs gypsum per acre, or a calcium-containing fertilizer to supply 100 lbs calcium per acre, or 500 lbs dolomitic or calcitic limestone per acre. (When lime is not recommended and soil test Ca is low for Crop Code 099, 105 – Recommendation on report – Ca – 100*)
- 73 Apply 2,200 lbs gypsum per acre. (When lime is not recommended and soil test calcium is low for crop codes 098, 042, 043, 106, 107, 108, 109, 110, 112, 113, 114, and 117 – Recommendation on report – Mg - 1)
- 75 Apply 15 to 20 lbs magnesium fertilizer per acre prior to planting. Using dolomitic limestone when limestone is required should maintain soil calcium and magnesium at the desired level for tomatoes. (When lime is not recommended and for all Soil Codes and when soil test magnesium is medium for Crop Code 078)
- 76 Based on subsoil potassium test results, no adjustment recommended for potash fertilizer rate. However, in-row subsoiling may need to be a part of routine cultural practice for row crops if clay layer is within 20 inches depth from the surface. (When subsoil (soil code 5) test potassium is less than or equal to 71 lbs potassium per acre.)
- 77 Subsoil potassium test level is medium. Reduce potash recommended rate based on topsoil potassium test by one-fourth. In-row subsoiling needs to be part of routine cultural practice for row crops if clay layer is within 20 inches of the surface. (When subsoil (soil code 5) test potassium is medium.)
- 78 Subsoil potassium test level is excessive. Reduce recommended potash rate based on the topsoil potassium test by three-fourths. In-row subsoiling needs to be part of routine cultural practice for row crops if clay layer is within 20 inches of the surface. (When subsoil (soil code 5) test potassium is excessive.)
- 80 Level of soil test zinc is potentially toxic at the current soil pH level. (Recommended for Crop Code 008 and 009, and if soil pH < 5.9 and Zn > 5 lbs/A, or soil pH < 6.0 and Zn > 11 lbs/A, or soil pH < 6.1 and Zn > 21 lbs/A, or soil pH < 6.2 and Zn > 31 lbs/A, or soil pH < 6.3 and Zn > 41 lbs/A, or soil pH > 6.2 and Zn > 51 lbs/A)

- 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 for crop code 212)
- 89 Apply "preplant" fertilizer in two bands about 8 to 12 inches apart and slightly below the root crown at time of transplanting or within 10 days after transplanting. If the clay layer is within 12 inches of the surface, the nitrogen rate should be decreased to 60 lbs nitrogen per acre, and if the clay layer is deeper than 16 inches from the surface, increase to 80 lbs nitrogen per acre. For the tobacco following soybeans or highly fertilized corn (greater than 120 lbs nitrogen per acre), reduce nitrogen rate to 50 to 60 lbs nitrogen per acre.
Any nitrogen in addition to that applied preplant and recommended potassium should be sidedressed. For sidedressing nitrogen the nitrate form is preferable but recent studies indicate that nitrogen solutions or ammonium nitrate can be successfully used. All nitrogen should be in the nitrate form. Use calcium nitrate if no potassium is recommended. Potassium nitrate is preferred if additional potassium is needed. If formulated fertilizer is used, it is preferred that all the nitrogen should be in the nitrate form and potassium should be in the nitrate or sulfate form. Potassium chloride (muriate of potash) should not be used as a potassium source.
For Extended Harvest System use the following adjustments to the normal rate:
Early Harvest: 3/4 normal nitrogen rate
Mid-harvest: normal nitrogen rate
Late Harvest: 1 and 1/4 normal nitrogen rate
(Recommendation for Crop Code 099)
- 90 If lime is to be applied to the previous crop to raise the soil pH to 6.5, then lime rate should be reduced by 25%. If the soil pH is greater than 6.2, call your County Agent for additional information. (When soil pH is above 6.2 for crop code 099)
- 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). 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 September 1. (Recommendation when phosphorus and potassium soil tests are L-L, L-M, M-L, M-M for crop code 212)
- 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). 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 September 1. (Recommendation when phosphorus and potassium soil tests are L-S, L-H, L-EX, M-S, M-H, M-EX for crop code 212)
- 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). 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 September 1. (Recommendation when phosphorus and potassium soil tests are S-L, S-M, H-L, H-M, EX-L, EX-M for crop code 212)

- 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). 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 September 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 for crop code 212)
- 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 for crop code 211)
- 96 Apply 50 lbs supersphosphate (0-20-0) and 50 to 75 lbs 12-6-6 per 1,000 square feet or 300 lbs 12-5-6 per 300 feet row of plant bed. Mix the fertilizer within the top 2 to 3 inches of soil. Wet the bed thoroughly after seeding. Recommendations given for 1,000 square feet will also be satisfactory for 100 square yards.
Caution: Fertilizer injury may occur if excessive fertilizer rates are used. (When soil test phosphorus level is low for crop code 098)
- 97 Apply 50 to 75 lbs 12-6-6 per 1,000 square feet. Use the lower rate of 12-6-6 when plants are grown under plastic cover. Mix the fertilizer within the top 2 to 3 inches of soil. Wet the bed thoroughly after seeding. Recommendations given for 1,000 square feet will also be satisfactory for 100 square yards.
Caution: Fertilizer injury may occur if excessive fertilizer rates are used. (When soil test phosphorus level is medium or higher for crop code 098)
- 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 for crop code 211)
- 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. (Recommendation for crop codes 211 and 212)
- 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 for crop code 211)
- 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 for crop code 211)

- 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 for crop code 211)
- 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 for crop code 211)
- 104 Band one-half recommended fertilizer 3 inches to the side and slightly below the seed. Broadcast the remainder. If all of the fertilizer is broadcast, increase the rate by one-third to one-half. (Recommendation for Crop Code 070)
- 105 To convert nitrogen, phosphate, and potash recommendations from pounds per acre to pounds per 1,000 square feet (or each 300 feet of row), divide by 43.5
(Recommendation for all acreage turf, vegetables, flowers, shrubs, trees, fruits, and wildlife)
- 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. (Recommendation for crop code 211)
- 107 For scab-susceptible varieties, maintain soil pH between 5.0 to 5.5. (Recommendation for Crop Code 095)
- 118 Two cups (1 pint) fertilizer is equal to approximately 1 pound. Three-quarter pint limestone weighs approximately 1 pound. (Recommendation for Crop Codes 015, 016, 017, 090, 096, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210)

