



Soil Test Fertilizer Recommendations for Alabama

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*Information contained herein is
available to all persons without regard
to race, color, sex, or national origin.*

Soil Test Fertilizer Recommendations for Alabama Crops

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INTRODUCTION

PRACTICALLY ALL SOILS in Alabama must be fertilized for optimum production. This is true for several reasons. First, the unfertilized soils are naturally low in plant nutrients because the parent materials from which they were formed were low in phosphorus (P), and many were low or medium in potassium (K). Second, the high temperatures plus rainfall have caused release, leaching, and runoff of nutrients from fields, especially where they have been cropped continuously and the surface has been allowed to erode. Likewise, the nitrogen (N) supplying capacity of soils is dependent on the organic matter content which is low in Alabama soils because of rapid decomposition under the prevailing high temperatures and rainfall. Therefore, unless these major nutrients have been built up in soils by past fertilization and management practices, soils will need fertilizer for maximum economic production.

Many Alabama soils have been in continuous production for more than 100 years. Some have been fertilized regularly throughout that period. Others, now being brought into production, have never been fertilized or limed. Needs were originally determined by thousands of simple fertilizer

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experiments conducted on farms throughout the State. Prior to the establishment of the Auburn University Soil Testing Laboratory in 1953, general fertilizer recommendations were made by Auburn University for different soil types. These recommendations were based on these cooperative experiments and other more complicated experiments conducted on substations and experiment fields located on the major soils throughout the State.

This system is no longer adequate because soils have been altered by past management. Properly managed soils have become more productive over the past 40 years as fertilizer use has increased. Some nutrients may have been depleted while others have been built up in soils, depending on amounts supplied in fertilizers and amounts removed in harvested crops. General fertilizer recommendations based on the soil type are no longer practical because past management practices now have more influence on soil fertility than does soil type. Soils separated only by a fence may differ more in fertility than the unfertilized original soils of the different regions of the State.

Soil tests have been developed to determine the fertility level of individual soils. This has required much field and laboratory research at many locations over the years to develop tests and calibrate them to response to fertilizers in the field. Reliable soil tests based on such research are now the only practical basis for determining the needs of specific crops on the many soil situations now existing in Alabama.

Recommendations based on a soil test can be no better than the soil sample from which they are made. Growers are urged to take great care to be sure that the sample submitted represents as accurately as possible the area from which it is taken. Generally a sample should be a composite of subsamples taken from 10 to 20 spots in the area. Samples from plowed fields should be taken to plow depth, while those from sods or areas not to be plowed should be taken to a depth of 2 inches.

The soil testing program of Auburn University is a joint program of the Cooperative Extension Service and the Agricultural Experiment Station. The Cooperative Extension Service has primary responsibility for education on soil testing and distribution of supplies. The Agricultural Experiment Station conducts soil test calibration research and operates the Soil Testing Laboratory.

ELEMENTS REQUIRED FOR GROWING PLANTS

Only 16 elements are known to be required for plant growth.

These nutrient elements can be divided into four groups as follows: Primary - nitrogen (N), phosphorus (P), potassium (K); Secondary - calcium (Ca), magnesium (Mg), sulfur (S); Micro-nutrients - boron (B), zinc (Zn), manganese (Mn), Copper (Cu), molybdenum (Mo), iron (Fe), chlorine (Cl); and Others - carbon (C), hydrogen (H), oxygen (O).

These nutrient elements are discussed briefly to provide background for a better understanding of the information on fertilization and plant nutrition that follows.

Primary Nutrients

The elements N, P, and K are required in large quantities by plants and are the most frequently deficient in Alabama soils.

Nitrogen is the nutrient which is most frequently limiting to crop production and is needed in greatest quantities for most non-legume crops. Scientists have been unable to develop a reliable test for determining the nitrogen supplying capacity of individual soils in the Southeast. There are several reasons for this. First, nitrogen is stored in soils in the soil organic matter. The rate of N release for use by crops is affected by organic matter content, temperature, moisture, length of growing season, and other factors which make it impractical to predict the amount that will be supplied by the soil for a growing crop. Second, Alabama soils are low in organic matter content and do not vary much in their capacity to supply nitrogen. Therefore, nitrogen recommendations are based primarily on the crop to be grown. The most economical rates of application have been determined in numerous field experiments. The amounts recommended should be adjusted by growers based on experience with rates used previously. Nitrogen supply is the dominant fertility factor in determining rate and amount of growth of most crops. Legume crops get most of the N required for their growth from the air, which contains about 80 percent N.

Phosphorus content of practically all Alabama soils was originally low. Fertilizers used in the early days of fertilization were much higher in P than in N or K. Fortunately, P does not leach through soils but forms compounds with other elements in the soil, which release it slowly to plants as P is being removed. Some P may be lost from fields where the surface soil is allowed to erode. Crops require much smaller quantities of P than of N and K. Usually plants contain about .2 to .3 percent of P or .5 to .7 percent of P_2O_5 . Therefore, under continuous fertilization, soil content of P has increased on many soils to **High** levels. About 50 percent of all samples received by the Soil Testing Laboratory in

recent years have been **High** in P, and crops grown on those soils would not be expected to respond to P applications. Experiments at several of the substations and experiment fields have shown that where P has been built up to **High** or **Very High** levels, they may go for 40 years or more without reducing yields of most crops from lack of P. Therefore, on soil test reports for field and forage crops, none is recommended at **High** levels, but growers are advised to sample each year where none is applied to avoid any loss in yield should soil P drop back into the **Medium** range, where some response could be anticipated.

Potassium. As yields have been increased by higher N and P fertilization, the need for K on some soils has increased. Most of the sandy soils of Alabama are deficient in K, while the clays and clay loams are generally less likely to be deficient. Response to K has been determined in numerous experiments throughout the State. Use of more K than needed may cause Mg deficiency, especially on sandy soils. Recent residual studies have shown that K may accumulate in most soils where recommended rates are applied. When soil tests indicate that this accumulation has reached the **High** level, growers may reduce or cease applications until the soil level drops back into the **Medium** range.

