

BEES Info #100

Lime and Fertilizer Recommendations  
for the Various Crops of Tennessee

*Chapter II*  
*Agronomic Crops*

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**Computer Codes**

1. a-e: CR100, b. CR125,  
c. CR150, d. CR175, e. CR200

**CORN (FIELD)**

**Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)**

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
<b>1. Grain</b>											
a. 100-125 bu./A	120	100	50	25	0	100	50	25	0	1,2,3,4	
b. 125-150 bu./A	150	120	60	30	0	120	60	30	0	1,2,3,4	
c. 150-175 bu./A	180	140	70	35	0	140	70	35	0	1,2,3,4	
d. 175-200 bu./A	210	160	80	40	0	160	80	40	0	1,2,3,4	
e. 200-225 bu./A	240	180	90	45	0	180	90	45	0	1,2,3,4	

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

**Notes:** Lime recommendations from Lime Chart 2.

1. Banding a portion or all of the phosphate and potash two inches to the side and below the seed level may result in increased yields on soils testing low in either or both phosphorus and potassium. For soils testing medium or higher, either banding or broadcasting are effective methods of application. If fertilizer is placed directly with the seed, do not apply more than 30 pounds per acre of nitrogen or nitrogen plus potash to prevent seedling injury and loss of stand.
2. Split applications of nitrogen may be beneficial when nitrogen rates are greater than 120 pounds per acre.
3. If nitrogen sources containing urea are not incorporated, some loss of nitrogen may occur if applied to moist soils followed by three or more days of rapidly drying conditions without rainfall.
4. Reduce N rate by 50 to 70 pounds per acre following a winter cover crop of crimson clover or hairy vetch.

**Use Note 5 and 6 only as indicated in the note.**

5. Apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre just prior to planting. [Note 5 is used only when the zinc test indicates a need for zinc].
6. If zinc was not tested, apply five pounds of zinc (approximately 15 pounds zinc sulfate) per acre when soil pH is 6.1 or above and phosphorus is high or anytime lime is applied or anywhere zinc deficiencies were observed the previous year. [Note 6 is used for the following counties when the zinc test is not requested: Bedford, Cannon, Coffee, Cumberland, Davidson, DeKalb, Fentress, Franklin, Giles, Grundy, Jackson, Lincoln, Macon, Marshall, Maury, Moore, Morgan, Overton, Pickett, Putnam, Robertson, Smith, Sumner, Trousdale, Warren, Williamson and Wilson].

**Computer Codes**

**1. CAN**

**CANOLA/RAPE**

**Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)**

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment Topdress	30 110	30	0	0	0	30	0	0	0	1	

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

**Notes:** Lime recommendations from Lime Chart 3

1. Apply 30 pounds of N at seeding in fall and topdress with an additional 110 pounds of nitrogen per acre before bolt (rapid stem elongation), usually in early to mid-March.

**Computer Codes**

**1. CT**

**COTTON**

**Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)**

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment	30-80	90	60	30	0	120	90	60	0	1,2	

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

**Notes:** Lime recommendations from Lime Chart 2. Potassium break points differ from other crops and are currently: Low (L) 0-140, Medium (M) 141-180, High (H) 181-319, Very High (VH) 320<sup>+</sup>

1. Use 30 to 60 pounds of nitrogen per acre on bottom soils and 60 to 80 pounds on upland soils.
2. Use one-half (1/2) pound of boron per acre when the soil pH is above 6.0 or anywhere lime is used.

GRAIN SORGHUM

Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment	60-90	60	30	20	0	60	30	20	0	1,2	

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

**Notes:** Lime recommendations from Lime Chart 2

- Response to the higher rate of nitrogen would most likely occur when grain sorghum follows a non-legume, is grown no-till, or is grown on soils with restricted drainage or having textures with more clay than silty clay loam.
- Reduce N rate by 60 to 80 pounds per acre following a winter cover crop of crimson clover or hairy vetch.