- 119 Broadcast recommended phosphate and potash fertilizer and incorporate within the surface 6 inches of soil before planting. Sidedress with 50 lbs nitrogen per acre at first cultivation. (Recommendation for Crop Code 051)
- 120 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash fertilizer before cutting season. Sidedress with 50 lbs nitrogen per acre after cutting. (Recommendation for Crop Code 066)
- 121 Broadcast 25 to 50 lbs nitrogen per acre and recommended phosphate and potash and work into the soil prior to planting. Sidedress with 20 to 30 lbs nitrogen per acre when the vines begin to run. (Recommendation for Crop Codes 014 and 058)
- 122 Broadcast 25 to 50 lbs nitrogen per acre and three-quarters of the recommended phosphate and potash fertilizer and work into the soil prior to planting. Band-place with planter 25 lbs each of nitrogen, phosphate and potash per acre at planting. Sidedress with 25 to 40 lbs nitrogen per acre when vines begin to run. (Recommendation for Crop Code 052)
- 123 Broadcast 35 lbs nitrogen per acre and three-quarters of the recommended phosphate and potash fertilizer and work into the soil prior to planting. Band-place with the planter 105 lbs nitrogen, 25 lbs phosphate and potash per acre at planting. (Recommendation for Crop Code 132)
- 124 Broadcast 40 to 100 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Band place with the planter 10 to 14 days after planting, 20 to 30 lbs nitrogen, 25 lbs phosphate and 25 lbs potash per acre. Sidedress with 20 to 30 lbs nitrogen per acre when vines begin to run. (Recommendation for Crop Code 053)
- 125 Broadcast 25 lbs nitrogen per acre, the recommended phosphate, and one-third potash fertilizer and work into the soil prior to planting. (Recommendation for Crop Code 133)
- 126 Fertigate with 95 to 125 lbs nitrogen per acre and two-thirds the recommended potash. (Recommendation for Crop Code 133)
- 127 Broadcast 50 to 100 lbs nitrogen per acre and the recommended phosphate and potash fertilizer work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 3 to 5 weeks after planting. (Recommendation for Crop Code 054)
- 128 Broadcast 25 to 50 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Band-place 20 lbs nitrogen per acre with planter at planting. Sidedress with 25 to 40 lbs nitrogen per acre 3 to 5 weeks after emergence. (Recommendation for Crop Code 055)
- 129 Broadcast 50 to 100 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 3 to 4 weeks after planting, and sidedress again with 25 to 50 lbs nitrogen per acre 6 to 8 weeks after planting. (Recommendation for Crop Code 056)
- 130 Broadcast 20 to 40 lbs nitrogen per acre and half the recommended phosphate and half of the recommended potash, and work into the soil prior to planting. Band-place with the planter 20 to 40 lbs nitrogen per acre and half the recommended phosphate and half of the

- recommended potash fertilizers next to the seed row. (Recommendation for Crop Code 057)
- 131 Broadcast 25 to 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 50 lbs nitrogen per acre when vines start to run. Apply 25 to 50 lbs nitrogen per acre through the irrigation system. (Recommendation for 129)
- 132 ***Nonirrigated*** - Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Sidedress with 25 to 40 lbs nitrogen per acre when the vines begin to run. (Recommendation for Crop Code 059)
- 133 ***Irrigated*** - Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Topdress with 50 lbs nitrogen per acre when vines begin to run. Topdress again with 25 to 50 lbs nitrogen per acre at first fruit set. (Recommendation for Crop Code 059)
- 134 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 4 to 6 weeks after planting. (Recommendation for Crop Codes 060, 123, 124)
- 135 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. (Recommendation for Crop Code 130)
- 136 Broadcast 25 to 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 4 to 5 weeks after planting if needed. (Recommendation for Crop Code 125)
- 137 For spring plowed, broadcast 40 to 60 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. (Recommendation for Crop Code 126)
- 138 For fall plowed, broadcast 60 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. (Recommendation for Crop Code 126)
- 139 Broadcast 50 to 100 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress at 2 to 3 weeks after planting with 50 lbs nitrogen per acre and 50 lbs each of phosphate and potash when soil test level for both is low. Sidedress with 25 lbs nitrogen per acre 2 to 3 weeks after initial sidedressing. (Recommendation for Crop Code 061)
- 140 Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash, and work into the soil before planting. Sidedress with 25 to 50 lbs nitrogen per acre 2 to 3 weeks after seeding, and later the same amount depending on the weather. (Recommendation for Crop Code 120, 062, 079)
- 141 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 30 lbs nitrogen per acre if needed. (Recommendation for Crop Code 063)
- 142 Broadcast 50 to 100 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 3