Secondary Nutrients

The elements calcium (Ca), magnesium (Mg), and sulfur (S), are classified as secondary nutrients for plant nutrition. Some Alabama soils and crops should be supplied with these nutrients.

Calcium is supplied in both calcitic and dolomitic lime. Where soil pH is maintained in the proper range, calcium deficiency is not likely to occur. Peanuts, tomatoes, and peppers are the only crops which have been found to suffer from lack of calcium in Alabama fields. This deficiency may result in unfilled pods (pops) in peanuts and blossom end rot in tomatoes and peppers. All samples are analyzed for calcium in the Soil Testing Laboratory. When the tests indicate that deficiencies may occur on these crops, gypsum may be recommended if lime is not needed.

Magnesium (Mg) content of all soil samples is also determined. Some sandy soils in Alabama are deficient in Mg and these soils are usually low in pH. The most practical way to prevent Mg deficiency is by using dolomitic lime when soil tests indicate that Mg is **Low**. On soils where Mg is not found to be deficient, calcitic or dolomitic lime is satisfactory.

Sulfur (S) deficiency has increased as high analysis fertilizers made from ammonium phosphates have replaced fertilizers made from superphosphate, which contains about 12 percent S. Sulfur added to soils in rain has decreased in areas where effluvia from industrial plants has been scrubbed to reduce air pollution. Sandy soils of the coastal plains and sandstone plateaus are most likely to be deficient in S, because this element may be leached from sandy surface soils. There is no practical soil test procedure to use in predicting S deficiency. It frequently accumulates in the subsoil and plants may recover from the deficiency when roots reach the subsoil. It is recommended that all crops receive an average of about 10 pounds of S per acre per year, applied in fertilizer or in pesticide applications. Farmers should always check when buying mixed fertilizer to be certain that it contains enough S to supply this amount. When fertilizers are not applied each year, they should contain enough to last until the next application.

Micronutrients

Although the seven micronutrients are as important in plant nutrition as the primary and secondary nutrients, they are needed in much smaller quantities, and most Alabama soils contain adequate amounts for most crops. The Department of Agronomy and Soils of the Agricultural Experiment Station has conducted field, greenhouse, and laboratory research continuously since about 1930 on the response of crops to micronutrient elements. Field experiments with boron, zinc, manganese, copper, iron, and molybdenum have been conducted with various crops on the substations, experiment fields, and on farmers' fields throughout the State.

Research with field and forage crops has shown that most deficiencies of micronutrients are limited to boron and zinc for a few crops on certain soils. The most practical recommendation for these nutrients is to apply them to specific crops in all cases or on soils that may be deficient. This eliminates the need for soil tests that are, in most cases, expensive and not always dependable enough to serve as a basis for recommendations. Although some soil testing laboratories determine micronutrient elements and make specific recommendations, these recommendations are not based on research on Alabama soils. It should be emphasized that a chemical analysis or soil test is of little or no value unless calibrated against crop responses to applications of the nutrients in question. Such information can only be obtained from fertility

experiments conducted on a wide range of soil and climatic conditions.

The following is a brief description of the laboratory's analyses and recommendations of the micronutrient elements.

Boron (B) is recommended for cotton, peanuts, clover grown for seed, alfalfa, cauliflower, broccoli, root crops, apples, pears, and plums. Analysis for B is expensive and the cost of applying recommended rates is quite low; therefore, recommendations based on needs of specific crops are more practical than routine soil analyses.

Zinc (Zn) is recommended for corn on sandy soils where the pH is above 6.0 or for the first year after applying lime. It is also recommended for peaches, pecans, apples, and pears. These are the only crops that have responded to Zn on Alabama soils. Zinc deficiency on corn seedlings is likely to occur in cool, wet seasons. Corn plants usually recover when warm weather arrives but yield may be decreased by the early deficiency. Routine analysis for Zn is not necessary in most cases, but soil and plant analysis for Zn may be helpful in diagnosing suspected cases of deficiency or toxicity. Simultaneous applications of excessive amounts of both lime and phosphorus can induce Zn deficiency on almost any crop. Soil tests showing pH values above 7.0 along with **Very High** or **Extremely High P** indicate a probability that Zn deficiency may occur on some soils.

Manganese (Mn) is high in almost all Alabama soils and is not recommended for any crop. Soybeans grown on sands with poor internal drainage, high organic content, and slightly acid or alkaline pH's may show Mn deficiency. Symptoms of cyst nematode damage are very similar to those for Mn deficiency on soybeans.

Copper (Cu) and **Chlorine (Cl)** have not been found to be deficient for any crop on Alabama soils. There is no need to supply these elements in fertilizers in Alabama.

Iron (Fe) is deficient only for a few crops on the high pH soils of the Black Belt and for some ornamental plants where lime or phosphorus is excessive. This deficiency cannot be corrected by application of Fe to the soil, but can be corrected on ornamental plants by spraying with a dilute iron solution. Soil analysis for Fe is worthless. Some soybean varieties are less susceptible than others to Fe deficiency on these soils. Varieties are rated for susceptibility to Fe deficiency in the **1977 Alabama Soybean Variety Tests** report.

Molybdenum (Mo) application has not increased yields on soils in the proper pH range. Deficiency of Mo on soybeans on acid soils can be prevented by liming. The Soil Testing Laboratory is not equipped to analyze for Mo on a routine basis.

Present Policy on Micronutrients

Due to the points listed above, the laboratory does not analyze soil samples for S, Mn, Cu, Cl, Fe, or Mo. If and when research shows that analysis for one or more of these elements is justified, this service will be provided.

Under certain conditions, a soil test for B and Zn may be helpful in diagnosing problems. Therefore, samples will be analyzed on request for B and for Zn at an extra charge. Soil Test reports may have to be delayed for several days when these elements are being analyzed.