SMALL GRAIN

Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment and Topdress	15-30	80	40	0	0	40	20	0	0	1	
	30-60	-	-	-	-	-	-	-	-	2	

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

**Notes:** Lime recommendations from Lime Chart 2

- For small grain establishment, apply 15 pounds of nitrogen per acre when following soybeans and 30 pounds per acre when following corn, grain sorghum or grasses.
- Topdress small grain February 15 to March 15 with 60 to 90 pounds per acre of nitrogen. Use lower rates of nitrogen where lodging has been a problem.

**SMALL GRAIN SOYBEANS**  
**Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)**

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment	15-30	90	60	0	0	120	60	0	0	1,2,3,4	
2. Topdress (Feb.) Sm. Gr. only	30-60	-	-	-	-	-	-	-	-		

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

**Notes:** Lime recommendations from Lime Chart 2

- The above recommendation will supply the phosphate and potash needs of both small grain and soybeans.
- For small grain establishment apply 15 pounds of nitrogen per acre when following soybeans and 30 pounds per acre when following corn, grain sorghum or grasses. Nitrogen is not recommended for soybeans since it is a legume and when properly inoculated will supply its own nitrogen.
- Treat soybean seed with two-tenths (0.2) ounce molybdenum per bushel when soil pH is 6.5 or below. Apply either one-half (0.5) ounce of sodium molybdate per bushel or for liquid hopper-box applied sources containing fungicides follow the product label.
- Topdress small grain February 15 to March 15 with 60 to 90 pounds per acre of nitrogen. Use lower rates of nitrogen where lodging has been a problem.

## SOYBEANS

Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment	0	40	20	0	0	80	40	0	0	1,2,3,4	

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

**Notes:** Lime recommendations from Lime Chart 2.

1. Lime, phosphate and potash can be broadcast over the soil surface in fall, winter or spring. If soybeans follow established wheat, apply the phosphate and potash for soybeans when the wheat is topdressed with nitrogen in the spring, or at time of planting the soybeans.
2. Nitrogen is not recommended since soybeans are legumes and when properly inoculated produce their own nitrogen.
3. Treat soybean seed with two-tenths (0.2) ounce molybdenum per bushel when soil pH is 6.5 or below. Apply either one-half (0.5) ounce of sodium molybdate per bushel or follow the product label for liquid hopper-box applied sources containing fungicides.
4. Where only soybeans are to be grown, lime recommended may be omitted if water pH of the soil is greater than 5.6 and if soybean seed are properly treated with molybdenum.

Use Note 5 only as indicated in the note

5. [Note 5 is used only when the pH is above 7.0 and the manganese test indicates a need for manganese]  
Apply 20 pounds of manganese per acre as manganese sulfate just prior to planting.

Computer Codes

Burley1. TB

2. BUTB

Dark1. DTB

2. DATB

TOBACCO  
(Burley and Dark)

Soil Test Recommendations for N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O (Pounds Per Acre)

Practice	Nitrogen	Phosphate (P <sub>2</sub> O <sub>5</sub> )				Potash (K <sub>2</sub> O)				Notes	
	Soil Test Levels*										
	(NT)	L	M	H	V	L	M	H	V		
1. Establishment	150-200	150	90	60	0	300	180	120	0	1,2	
2. Beds										3	

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

**Notes:** Lime recommendations from Lime Chart 2 for Burley and from Lime Chart 3 for Dark Tobacco fields. Use Lime Chart 5 for Burley and Lime Chart 6 for Dark Tobacco beds. Use note 4 only as indicated.

1. A good crop of crimson clover or hairy vetch in early bloom stage will each supply 50-70 pounds per acre of nitrogen.
2. The sulfate form of potash should be used to improve curing and quality.
3. Apply 50-75 pounds of 4-16-4 per 9 x 100 feet of bed.

Use Note 4 only as indicated in the note

4. [Note 4 is used only when the magnesium test indicates a need for magnesium] Apply 20 pounds of magnesium per acre using magnesium sulfate or potassium-magnesium sulfate. If lime is needed, dolomitic limestone is recommended as the magnesium source since it can be used to correct both low magnesium and soil acidity.