- to 4 weeks after planting, and then again 6 to 8 weeks later. (Recommendation for Crop Code 065)
- 143 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Fertigate with 95 lbs nitrogen and 140 lbs potash if soil test potassium is low and 70 lbs potash if soil test potassium is medium. (Recommendation for Crop Code 134)
- 144 **Fall** - Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress or topdress with 25 to 50 lbs nitrogen per acre. (Recommendation for Crop Code 071)
- 145 **Overwinter** - Broadcast 50 to 80 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress or topdress with 50 to 80 lbs nitrogen per acre in late February, and then 30 to 40 lbs nitrogen per acre in late March. (Recommendation for Crop Code 071)
- 146 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 30 lbs nitrogen per acre if needed. (Recommendation for Crop Code 064, 072, 121)
- 151 Cowpea strains of *Rhizobium* are effective inoculum for southern peas. Use a commercial peat-based inoculum specifically for cowpeas. When inoculated at planting, the recommended nitrogen rate is not required. High rates of nitrogen will depress nitrogen fixation. (Recommendation for Crop Code 073)
- 152 Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 50 to 75 lbs nitrogen per acre 4 to 5 weeks after planting. (Recommendation for Crop Code 068)
- 153 Broadcast 50 lbs nitrogen per acre and recommended phosphate and potash and work into the soil prior to planting. Sidedress with 50 lbs nitrogen per acre after first fruit set, and then again later in the season if needed. (Recommendation for Crop Code 069)
- 154 Broadcast 50 lbs nitrogen per acre, the recommended phosphate, and one-third of the potash and work into the soil prior to planting. Apply 135 lbs nitrogen per acre and two-thirds of the potash recommendation through the drip irrigation system. Sidedress with 25 to 30 lbs nitrogen per acre later in the season if needed. (Recommendation for Crop Code 131)
- 155 Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 50 lbs nitrogen per acre 4 to 6 weeks after planting and then again 3 to 4 week before harvest. (Recommendation for Crop Code 067)
- 156 Broadcast 85 to 135 lbs nitrogen with the recommended phosphate and potash fertilizer and work into the ground when preparing for planting. Band-place 15 lbs nitrogen and 50 lbs phosphate fertilizer per acre at planting. (Recommendation for Crop Code 095 soil codes 1 and 2)
- 157 Broadcast 50 lbs nitrogen with the recommended phosphate and potash fertilizer and work into the soil prior to planting. Sidedress with 100 lbs nitrogen per acre 4 to 5 weeks after planting. (Recommendation for Crop Code 095 soil codes 3 and 4)

- 158 Broadcast 15 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. (Recommendation for 073)
- 159 Broadcast 40 to 60 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil 3 weeks prior planting. Band-place 20 lbs each of nitrogen, phosphate and potash per acre with the planter. Sidedress with 50 to 75 lbs nitrogen per acre when the plants are 12 to 18 inches tall. On very sandy soils, sidedress with 40 lbs nitrogen per acre when plants are 3 to 6 inches tall and another 40 lbs nitrogen per acre when plants are 12 to 18 inches tall. (Recommendation for Crop Code 075)
- 160 Broadcast all the recommended phosphate and half of the recommended potash fertilizer and work into the soil prior to planting. Sidedress with 50 to 80 lbs nitrogen per acre and the remainder of the recommended potash 21 to 28 days later after planting. (Recommendation for Crop Code 076)
- 161 Broadcast 40 to 45 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Sidedress with 40 to 45 lbs nitrogen when first fruits are set. (Recommendation for Crop Code 078 for soil codes 3 and 4)
- 162 Broadcast 50 lbs nitrogen per acre and the recommended phosphate and potash fertilizer and work into the soil prior to planting. Sidedress with 20 to 30 lbs nitrogen when first fruits are set. (Recommendation for Crop Code 078 for soil codes 1 and 2)
- 163 Broadcast 50 lbs nitrogen per acre and all of the recommended phosphate and one-third of the potash and work into the soil prior to planting. Apply 160 lbs nitrogen per acre and the remaining two-thirds of the potash through the irrigation system. (Recommendation for Crop Code 128)
- 164 Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre 3 to 4 weeks after planting if needed. (Recommendation for Crop Code 122)
- 165 Broadcast 50 to 75 lbs nitrogen per acre and the recommended phosphate and potash and work into the soil prior to planting. Sidedress with 25 to 50 lbs nitrogen per acre after first cutting and 25 to 50 lbs nitrogen per acre after each additional cutting. (Recommendation for Crop Code 127)
- 170 Sidedress 25 lbs nitrogen per acre at the first cultivation and again as late as possible before stringing. Add additional nitrogen if heavy leaching rains occur. Total nitrogen should be 100 to 140 lbs nitrogen per acre. (Recommendation for crop code 070)
- 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 for Crop Code 090)
- 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 for Crop Code 090)
- 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-S, H-L, H-M, H-S, EX-L, EX-M, EX-S for Crop Code 090)
- 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 for Crop Code 090)
- 200 Recommended fertilizer rate is for 1 acre. When smaller area is fertilized, reduce fertilizer amount applied accordingly, banded near the drip line for young trees and broadcast for older trees. For 20 year-old or older trees, apply 6 to 8 lbs nitrogen per tree or 100 lbs nitrogen per acre broadcast in February. For younger trees, apply 0.5 lbs nitrogen per year of tree age. Additional nitrogen (10 to 25 lbs nitrogen per acre) may be applied in late May, rate depending on nut set and leaching rain. Excessive growth and no crop usually indicate too much nitrogen has been applied. Reduce nitrogen amount if new terminal limb growth exceeds 12-18 inches per year. To insure that adequate nutrient elements have been applied, soil test and collect leaf tissue in late July for analysis, using the results for formulating the fertilizer recommendation the following year. (Recommendation for Crop Code 088)
- 201 Use a plant analysis to ensure that plants contain adequate levels of all nutrient elements. Deficient nutrient elements can be sidedressed or added in the irrigation water. Contact your local County Extension Agent for additional information. (For Crop Codes C120, C130, C140, C150, C160, C170, C180, C190, C200, C210, C220, C230, C240, C250)
- 202 When preparing soil for planting, broadcast phosphate and potash fertilizer and magnesium-, manganese- and sulfur-containing fertilizer when recommended. (For Crop Code S30, S40, S50, S60, S70, S80)
- 203 When preparing the soil for planting, broadcast phosphate and potash fertilizer, and when recommended magnesium-, sulfur-, manganese- and/or boron-containing fertilizers. (For Crop Code C500, C1000)
- 210 Before establishing a new orchard, apply lime and phosphate to establish a sufficient or high soil test level that will last the life of the orchard. For additional information contact your County Extension Agent. (Recommendation for Crop Codes 080, 081, 085, 086, 087)
- 211 Apply 30 to 80 lbs nitrogen per acre depending on size and age of trees. Adjust nitrogen rate to give desired fruit color and 12-18 inches of growth annually. Nitrogen supplied as ammonium is preferentially absorbed over nitrates and competes with calcium for root uptake. Calcium nitrate (15.5-0-0) can be used as a source of both calcium and nitrogen. Mix 3 lbs calcium nitrate in 100 gallons of water and foliar apply at petal-fall, first cover and third cover. Same rate should be used for two cover