Other Nutrient Elements

The remaining nutrient elements, C, H, and O, are obtained by plants from the air, water, and soil in sufficient amounts to support maximum growth. There is no need for concern about supplying these elements in fertilizers.

SOIL TESTING SERVICE

This publication presents the fertilizer recommendations made by the Auburn University Soil Testing Laboratory. The information is organized for the computer program which is used to make recommendations on samples analyzed by this laboratory. Crops are divided into more than 50 classes, about one-half of which are field and forage crops and one-half are horticultural or special crops. The crops are listed in table 1 with a summary of information used in classifying crops based on fertility requirements, and in making recommendations for each crop. Detailed instructions and recommendations are presented in individual tables for each crop on pages 10 through 55. These tables contain the following information:

1. **Crop Code number** and a list of the crops included in this code number.

2. **K Requirement Level number.** Crops are divided into two classes based on their K requirements. These classes are (1) soybeans, peanuts, and corn and other grasses; and (2) cotton, forage legumes, gardens, lawns, shrubs, and other special crops. They are presented in table 2 along with the pounds per acre of soil test P and K, used to rate the different soil groups from **Very Low** to **Extremely High**.

TABLE I. CROP CLASSES AND COMPUTER CODE NUMBERS
USED IN RECOMMENDATIONS

Crop code No.	Crop	K re- quire- ment level	N Rate	PK code No.	Lime code No.	Mg code No.	Page No.
Field Crops, Forage Crops, and Pastures							
01	Perennial summer grass pasture	1	60	4	5	1	20
02	Bermuda hay (improved varieties)	1	100	6	5	1	20
03	Perennial winter grass pasture	1	60	3	1	1	21
04	Temporary summer grass pasture and johnsongrass	1	60	2	1	1	21
05	Annual legume with small grain and ryegrass	2	60	2	1	1	22
06	White clover, arrowleaf clover, red clover	2	0	1	2	1	22
07	Perennial or late-maturing annual legumes with summer grass pasture	2	0	1	2	1	23
08	Clover and winter perennial grass pasture	2	0	1	2	1	23
09	Annual legume and summer grass pasture	2	0	3	1	1	24
10	Cotton	2	90	2	1	2	24
13	Corn	1	120	4	1	1	25
14	Corn (in rotation before peanuts)	1	120	10	1	1	25
15	Corn in rotation before soybeans	1	120	11	1	1	26
16	Irrigated corn, corn, or sorghum silage	1	180	26	1	1	26
17	Peanuts	1	0	5	1	1	31
18	Small grain-peanut rotation	1	60	11	1	1	31
19	Annual legumes	2	0	3	1	1	32
20	Southern peas	2	30	3	1	1	32
21	Grain sorghum, sweet sorghum, sugarcane, and sunflower	1	80	4	1	1	32
22	Alfalfa	2	0	7	3	1	33
23	Sericea	2	0	5	1	1	33
24	Soybeans	1	0	5	1	1	34
25	Small grain-soybean rotation	1	100	11	1	1	34
26	Tobacco	2	60	8	4	3	35
27	Small grain or temporary winter grass pasture	1	100	2	1	1	35
Lawns, Golf Courses, Athletic Fields, and Roadsides							
40	Bermuda, Zoysia, St. Augustine lawn	2	80	12	5	1	36
42	Centipede lawn	2	40	13	5	1	37
43	Winter lawn	2	80	12	5	1	38
44	Golf green	2	400	14	1	1	39
45	Golf fairway	2	120	12	5	1	40
46	Athletic field	2	200	12	5	1	40
47	Roadside turf establishment	2	120	15	1	1	41
48	Roadside turf maintenance	2	80	12	1	1	41
Gardens and Commercial Vegetable Crops							
60	Home vegetable garden	2	120	21	1	2	42
61	Commercial vegetable crops	2	120	18	1	2	43
62	Tomatoes	2	120	18	2	2	43
63	Sweet potatoes	2	80	24	1	2	44
64	Irish potatoes	2	120	17	4	3	44
65	Watermelons, cantaloupes, cucumbers, lima beans, snap bunch beans, squash, and okra	2	80	19	1	2	44
66	Sweet corn	2	150	2	1	2	45
67	Pepper, pimiento	2	100	18	2	2	45

TABLE I. (CONTINUED) CROP CLASSES AND COMPUTER CODE NUMBERS USED IN RECOMMENDATIONS

Crop code No.	Crop	K re-quire-ment level (1)	N Rate	PK code No. (2)	Lime code No. (3)	Mg. code No. (4)	Page No.
Shrubs and Flowers							
80	Shrubs and perennial flowers	2	120	16	1	2	46
82	Roses, mums, and annual flowers	2	120	16	1	2	47
83	Greenhouse crops, annuals	2	240	22	1	2	48
84	Potting soil (84 reports lbs./acre P, K, Ca & Mg; soluble salts, nitrates, pH)						49
85	Christmas trees	1	•	4	4	3	49
Fruits and Nuts							
89	Strawberries	2	120	18	1	2	49
90	Peaches	1	•	20	2	2	50
91	Muscadine grapes	1	•	20	2	2	50
92	Apples, pears	1	•	20	2	2	51
93	Plums	1	•	20	2	2	52
94	Pecans	1	•	20	2	2	52
95	Home orchards	2	•	23	2	2	53
96	Blueberries	2	•	25	0	3	54
97	Figs	2	•	25	2	2	54
Research							
98	Checks and blanks						54
99	Computer reports pounds per acre of soil-test P, K, Ca, and Mg.						55

*N varies according to age of orchard and is given in comments.

3. **Lime Recommendation Code number.** Crops vary in the amount of acidity they can tolerate and still make top yields. They are divided into five classes based on the pH ranges in which they produce best. These classes are presented in table 5. and on pages with fertilizer recommendations for each crop.

4. **Mg Recommendation Code number.** Crops are divided into three classes based on their Mg requirements. These Mg recommendations are from one of 26 P-K Code groups as shown fertilizer recommendations for each crop.