- sprays that precede final harvest spray. (Recommendation for Crop Codes 080 and 081)
- 212 This is a boron sensitive crop. If borated fertilizer is not used to supply boron, dissolve 1 lb Solubor per 100 gallons water foliar applied at petal fall and first cover. (Recommendation for Crop Codes 080 and 081 when soil test boron is less than 3.1 lbs per acre. Recommendation on report - *)
- 213 This is a zinc sensitive crop. To PREVENT zinc deficiency from occurring, foliar apply 0.15 lbs zinc per tree. To CORRECT zinc deficiency which has been verified by a leaf analysis, foliar apply 0.3 lbs zinc per tree. (Recommendation for Crop Code 080 when soil test zinc is not excessive – Recommendation on report - *)
- 214 To convert acre recommendation to per plant rate, divide by 100. (Recommendation for Crop Codes 080 and 081)
- 220 Apply fertilizer 6 weeks before anticipated bloom. Adjust nitrogen fertilizer to obtain annual terminal twig growth of 12 to 18 inches, normally obtained by applying 40 to 80 lbs nitrogen per acre depending on age and vigor of trees. Split nitrogen applications with second nitrogen application applied after fruit set. If trees indicate nutrient element supplies have been exhausted when harvest complete, sidedress 10 to 15 lbs nitrogen per acre using calcium nitrate (15.5-0-0). (Recommendation for Crop Codes 085, 086, 087)
- 221 This is a zinc sensitive crop. To correct or prevent zinc deficiency, foliar apply chelated zinc as label directs or dissolve 3 ounces zinc sulfate per 100 gallons of water as a foliar spray three times at 3-week intervals. If a fungicide containing zinc is used, additional Zn not required. (Recommendation for Crop Codes 085, 086, 087 when soil test zinc is not excessive. Recommendation on report - *)
- 224 This is a boron sensitive crop. For peach orchards, apply 0.5 lb boron per acre in the fertilizer every 2 to 4 years or as an annual foliar application of 0.2 lbs boron per acre. (Recommendation for Crop Code 086 when soil test boron is not excessive – Recommendation on report – 0.5*)
- 226 To insure adequate nutrient elements being applied, soil test and plant analyze to serve as guides in altering fertilizer recommendations in the following year. (Recommendation for Crop Code 080, 081, 085, 086, 087)
- 240 This is a boron sensitive crop. Apply with the broadcast fertilizer 2 lbs boron per acre every three years. (When soil test boron is not excessive for Crop Code 066 – Recommendation on report - 2)
- 241 This is a boron sensitive crop. Apply with the broadcast fertilizer 1 to 2 lbs boron per acre. (When soil test boron is not excessive for Crop Codes 052, 056, 063, 064, 065, 067, 068, 072, 075, 078, 121, 122, 125, 128, 129, 130, 132, 134 - Recommendation on report - 1)
- 242 This is a boron sensitive crop. Apply with broadcast fertilizer 2 to 3 lbs boron per acre. (When soil test boron is not excessive for Crop Codes 061,120, 062, 079 - Recommendation on report - 2)
- 243 Apply with broadcast fertilizer 0.5 lbs sodium molybdate. (Recommendation for Crop Codes 120, 062 079)

- 244 Apply with broadcast fertilizer 20 lbs sulfur per acre. (Recommendation for Crop Codes 067, 068 – Recommendation on report – S – 20)
- 245 This is a boron sensitive crop. Apply with broadcast fertilizer 0.5 lbs boron per acre, or foliar apply 0.25 lbs boron per acre 40 to 80 days after planting. (When soil test boron is not excessive for Crop Code 076 – Recommendation on report – B – 0.5*)
- 251 **Plasticulture for Strawberries:**
Fall fertilization: broadcast and shallowly incorporated fertilizer and lime into the soil prior to bedding and laying plastic mulch. Apply 60 lbs nitrogen per acre in any form desired (however, do not use sulfur-coated urea or other slow-release materials) and all the phosphate and potash. Recent work has shown significant yield response to additions of 60 lbs phosphate per acre pre-plant in the fall even on soil testing very high in phosphorus. No response has been noted to drip applied phosphorus in the spring. Also, no response has been noted to additions of potash greater than 120 lbs per acre with plasticulture even on sites testing in the low range.
Spring fertilization: apply 30 to 60 lbs nitrogen acre through the drip system at no more than 1.0 lbs nitrogen per acre per day based on petiole nitrate analysis. The start and frequency of these applications is determined by twice monthly analysis of strawberry petioles. Begin petiole analysis shortly before major bloom occurs. Also, leaf tissue analysis can be used to gauge other nutrient element needs. Your local County Extension Agent can provide guidance and bags for these analyses. No benefit has been observed from application of phosphate or potash in the spring.
Dryland: apply 120 lbs nitrogen per acre in split applications. Broadcast one-third of the nitrogen, all the phosphate and potash, and any lime recommended, prior to setting plants and work into the soil. For spring planting, apply one-third of the nitrogen 30 days after planting. For fall planting, apply one-third of the nitrogen 90 days before ripening. Split the balance of the nitrogen between August and September. On sandy soils, sidedress with 15 to 30 lbs nitrogen per acre in January. The nitrogen rate should be increased to 180 lbs nitrogen per acre on Coastal Plain soils based on vegetative growth and soft berries. Keep nitrogen fertilizer at least 4 inches from young plants to avoid injury. For established plantings, apply one-third of the fertilizer in September, one-third at about 90 days before ripening, and the remainder after harvest. When renovating, apply all the lime, phosphate and potash recommended, and one-half of the nitrogen in late August or September. A 500 lbs per acre rate is equivalent to 1 lb per each 100 feet of row if row spacing is 36 inches. (Recommendations for Crop Code 074)
- 252 A 500 lbs-per-acre rate is equivalent to 1 pound per each 100 feet of row if row spacing is 36 inches. (Recommendation for Crop Code 074)
- 260 Apply fertilizer in February, except on sandy soils, apply in split applications, one-half in February and one-half when cane growth is about 6 inches long. The nitrogen rate should be 40 to 80 lbs nitrogen per acre. Use lower rate on older vines or when the pruning weight is greater than 2 lbs per plant. Use higher rate for young plants, when pruning weight is less than 2 lbs. To convert acre recommendations to per plant rate, divide by 544 for bunch grapes and 270 for muscadine grapes. (Recommendation for Crop Code 084)
- 261 This is a boron sensitive crop. Apply 0.6 lb boron per acre or apply Solubor in two cover sprays at the rate of 1 lb Solubor per 10 gallons of water. (For Crop Code 084 when soil test boron is not excessive – Recommendation on report – 0.6*)

- 269 For mature plants, apply one-half the recommended fertilizer rate before bloom. Apply balance of fertilizer 6 to 8 weeks later. Topdress additional 20 lbs nitrogen per acre anytime after harvest up to mid July. Acid-forming fertilizers that do not contain chlorides are preferred. Ammonium sulfate (21-0-0) should be the nitrogen source for blueberries. **Caution:** Too much fertilizer in one application without adequate water may damage blueberry plants. Iron and/or magnesium deficiency are two nutritional deficiencies that often occur with blueberries. Use a plant analysis to determine nutrient element status, following recommendations for correcting insufficiencies. To convert acre recommendation to rate per plant, divide acre recommendation by 605. Each plant requires an area 12 feet long and 6 feet wide. (Recommendation for Crop Code 082)
- 270 Plant blueberries on recently cleared unlimed land for best results. Do not apply lime except in special cases and then only after consulting your County Extension Agent. Do not apply fertilizer when blueberries are transplanted. Use liberal quantities of peat moss or rotten sawdust when setting plants. (Recommendation for Crop Code 082)
- 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 for Crop Codes 082 and 203 and soil pH above 5.5)
- 300 As a precaution against fertilizer burn, water the plants immediately after the fertilizer is applied. (Recommendation for Crop Codes 015, 016, 096, 017, 117, 110, 109, 108)
- 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 for Crop Codes 015, 016)
- 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 for Crop Codes 015, 016)
- 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 for Crop Codes 015, 016)
- 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 for Crop Codes 015, 016)
- 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. (For Crop Code 016)
- 308 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. Always use an azalea/rhododendron fertilizer, such as that containing ammonium sulfate to help lower pH. (Recommendation for Crop Codes 109, 117)
- 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. (For Crop Code 015)
- 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 for Crop Code 096 and when soil pH is above 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 for Crop Code 096 and when soil pH is above 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 for Crop Code 096 and when soil pH is above 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 above 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 for Crop Code 096 and when soil pH is above 7.5)
- 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 for Crop Code 017)
- 315 If plants show iron deficiency symptoms (yellow tissue between green veins on upper leaves), apply chelated iron following label directions for the material used, or apply a 2% solution of ferrous sulfate including a surfactant applied at a rate of 120 to 180 gallons per acre. 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 for Crop Codes S30, S40, S50, S60, S70, S80, 019, 024, 025, 026, 027, 039, 109 and when soil pH is above 6.0)
- 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 for Crop Code 017)
- 317 Broadcast 1-½ 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 for Crop Code 017)
- 318 Broadcast either 1-½ 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 for Crop Code 017)
- 319 To achieve better color, foliar apply on the turf a liquid solution of iron sulfate (dissolve 5 pounds iron sulfate in 160 gallons of water) including a surfactant (1/8 cup of a dishwasher detergent) per acre, or foliar apply a chelated iron source following label instructions. A foliar iron treatment should be made in either April or July for locations in the Piedmont and in March, July or September for locations in the Coastal Plain. Foliar apply the iron-containing solution in the late afternoon and only when the air temperature is greater than 80°F and soil moisture is adequate for good turf growth. (Recommendation for Crop Codes 106, 107, 105)
- 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 for Crop Code 096)
- 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. (Recommendation for Crop Codes 093, 094, 119)

- 323 Uniformly spread fertilizer over the area and soak into the soil. If applied before planting, mix in the top 6 inches. (Recommendation for Crop Codes 017, 108, 109)
- 325 Soil pH too high for acid-loving plants. To lower the soil pH, apply 900 lbs elemental sulfur per acre when the soil pH is between 6.0 and 6.5. Increase the recommended rate by one-half for clay soils and reduce it by one-third for sandy soils. If aluminum sulfate is used to lower the soil pH, use seven times the above recommended rate as that for elemental sulfur. Take a second soil sample after several weeks to check its pH before applying additional material needed to lower the soil pH. When applying elemental sulfur mix, mix with builder's sand for easier spreading. Caution – sulfur dust may irritate the eyes. (Recommendation for Crop Code 109 and when soil pH is above 6.0 and less than 6.6)
- 326 Soil pH too high for acid-loving plants. To lower the soil pH, apply 1,300 lbs elemental sulfur per acre when the soil pH is between 6.5 and 7.0. Increase the recommended rate by one-half for clay soils and reduce it by one-third for sandy soils. If aluminum sulfate is used to lower the soil pH, use seven times the above recommended rate as that for elemental sulfur. Take a second soil sample after several weeks to check its pH before applying additional material needed to lower the pH. When applying elemental sulfur mix, mix with builder's sand for easier spreading. Caution – sulfur dust may irritate the eyes. (Recommendation for Crop Code 109 and when soil pH is above 6.5 and less than 7.1)
- 327 Soil pH too high for acid-loving plants. To lower the soil pH, apply 1,700 lbs elemental sulfur per acre when the soil pH is between 7.0 and 7.5. Increase the recommended rate by one-half for clay soils and reduce it by one-third for sandy soils. If aluminum sulfate is used to lower the soil pH, use seven times the above recommended rate as that for elemental sulfur. Take a second soil sample to check its pH before applying additional material needed to lower the pH. When applying elemental sulfur mix, mix with builder's sand for easier spreading. Caution – sulfur dust may irritate the eyes. (Recommendation for Crop Code 109 and when soil water pH is above 7.0 and less than 7.6)
- 328 Soil pH too high for acid-loving plants. To lower the soil pH, apply 2,100 lbs elemental sulfur per acre when the soil pH is above 7.5. Increase the recommended rate by one-half for clay soils and reduce it by one-third for sandy soils. If aluminum sulfate is used to lower the soil pH, use seven times the above recommended rate as that for elemental sulfur. Take a second soil sample to check its pH before applying additional material needed to lower the soil pH. When applying elemental sulfur mix, mix with builder's sand for easier spreading. Caution – sulfur dust may irritate the eyes. (Recommendation for Crop Code 109 and when soil water pH is above 7.5)
- 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 for Crop Code 018)
- 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 34-0-0 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 for Crop Code 018)