5. **P-K Code number.** The P_2O_5 and K_2O recommendations are presented in the tables for each crop. These consist of 26 combinations of P and K ratings from **Very Low** to **Very High** for each nutrient. These combinations of P_2O_5 and K_2O recommendations are from one of 26 P-K Code groups as shown in table 1.

6. Specific comments that go with individual recommendations or crops are listed by number with the fertilizer recommendations. Comments used with each crop are also presented with fertilizer recommendations for each crop.

Definitions of Soil-Test Ratings Used for P and K

Results of chemical tests are used to rate the fertility level of soils for each nutrient element tested. The ratings range from very low to extremely high. They are influenced by the soil and the requirements of the crop to be grown. The ratings for P and K are based on the relative yield which may be expected without adding the nutrient and when all other elements are in adequate supply. Fertilizer recommendations are based on these ratings.

Very Low — Soil will yield less than 50 percent of its potential. Large applications for soil building purposes are usually recommended. Some of the fertilizer should be placed in the drill for row crops.

Low — Soil will yield 50 to 75 percent of its potential. Some fertilizer should be placed in the drill for row crops.

Medium — Soil will yield 75 to 100 percent of its potential. Continued annual applications should be made in this range. On some sandy soils which will not retain much K, it may not be economical to attempt to build beyond this medium level.

High — Supply of the nutrient is adequate for the crop, and none is recommended for field and forage crops. Where this recommendation is followed, it is suggested that the area be sampled each year.

Very High — Supply of the nutrient is more than double the amount considered adequate. Application of P or K to soils of this rating is wasteful and may contribute to pollution of ground and surface waters.

Extremely High — Supply of the nutrient is excessive and further additions may be detrimental.

Pounds per acre of soil test P, K, Ca, and Mg on which soil-test ratings are based for the different crops and soil groups, are presented in tables 2 and 3.

Description of Soil Groups on which P and K Soil-Test Ratings are based

Availability of nutrients in soils to plants is affected by amounts in the soil, cation exchange capacity (CEC) of the soil, and other factors. The amount in the soil is determined by the parent material from which the soil is formed, the amount that has been added in fertilizers or liming materials, the amount of organic matter, and the amount that has been removed by cropping, erosion, and leaching. The CEC is a measure of the capacity of the soil to retain nutrients against removal by crops, erosion, or leaching. It is affected by organic matter content and the amount

TABLE 2. FERTILITY INDEX, SOIL-TEST RATINGS, AND POUNDS PER ACRE OF SOIL-TEST P AND K FOR ALL SOILS AND CROPS

Fertility index (percent sufficiency) percent	Potassium										
	Phosphorus					Rating		Soil-test K			
	Rating (all crops)	Soil-test P			K req. level 2 cotton, legumes, gardens, lawns, shrubs	K req. level 1 corn & other grasses, peanuts, soybeans	Soil 1 CEC 0-4.6 meq/100g	Soil 2 CEC 4.6-9.0 meq/100g	Soil 3 CEC >9.0 meq/100g	Soil 4* CEC >9.0 meq/100g	
		Soil 1,2 CEC 0-9	Soil 3 CEC >9	Soil 4* CEC >9							
		<i>Lb./A.</i>	<i>Lb./A.</i>	<i>Lb./A.</i>			<i>Lb./A.</i>	<i>Lb./A.</i>	<i>Lb./A.</i>	<i>Lb./A.</i>	
0	V low	0	0	0-3	V low	V low	0-20	0-30	0-40	0-50	
10	V low	1-2	1	4-6	V low	Low	21-22	31-33	41-44	51-56	
20	V low	3-4	2	7-9	V low	Low	23-24	34-36	45-48	57-62	
30	V low	5-7	3	10-12	V low	Low	25-26	37-39	49-52	63-68	
40	V low	8-10	4-5	13-15	V low	Low	27-28	40-42	53-57	69-74	
50	V low	11-12	6-7	16-18	V low	Low	29-30	43-45	58-60	75-80	
60	Low	13-19	8-11	19-27	Low	Low	31-40	46-60	61-80	81-120	
70	Low	20-25	12-15	28-36	Low	Medium	41-60	61-90	81-120	121-160	
80	Medium	26-34	16-21	37-48	Medium	Medium	61-80	91-120	121-160	161-190	
90	Medium	35-43	22-26	49-60	Medium	High	81-100	121-150	161-200	191-220	
100	Medium	44-50	27-30	61-72	Medium	High	101-120	151-180	201-240	221-240	
110-130	High	51-65	31-40	73-94	High	High	121-160	181-240	241-320	241-320	
140-200	High	66-100	41-60	95-144	High	V high	161-240	241-360	321-480	321-480	
210-270	V high	101-135	61-81	145-195	V high	V high	241-320	361-480	481-640	481-640	
280-400	V high	136-200	82-120	196-288	V high	E high	321-480	481-720	641-960	641-960	
410+	E high	201+	121+	289+	E high	E high	481+	721+	961+	961+	

*Group 4 soils are from Black Belt counties and are extracted with Mississippi extract. All others are extracted with double acid.