- 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 for Crop Code 018)
- 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 for Crop Code 018)
- 334 If grass, ivy, or other plants under the trees are fertilized, it will not be necessary to add fertilizer for the tree. (For Crop Code 018)
- 340 Collect soil sample several months before planting in order to be able to follow the fertilizer and lime recommendation prior to planting. For spring planting, apply lime in the fall and broadcast before planting nitrogen, phosphate and potash fertilizer in the late winter based on the soil test recommendation. Incorporation 1 to 1.5 lbs. organic fertilizer (bone meal, tankage, peat moss, or cotton seed meal) in each hole at planting, completely incorporated in order to prevent root damage. During first 3 years in lieu of the recommendations given for mature plants, for young vines apply a nitrogenous fertilizer in split applications as follows:
- Year 1**
Approximately two weeks after planting, apply 18 ounces urea or equivalent nitrogen for each 100 feet of row in a band 1.5 feet on both sides of the plant in March. Follow with 3 or 4 applications from April through July. **DO NOT APPLY ANY FERTILIZER AFTER THE END OF JULY**, which allows plant tissue to harden before the advent of freezing temperatures. Do not apply fertilizer in a ring around the plant as this may harm the root system. Apply fertilizer in bands on both sides of the plant in order to encourage extensive root growth. Do not place dry fertilizer within an 8 inch zone around the tree trunk.
- Year 2**
In the second year of growth, more fertilizer is spread over a broader area. Apply 45 ounces urea or the equivalent amount of nitrogen for each 100 feet of row in a band 2.5 feet on both sides of the plant in March. Follow with 3 additional applications of 23 ounces urea or equivalent amount of nitrogen for each 100 feet of row (2.5 feet on both sides of the plant) from April through July.
- Year 3**
Apply 90 ounces urea or equivalent amount of nitrogen for each 100 feet of row in a band 2.5 feet on both sides of the plant. Follow with 3 additional applications of 45 ounces urea or equivalent amount of nitrogen for each 100 feet of row (2.5 feet on both sides of the plant) from April through July.
- Year 4**
Soil test and follow the recommendation given for established mature plants (See the table). Split fertilizer applications starting in March with balance applied in June. In March, apply all the phosphate and potash fertilizer recommended along with two-thirds of the nitrogen. Apply balance of nitrogen in June. Fertilizer applied in the

fourth and subsequent years should be broadcast evenly on the orchard floor. If lime is recommended, apply in the fall. In addition to soil fertilization of mature orchards, benefits have been demonstrated by the use of foliar application of liquid fertilizers. Four to 6 applications, as tank-mixed pesticide sprays, have been used successfully. Apply 2 lbs 3:1:1 ratio fertilizer with micronutrients per acre in the early season, and a 2:1:4 ratio fertilizer in the late season. Kiwifruit is sensitive to boron, especially young vines. Boron rate should not exceed 0.5 lbs boron per acre per year. Care should be exercised in the use of other micronutrients as well. (Recommendation for Crop Code 013 – Boron recommendation on report - *)

- 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 for Crop Code 096)
- 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 for Crop Code 096)
- 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 for Crop Code 096)
- 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 for Crop Code 096)
- 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. (For Crop Code 096)
- 351 Best Christmas tree growth occurs when the soil pH is between 5.5 and 6.0. (Recommendation for Crop Code 092 and soil pH is below 5.5)
- 352 Apply lime 1 to 2 months before planting, and band the recommended fertilizer 2 inches to the side of the planted seedlings. (Recommendation for Crop Code 092)
- 354 For establishment, apply after planting 50 lb nitrogen per acre as a split application with 25 lbs nitrogen per acre applied before growth starts (usually in March) and 25 lbs nitrogen per acre in May. Apply six inches from the stem. For the second year, apply 75 lb nitrogen per acre as a split application, 40 lbs nitrogen per acre before growth starts (usually in March) and 35 lbs nitrogen per acre in May, broadcasting at the outer reach of the limbs. For trees three years old and older, broadcast 100 lb nitrogen per acre at the outer reach of the limbs of each tree before growth starts. (Recommendation for Crop Code 092)

- 355 For established trees when potash recommendation is greater than 100 lbs per acre, split the application, apply half during early spring and the remainder in the fall. Availability of potassium may be reduced if gypsum is applied at the same time. Broadcast over the field or band at the tree drip line so that no fertilizer is left lodging in tree branches and needles. (Recommendation for Crop Code 092 and K recommendation is > 100 lbs K/A)
- 356 For new plantings, all recommended phosphate and potash fertilizer, lime and gypsum should be thoroughly mixed into the top 6 to 8 inches of soil prior to planting. (Recommendation for Crop Code 092 when P, K or lime is recommended)
- 357 For established trees, broadcast recommended phosphate fertilizer over the planted area. Fertilizer that lodges on tree branches and needles will result in foliage damage. (Recommendation for Crop Code 092 and P is recommended)
- 358 In order to prevent premature needle drop, additional calcium is needed. Ordinarily, soil calcium is maintained by liming, but when no lime is recommended and the soil test calcium is less than 800 lbs calcium per acre, apply sufficient gypsum to raise the percent calcium base saturation to the recommended 55% level. Consult Information Leaflet No. 69 or your County Extension Agent to determine the correct amount of gypsum to apply. Incorporate gypsum in the soil prior to planting. For established trees, broadcast or band gypsum at the tree drip line. (Recommendation for Crop Code 092 and when there is no lime recommendation and soil Ca is less than 800 lbs Ca/A)
- 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 for Crop Code 119)
- 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 test are L-H, L-EX, M-H, M-EX for Crop Code 119)
- 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 for Crop Code 119)
- 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 test are S-H, S-EX, H-H, H-EX, EX-H, EX-EX for Crop Code 119)
- 400 Before planting, apply and mix into the surface soil the recommended lime, and phosphate and potash fertilizer, and 60 lbs nitrogen per acre. Apply additional 60 lbs nitrogen per acre after the grass is well established (4 to 6 weeks). (Recommendation for Crop Code 045)
- 401 Split nitrogen into three applications: one-fourth in September, one-half in November and one-fourth in February. (Recommendation for Crop Code 112)

- 402 When phosphate recommended, incorporate into the soil before planting along with one-third recommended nitrogen and potash. Apply the remaining nitrogen and potash in two separate applications 6 to 12 weeks after planting when the grass is established. (Recommendations for Crop Code 113)
- 404 In the spring when growth begins, apply one-half of the recommended fertilizer and the remainder in midsummer. (Recommendation for Crop Code 114)
- 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 for Crop Code 044)
- 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 for Crop Code 044)
- 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 for Crop Code 044)
- 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 test is H-H, H-EX, EX-H, EX-EX for Crop Code 044)
- 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. (For Crop Code 044, 119)
- 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 for Crop Code 047)
- 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 for Crop Code 047)

- 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 for Crop Code 047)
- 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 for Crop Code 047)
- 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 for Crop Code 048)
- 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 for Crop Code 048)
- 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 for Crop Code 048)
- 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 for Crop Code 048)
- 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. (For Crop Code 048)
- 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 for Crop Codes 093, 094)
- 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 for Crop Codes 093, 094)
- 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 for Crop Codes 093, 094)

- 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 for Crop Codes 093, 094)
- 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. (For Crop Codes 093 and 094)
- 440 Apply 60 lbs nitrogen per acre with the recommended rates of phosphate and potash in the spring and late summer. Apply additional nitrogen as needed in mid-summer at the rate of 60 lbs nitrogen per acre. (Recommendation for Crop Code 040, 041)
- 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 for Crop Code 118)
- 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 test is L-H, L-EX, M-H, M-EX for Crop Code 118)
- 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 test is S-L, S-M, S-S, H-L, H-M, H-S, EX-L, EX-M, EX-S for Crop Code 118)
- 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 for Crop Code 118)
- 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 for Crop Code 111)

- 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 for Crop Code 111)
- 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 for Crop Code 111)
- 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 for Crop Code 111)
- 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 test are L-L, L-M, L-S, M-L, M-M, M-S for Crop Code 201)
- 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 test are L-H, L-EX, M-H, M-EX for Crop Code 201)

- 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 test are M-L, M-M, M-S, S-L, S-M, S-S, H-L, H-M, H-S for Crop Code 201)

- 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 test are S-H, S-EX, H-H, H-EX, EX-H, EX-EX for Crop Code 201)

- 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. (Recommendation for Crop Code 091)

- 513 Broadcast all the fertilizer in the spring with a repeat application made in mid-summer. (Recommendation for Crop Code 046)
- 514 Apply nitrogen in 2 to 3 split applications throughout the growing season. (Recommendation for Crop Codes 101, 140, 141, 144, 145, 146)
- 515 Lime should be applied 3 to 6 months before seeding for best results. (When lime is recommended for crop code 102)
- 516 Since nitrogen promotes grass over legume growth for a grass/legume mix, do not exceed the nitrogen recommendation. (Recommendation for Crop Code 103)
- 517 When 100 lbs potash per acre is recommended, split into 2 applications. (Recommendation for crop codes 101, 102, 103, 140, 141, 142, 143, 144, 145, 146, 147 and when K soil test is low)
- 518 Maintain soil pH between 6.0 and 6.5 for sustained legume growth and survival. If organic matter of soil is greater than 10%, maintain pH between 5.5 and 6.0. (Recommendation for Crop Codes 102 or 103)
- 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 for Crop Codes 093, 094, 106, 107)
- 535 Broadcast dolomitic limestone as recommended, either in the fall or early spring. (All sq ft Crop Codes except 047, 090, 091 when lime is recommended)
- 536 Before planting, broadcast dolomitic limestone as recommended and mix into the top 4 inches of soil. (For Crop Code 047 when lime is recommended)
- 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. (For Crop Codes 090, 091 when lime is recommended)

- 550 In the spring at planting, broadcast recommended phosphate and potash fertilizer and 30 to 40 lbs nitrogen per acre and work into the soil. Broadcast the balance of nitrogen in two separate applications, one-half 90 days after planting and the remaining half 30 days later. Total nitrogen rate following a legume is 135 lbs nitrogen per acre. (Recommendation for Crop Code 104)
- 551 This is a boron sensitive crop. Apply 1 lb boron per acre with the last nitrogen application. (Recommendation when soil test boron is less than 3.1 lbs per acre. For Crop Code 104. Recommendation on report – 1))
- 560 Alternate nitrogen fertilizer application with that of a complete fertilizer, such as 16-4-8, modified to maintain desired growth and color. Fertilize bentgrass in fall, winter and very early spring months (September through February) and only sparingly in the summer. (Recommendation for Crop Code 042)
- 561 Alternate nitrogen fertilizer application with that of a complete fertilizer, such as 16-4-8, modified to maintain desired growth and color. Fertilizers should be applied in spring, summer, and early fall months. (Recommendation for Crop Code 043)
- 562 In the spring when the grass is fully green, apply slow-release nitrogen fertilizer. Do not over fertilize or apply fertilize after August 15. (Recommendation for Crop Codes 105, 106, 107)
- 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 for Crop Codes 204, 205, 206)
- 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 for Crop Code 204, 205, 206)
- 592 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. 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 for Crop Code 204, 205, 206)
- 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 for Crop Code 204, 205, 206)
- 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. (For Crop Code 203 when magnesium soil test level is L or M)
- 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 vine. 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 the older grape leaves. If the soil pH is sufficiently low to warrant liming, use dolomitic lime 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 away from the trunk six or more inches. 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. (Recommendation for Crop Code 204)