TABLE 3. FERTILITY INDEX, SOIL-TEST RATINGS, AND POUNDS PER ACRE OF SOIL-TEST MG AND CA FOR ALL SOILS AND CROPS

Fertility index (percent sufficiency) percent	Magnesium (all crops)				Calcium (all soils)		
	Rating	Soil-test Mg		Rating	Peanuts	Tomatoes, pimientos, fruits & nuts	
		Soil 1	Other soils			Lb./A.	Lb./A.
		CEC 0-4.6	CEC>4.6				
Lb./A.	Lb./A.	Lb./A.	Lb./A.				
0	Low	0	0	Low	0	0	
10	Low	1-2	1-5	Low	1-25	1-40	
20	Low	3-5	6-10	Low	26-50	41-80	
30	Low	6-7	11-15	Low	51-75	81-120	
40	Low	8-10	16-20	Low	76-100	121-160	
50	Low	11-12	21-25	Low	101-125	161-200	
60	Low	13-15	26-30	Low	126-150	201-250	
70	Low	16-17	31-35	Low	151-175	251-300	
80	Low	18-20	36-40	Medium	176-215	301-365	
90	Low	21-22	41-45	Medium	216-255	366-430	
100	Low	23-25	46-50	Medium	256-300	431-500	
110-130	High	26-33	51-65	High	301-390	501-650	
140-200	High	34-50	66-100	High	391-600	651-1,000	
210-400	High	51-100	101-200	High	601-1,200	1,001-2,000	
410-800	High	101-200	201-400	High	1,201-2,400	2,001-4,000	
810+	High	201+	401+	High	2,401+	4,001+	

and type of clay in the soil. Therefore, before making fertilizer recommendations, it is important to know the CEC of individual soil samples. This is determined in the Soil Testing Laboratory and serves as the basis for classifying soils into four groups as follows:

Soil Group 1. Sandy soil with cation exchange capacities less than 4.6 meq. per 100 g of soil. Examples of soils in this group are Dothan, Orangeburg, Alaga, Ruston, and Troup.

Soil Group 2. Loamy and clayey soils with cation exchange capacities of 4.6 to 9.0 meq. per 100 g of soil. Examples of soils in this group are Madison, Lucedale, Allen, Hartsells, and Savannah.

Soil Group 3. Clayey soils, from areas other than the Black Belt, with cation exchange capacities of more than 9 meq. per 100 g of soil. Colbert, Decatur, Dewey, Talbott, Boswell, and Iredell are examples of soils from this group.

Soil Group 4. Acid and calcareous clayey soils of the Black Belt with cation exchange capacities greater than 9.0 meq. per 100 g of soil. These soils require different laboratory procedures for measuring soil fertility. Examples of soils in this group are Sumter, Oktibbeha, Leeper, and Vaiden.

The group in which a soil is classified may affect the fertility ratings and therefore the P and K recommendations. Growers sometimes do not understand why samples from individual fields

change groups between samplings. This may occur when soils are near the borderline between groups. Liming the soil may cause it to be shifted from Group 1 to Group 2 or from Group 2 to Group 3. Although CEC is determined on all samples, it is not recorded on soil test reports. Growers wishing more information about these relationships on their samples should contact the Soil Testing Laboratory.

Soil Fertility Index

A fertility index for P, K, and Mg is printed on the soil test report to give a more precise evaluation of the fertility status of each soil sample. For peanuts, tomatoes, peppers, and peaches the index for Ca is also given. The index is expressed in percent and is based on 100 percent as the amount that is adequate for top yield without the nutrient being added.

The primary value of the index is in its use for keeping soil fertility records. It will indicate how much soil building or fertility depletion is resulting from a management program. It is suggested that growers keep records of the index values to use in determining when fields should be resampled or fertilized in order to prevent loss in yield. It should help growers to use fertilizers only where they are needed.

Index values given on soil test reports do not vary with the crop to be grown. The soil-test ratings for K do vary with the crop because research has shown that soybeans, peanuts, corn, and other grasses have lower soil K requirements than cotton, other legumes, and most horticultural crops. Fertilizer recommendations are based on the ratings. The relationships between soil-test ratings and the fertility index for P, K, Ca, and Mg are presented in table 4.

TABLE 4. RELATIONSHIP BETWEEN SOIL TEST RATINGS AND THE FERTILITY INDEX (PERCENT SUFFICIENCY) FOR P, K, Mg, AND Ca

Soil test rating	K				
	P All crops	Cotton, most legumes	Soybeans, peanuts, grasses	Mg All crops	Ca Peanuts, tomatoes
	<i>Index (percent sufficiency)</i>				
Very low	0-50	0-50	0	-----	-----
Low	60-70	60-70	10-60	0-100	0-70
Medium	80-100	80-100	70-80	-----	80-100
High	110-200	110-200	90-130	110+	110+
Very high	210-400	210-400	140-270	-----	-----
Extremely high....	410+	410+	280+	-----	-----

Lime Recommendations

Practically all Alabama soils, except for the calcareous soils of the Black Belt, are slightly to strongly acid and may need to be limed for most crops. This acid condition results from the low level of lime in the original soils, the high rate of leaching from the excessive rainfall, use of acid forming fertilizer, crop removal, and other factors. About one-half of the samples received in the Soil Testing Laboratory need lime. This ratio has not changed much in recent years. Growers should use soil-test recommendations to maintain pH between 5.8 and 6.5 in most cases. Soil testing is the only practical basis for determining when and how much lime should be applied. Soil pH is a critical factor in determining response of crops to fertilizers and maintaining a favorable soil environment for profitable production. Soil should be sampled every 2 or 3 years to ensure that production is not limited by soil acidity.

Lime recommendations made by the Soil Testing Laboratory are based on two separate tests made in the laboratory on each sample. These are the determination of pH, which indicates the active acidity of the soil, and the lime requirement test, which determines the amount of lime required to raise the pH to the desired range. The amount of lime required varies among soils at the same pH because of differences in organic matter content, and the kind and amount of clay in the soils. Soils that are high in organic matter and clay content require more lime to raise the pH to a specific amount than do sandy soils that are low in organic matter. For example, a sandy soil at pH 5.0 may require only 1 ton of lime to raise the pH to 6.5, while a clay soil at the same pH may require 4 tons of lime. Crops also have different requirements for soil pH, and therefore lime recommendations vary with the crop to be grown. Lime is recommended to correct the pH of the top 8 inches of soil. Growers who plow deeper than 8 inches should increase the rates accordingly. Lime should be thoroughly mixed with the soil because the primary reason for applying lime in most cases is to adjust the soil pH rather than to supply plant nutrients such as Ca and Mg. Lime should be applied and mixed with the soil as soon after sampling as possible. It will begin to react with the soil immediately after application but the full effect may not be evident for several months. Fineness and purity of lime are important in determining the rate of reaction. The pH requirements on which lime recommendations for different crops are based are presented in table 5.

TABLE 5. LIME RECOMMENDATION CODES

Code	Lime if below	Lime to	Crops
1*	5.8	6.5	All except those listed below
2	6.0	6.5	White clover, gardens, vegetable crops, and most fruit and nuts
3	6.5	7.0	Alfalfa
4	5.0	5.5	Irish potatoes, azaleas, tobacco
5	5.6	6.5	Coastal bermuda, common bermuda, bahia, dallisgrass, lawns, fairways, athletic fields

*Code 1 crops are moved to Code 5 when grown on fine textured soils of Soil Group 3 or 4.

Lowering Soil pH

Most plants grow best where the soil is slightly acid in the range of pH 6.0 to 7.0. However, a few plants such as azaleas, gardenias, and blueberries grow best at lower pH values. In rare cases, it may be desirable to lower the pH by adding an acidifying agent such as elemental sulfur or aluminum sulfate. This can be done successfully on soils that do not contain large amounts of free lime. Amounts of sulfur needed to lower the pH of loamy soils are indicated in table 6. For sandy soils these amounts may be reduced by one-third and for clays, they should be increased by one-half.

Magnesium Recommendations

The most practical way to supply Mg is through the use of dolomitic limestone. Where Mg is low and lime is recommended, a comment will be printed on the report stating that "both soil acidity and low Mg can be corrected by applying dolomitic lime." Some crops have a higher requirement than others for Mg and it may be supplied by other sources if lime is not recommended. For some crops, a low rate of dolomitic lime can be recommended at higher pH values to supply the Mg. For certain crops such as potatoes, blueberries, and pines a soil pH below 5.5 is desirable and if Mg is low, a fertilizer containing Mg

TABLE 6. POUNDS OF ELEMENTAL SULFUR¹
NEEDED TO LOWER SOIL pH OF SILT LOAM

Present pH	Desired pH				
	6.5	6.0	5.5	5.0	4.5
	<i>Lb. Sulfur per 100 sq. ft.</i>				
8.0	3.0	4.0	5.5	7.0	8.0
7.5	2.0	3.5	4.5	6.0	7.0
7.0	1.0	2.0	3.5	5.0	6.0
6.5	—	1.0	2.5	4.0	4.5
6.0	—	—	1.0	2.5	3.5

¹If aluminum sulfate is used, multiply by 6.

is recommended. The Mg recommendation codes are given in table 7.

Soil Organic Matter Content

Organic matter content of soils affects the CEC, nitrogen supplying capacity, and other fertility factors. The organic matter content of most Alabama soils is low and does not vary widely among soils. Therefore, organic matter analysis is not needed in making fertilizer and lime recommendations, and routine soil samples are not analyzed for organic matter.

Organic content and cation exchange capacity affect rates of some herbicides required for satisfactory weed control. The CEC is indicated by the soil group in which samples are classified. This should give some indication of the amount of herbicide that should be used. The Soil Testing Laboratory offers a service to determine organic matter content of soil samples on special request. A special charge of \$2.00 per sample is made for this service. Those desiring organic matter analysis should request it on information sheets submitted with soil samples.

Fertilizer Grades Recommended

Fertilizers are recommended in pounds per acre of N, P₂O₅, and K₂O. The number of fertilizer ratios recommended has been reduced in recent years to an absolute minimum. For most crops, the ratios between P₂O₅ and K₂O have been reduced to 1 to 1, 2 to 1, 1 to 2, 1 to 0, or 0 to 1. Since about one-half of samples received are **High** in P or K and none is recommended, there is a great need for materials containing only P or K, or these nutrients mixed with

TABLE 7. MAGNESIUM RECOMMENDATION CODES

Code 1. If magnesium is low and lime is recommended, print comment 221: Both soil acidity and low magnesium can be corrected by applying dolomitic lime at the recommended rate.

If magnesium is low and lime is not recommended, do not mention magnesium. (These crops have not been shown to respond to magnesium.)

Code 2. If magnesium is low and lime is recommended, print comment 221: Both soil acidity and low magnesium can be corrected by applying dolomitic lime at the recommended rate.

If magnesium is low and lime is not recommended, print comment 222: Low magnesium may be corrected by applying 25 pounds per acre of Mg as magnesium sulfate, magnesium oxide, or sulfate of potash-magnesium; or if the pH is 6.5 or below by applying 1,000 pounds per acre of dolomitic limestone. (Cotton, vegetable crops, orchards)

Code 3. If magnesium is low and lime is recommended, print comment 221: Both soil acidity and low magnesium can be corrected by applying dolomitic lime at the recommended rate.

If lime is not recommended and Mg is low, print comment 223: Low magnesium may be corrected by applying 25 pounds per acre of Mg as magnesium sulfate, magnesium oxide, or sulfate of potash-magnesium. These crops have a high Mg requirement but are sensitive to high pH. (Potatoes, blueberries, pines, tobacco)

nitrogen materials. Many farmers have had difficulty in obtaining grades other than 1 - 1 ratios. Most of the fertilizer sold in Alabama in recent years has been in the equal ratio grades. Farmers are urged to send soil samples in the fall so they will have adequate time to shop for fertilizers. They should insist that the fertilizer manufacturers provide grades that will fit their soil test recommendations.

Although an effort has been made to avoid recommending specific fertilizer grades, it has been necessary to mention some grades as examples in comments used for lawns, gardens, and some other horticultural crops. The use of a grade such as 8-8-8 as an example, does not indicate that purchasers should insist on this specific grade, but that any equivalent ratio may be substituted. If 13-13-13 is used instead of 8-8-8, the amount used should be reduced about 40 percent and the result will be the same. If concentrated superphosphate, which contains 46 percent P_2O_5 is used instead of 20 percent superphosphate, the amount used should be reduced by about 55 percent. The same is true for nitrogen sources and other materials.