- 598 About one month after planting, broadcast over a 2-foot circle 1 cup 10-10-10. 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 and 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 and older, apply 4 cups 34-0-0 per tree.
Dwarf trees: During the third and fourth season, broadcast over a 4-foot circle 4 cups 10-10-10 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 and 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.
(Recommendation for Crop Code 205)
- 599 For plants 1 to 2 years old, apply 1/3 lb 10-10-10 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 problem and fertilization should be reduced. If soil test magnesium level is low and lime recommended, use dolomitic limestone. (Recommendation for Crop Code 206)
- 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 for Crop Code 202)

- 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 for Crop Code 202)
- 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 for Crop Code 202)
- 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 for Crop Code 202)
- 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.
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. (For Crop Code 202 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. (For Crop Code 202 when phosphorus and potassium soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX))

- 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 for Crop Code 207)
- 608 Fertilize annually in split applications. Broadcast $\frac{1}{4}$ cup triple superphosphate (0-46-0) and $\frac{1}{2}$ 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 H-H, H-EX, EX-H, EX-EX for Crop Code 207)
- 609 Fertilize annually in split applications. Broadcast $\frac{3}{4}$ 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 for Crop Code 207)
- 610 Fertilize annually in split applications. Broadcast $\frac{3}{4}$ 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 for Crop Code 207)

- 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 208 and 209 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 208 and 209 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 ½ 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 for Crop Codes 208 and 209)
- 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 208 and 209 when P and K soil tests are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

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 for Crop Code 210)

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 H-H, H-EX, EX-H, EX-EX for Crop Code 210)

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 for Crop Code 210)

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 1/4 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 for Crop Code 210)

648 Availability of boron decreases substantially as pH increases above 6.5. Boron applications in irrigated soybeans or at high soil pH should be based on leaf concentrations of boron. Soybean yield will respond positively to foliar applied boron when concentrations in leaves are 10 ppm or less. In such instances when boron is needed, it should be applied at 0.2 lbs per acre at the early-pod stage (1/8 to 1/4-inch pods) and can be mixed with insecticides if needed. (For Crop Code S30, S40, S50, S60, S70, S80)

649 Apply 0.5 lb manganese (2-2.5 lb manganese sulfate or Tecmangam, or 1.5 lb ManGro DF) with both the 60 and 75 DAP fungicide applications. (If soil test manganese is below the sufficiency value at the current pH or the target pH when lime is to be applied for crop code 008)

- 650 Level of soil test zinc is potentially toxic to the plant at the current soil test pH. Lime according to recommendations. If the pH is greater than 6.2, consult your local county Extension office or the Home and Garden Information Center at 1-888-656-9988. (If soil test zinc is greater than 100 lbs per acre for all crops except peanuts – 008 and 009)
- 651 The soil test boron is low, however, this is not a boron sensitive crop, therefore no boron is recommended. (For all acreage turf, all acreage flowers, shrubs, trees, wildlife, and these acreage crops: 035, 033, 034, 036, 031, 032, 037, 010, 011, 025, 026, 027, 024, 029, 019, 038, 039, 053, 133, 054, 055, 057, 059, 060, 123, 124, 070, 126, 127, 071, 069, 131, 012, 003, 082, 085, 087, 088, 099, 098, 014, 058, 030, 097. When soil test boron is < 0.1 lbs per acre)
- 652 The soil test manganese is low, however, this is not a manganese sensitive crop, therefore no manganese is recommended. (For all acreage turf, all acreage flowers, shrubs, trees, all acreage fruits, wildlife, and these acreage crops: 050, 007, 005, 006, 035, 033, 034, 036, 104, 031, 032, 037, 010, 011, C80, C90, C100, C110, C120, C130, C140, C150, C160, C170, C180, C190, C200, C210, C220, C230, C240, C250, 021, 023, 025, 026, 027, 028, 024, 008, 038, 039, 051, 066, 014, 058, 052, 132, 53, 133, 054, 056, 129, 059, 060, 123, 124, 070, 130, 125, 126, 061, 120, 062, 079, 063, 065, 134, 071, 072, 064, 121, 068, 069, 131, 067, 095, 073, 075, 078, 128, 122, 127, 012, 003, 009, 099, 098. When soil test manganese is low)
- 653 The soil test zinc is low, however, this is not a zinc sensitive crop, therefore no zinc is recommended. (For all acreage turf, all acreage flowers, shrubs, trees, all acreage vegetables, wildlife, and these acreage crops: 050, 007, 005, 006, 035, 033, 034, 036, 104, 031, 032, 037, 010, 011, C500, C1000, 025, 026, 027, 028, 024, 029, 030, S30, S40, Ss50, S60, S70, S80, 019, 038, 039, 012, 003, 081, 082, 084, 013, 074, 099, 098, 097. When soil test zinc is low)
- 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)
- 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). (For crop code 203 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. (For crop code 203 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. (For crop code 203 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). (For crop code 203 when phosphorus and potassium soil test levels are S-H, S-EX, H-H, H-EX, EX-H, EX-EX)

700 For Grain Sorghum in rotation after wheat, if wheat has been fertilized to bring soil test levels of phosphorus and potassium to the sufficient range or above, apply an additional 15 pounds of phosphorus and 20 pounds of potassium per acre at wheat planting to account for phosphorus and potassium removal by the wheat. If soil test levels of phosphorus are high or excessive prior to wheat planting no additional phosphorus is needed but application of 15 pounds of potash per acre is recommended. Apply 100 units of total nitrogen for sorghum following wheat.

701 For two cuttings of hay, apply 60 – 75 lbs of nitrogen per acre in late February and again in September. For three cuttings of hay (recommended), apply 60 – 75 lbs of nitrogen per acre in late February, apply again in May following the first harvest, with a third nitrogen application in September following the second harvest. Where grass tetany (magnesium deficiency in animals) may be a problem, split the nitrogen and potash fertilizer applications. If the potassium soil test level is very high do not apply potash fertilizer. If the soil magnesium level is low, magnesium should be added to the animal diet. (For crop code 049)