Bulk Blending

The most economical way to meet fertilizer needs indicated by soil tests may be by buying from bulk blenders. The number of small plants equipped to mix and apply fertilizers by soil test specifications is increasing. These plants offer the possibility of prescription mixing for the needs of individual growers. Where mixing and spreading are done carefully and uniformly, bulk blending can meet the needs of growers who may be having difficulty purchasing recommended grades and mixtures involving micronutrients in bagged or premixed fertilizers.

Liquids and Suspensions

In some cases, distributors of liquid and/or suspension fertilizers offer services that are beneficial to growers. Use of these materials can sometimes improve distribution or lower the cost of certain mixtures. Liquids and suspensions have been found to be similar to solid sources in effectiveness when uniformly applied.

Example of Soil Test Report

An example of a soil test report based on recommendations in this circular is presented on pages 28 and 29. The information printed on the back of the regular soil test report form is presented on pages 27 and 30. The center sheet of this circular

therefore serves as an example of the report returned to growers who send soil samples to the Auburn University Soil Testing Laboratory. Growers are urged to study the information carefully and if they have questions, they should contact their county extension office.

RECOMMENDATIONS FOR FIELD CROPS, FORAGE CROPS, AND PASTURES

Crop Code No. 01

PERENNIAL SUMMER GRASS PASTURE (BAHIA, BERMUDA, AND DALLIS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 0-0	60- 0-0	60- 0-40	60- 0-80	60- 0-80
High	60- 0-0	60- 0-0	60- 0-40	60- 0-60	60- 0-80
Medium	60-40-0	60-40-0	60-40-40	60-60-60	60-40-80
Low	60-60-0	60-60-0	60-60-60	60-60-60	60-80-80
Very low	60-80-0	60-80-0	60-80-40	60-80-80	60-80-80
K Requirement level	.....1			N Rate .....60	
Lime Code No.	.....5			PK Code No. ....4	
Mg Code No.	.....1				

COMMENT:

1. On summer grass pastures apply P and K as recommended and 60 lb. of N before growth starts. Repeat the N application up to September 1 when more growth is desired.

Crop Code No. 02

BERMUDA HAY (IMPROVED VARIETIES) (BERMUDA PASTURE 01 ALSO GIVEN BY COMPUTER)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	100- 0-0	100- 0-0	100- 0-100	100- 0-200	100- 0-200
High	100- 0-0	100- 0-0	100- 0-100	100- 0-200	100- 0-200
Medium	100- 50-0	100- 50-0	100- 50-100	100- 50-200	100- 50-200
Low	100- 75-0	100- 75-0	100-100-100	100-100-200	100-100-200
Very low	100-100-0	100-100-0	100-100-100	100-100-200	100-100-200
K Requirement level	.....1			N Rate .....100	
Lime Code No.	.....5			PK Code No. ....6	
Mg Code No.	.....1				

COMMENT:

22. For bermuda hay, apply N, P, and K as recommended before growth begins and an additional 100 lb. N after each cutting up to September 1. Loss of stand is sometimes due to K deficiency. Where large yields of hay are removed, soils should be sampled every 2 years to be sure that K level is adequate.

Crop Code No. 03

PERENNIAL WINTER GRASS PASTURE
(FESCUE, ORCHARDGRASS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 0-0	60- 0-0	60- 0-50	60- 0-100	60- 0-100
High	60- 0-0	60- 0-0	60- 0-60	60- 0- 80	60- 0-100
Medium	60- 50-0	60- 60-0	60- 50-50	60- 40- 80	60- 50-100
Low	60- 80-0	60- 80-0	60- 80-40	60- 80- 80	60-100-100
Very low	60-100-0	60-100-0	60-100-50	60-100-100	60-120-120
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			3	

COMMENT:

5. Apply N, P, and K as recommended by September 1. Repeat N application in February.

Crop Code No. 04

TEMPORARY SUMMER GRASS PASTURE AND JOHNSONGRASS (MILLET, FORAGE SORGHUM, SUDANGRASS, SORGHUM—SUDANGRASS HYBRIDS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 0-0	60- 0-0	60- 0-60	60- 0- 90	60- 0-120
High	60- 0-0	60- 0-0	60- 0-60	60- 0- 90	60- 0-120
Medium	60- 60-0	60- 60-0	60- 60-60	60- 50-100	60- 60-120
Low	60-100-0	60-100-0	60-100-50	60- 90- 90	60-120-120
Very low	60-120-0	60-120-0	60-120-60	60-120-120	60-140-140
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			2	

COMMENT:

6. For temporary summer grass or Johnsongrass, apply N, P, and K as recommended before growth begins. Up to September 1 apply 60 lb. N each time forage is grazed down or hay is cut.

Crop Code No. 05

ANNUAL LEGUME WITH SMALL GRAIN AND RYEGRASS (ARROWLEAF CLOVER,
CRIMSON CLOVER, VETCH, CALEY PEAS WITH OATS, WHEAT,
RYE RYEGRASS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 0-0	60- 0-0	60- 0-60	60- 0- 90	60- 0-120
High	60- 0-0	60- 0-0	60- 0-60	60- 0- 90	60- 0-120
Medium	60- 60-0	60- 60-0	60- 60-60	60- 50-100	60- 60-120
Low	60-100-0	60-100-0	60-100-50	60- 90- 90	60-120-120
Very low	60-120-0	60-120-0	60-120-60	60-120-120	60-140-140
K Requirement level	.....2			N Rate	.....60
Lime Code No.	.....1			PK Code No.	.....2
Mg Code No.	.....1				

COMMENTS:

4. On grass-legume mixtures, where legume is less than 1/3 of ground cover, apply 60 lb. of N in early spring.
7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B(boron) per acre.

Crop Code No. 06

WHITE CLOVER, ARROWLEAF CLOVER, RED CLOVER

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
High	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
Medium	0- 80-0	0- 80-0	0- 80-80	0- 60-120	0- 80-160
Low	0-120-0	0-120-0	0-120-60	0-120-120	0-160-160
Very low	0-180-0	0-180-0	0-160-80	0-160-160	0-180-180
K Requirement level	.....2			N Rate	.....0
Lime Code No.	.....2			PK Code No.	.....1
Mg Code No.	.....1				

COMMENT:

7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B(boron) per acre.

Crop Code No. 07

**PERENNIAL OR LATE—MATURING ANNUAL LEGUMES WITH SUMMER GRASS
PASTURE (WHITE CLOVER, ARROWLEAF CLOVER, RED CLOVER,
WITH DALLIS, BERMUDA, BAHIA)**

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
High	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
Medium	0- 80-0	0- 80-0	0- 80-80	0- 60-120	0- 80-160
Low	0-120-0	0-120-0	0-120-60	0-120-120	0-160-160
Very low	0-180-0	0-180-0	0-160-80	0-160-160	0-180-180
K Requirement level	2			N Rate	
Lime Code No.	2			PK Code No.	
Mg Code No.	1			1	

COMMENTS:

7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B(boron) per acre.
8. Where legume covers less than 1/3 of the ground, apply 60 lb. of N each time forage is grazed down or cut for hay.

Crop Code No. 08

**CLOVER AND WINTER PERENNIAL GRASS PASTURE (WHITE CLOVER, RED
CLOVER WITH FESCUE OR ORCHARDGRASS)**

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
High	0- 0-0	0- 0-0	0- 0-80	0- 0-120	0- 0-180
Medium	0- 80-0	0- 80-0	0- 80-80	0- 60-120	0- 80-160
Low	0-120-0	0-120-0	0-120-60	0-120-120	0-160-160
Very low	0-180-0	0-180-0	0-160-80	0-160-160	0-180-180
K Requirement level	2			N Rate	
Lime Code No.	2			PK Code No.	
Mg Code No.	1			1	

COMMENTS:

7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B(boron) per acre.
9. On grass legume mixtures, where legume is less than 1/3 of ground cover, apply 60 lb. of N in early fall and repeat if needed in early spring.

Crop Code No. 09

ANNUAL LEGUME AND SUMMER GRASS PASTURE (BALL CLOVER, CRIMSON CLOVER, AND BERMUDA, DALLIS, BAHIA)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-50	0- 0-100	0- 0-100
High	0- 0-0	0- 0-0	0- 0-60	0- 0- 80	0- 0-100
Medium	0- 50-0	0- 60-0	0- 50-50	0- 40- 80	0- 50-100
Low	0- 80-0	0- 80-0	0- 80-40	0- 80- 80	0-100-100
Very low	0-100-0	0-100-0	0-100-50	0-100-100	0-120-120
K Requirement level	.....2			N Rate .....0	
Lime Code No.	.....1			PK Code No. ....3	
Mg Code No.	.....1				

COMMENTS:

7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B(boron) per acre.
8. Where legume covers less than 1/3 of the ground, apply 60 lb. of N each time forage is grazed down or cut for hay.

Crop Code No. 10

COTTON

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	90- 0-0	90- 0-0	90- 0-60	90- 0- 90	90- 0-120
High	90- 0-0	90- 0-0	90- 0-60	90- 0- 90	90- 0-120
Medium	90- 60-0	90- 60-0	90- 60-60	90- 50-100	90- 60-120
Low	90-100-0	90-100-0	90-100-50	90- 90- 90	90-120-120
Very low	90-120-0	90-120-0	90-120-60	90-120-120	90-140-140
K Requirement level	.....2			N Rate .....90	
Lime Code No.	.....1			PK Code No. ....2	
Mg Code No.	.....2				

COMMENT:

10. For cotton, use the nitrogen (N) rate as a guide. Where cotton follows a good crop of soybeans or on land where excessive growth has caused problems with late maturity, insects, or boll rot, reduce the N rate 20 to 30 lb. per acre. Where vegetative growth has been inadequate, increase the N rate by this amount. Apply 0.3 lb. of boron (B) per acre in the fertilizer or in the insecticide spray or dust. For cotton following hay crops, pasture, or soybeans on soils testing **Low** or **Medium** in K, increase K₂O application 30 to 60 lb. per acre above the amount recommended.

Crop Code No. 13

CORN

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0-0	120- 0-40	120- 0-80	120- 0-80
High	120- 0-0	120- 0-0	120- 0-40	120- 0-60	120- 0-80
Medium	120-40-0	120-40-0	120-40-40	120-60-60	120-40-80
Low	120-60-0	120-60-0	120-60-60	120-60-60	120-80-80
Very low	120-80-0	120-80-0	120-80-40	120-80-80	120-80-80

K Requirement level1 N Rate120
 Lime Code No.1 PK Code No.4
 Mg Code No.1

COMMENT:

15. Corn on sandy soils may respond to nitrogen rates up to 150 lb. per acre. On sandy soils apply 3 lb. zinc (Zn) per acre in fertilizer after liming or where pH is above 6.0. (Comment to be used only on Class 1 and 2 soils.)

Crop Code No. 14

CORN (IN ROTATION BEFORE PEANUTS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0- 0	120- 0-60	120- 0-120	120- 0-120
High	120- 0-0	120- 30-30	120- 30-60	120- 30-120	120- 30-120
Medium	120- 60-0	120- 60-30	120- 60-60	120- 60-120	120- 60-120
Low	120-120-0	120-120-30	120-120-60	120-120-120	120-120-120
Very low	120-120-0	120-120-30	120-120-60	120-120-120	120-120-120

Peanuts next year 0-0-0

K Requirement level1 N Rate120
 Lime Code No.1 PK Code No.10
 Mg Code No.1

COMMENTS:

11. For peanuts apply 0.3 to 0.5 lb. of boron (B) per acre in the fertilizer, gypsum, or disease control spray or dust.

13. Apply 250 lb. of gypsum at blooming time. (Where calcium is medium and no lime is recommended or calcium is low and lime is recommended.)

14. Apply 500 lb. of gypsum at blooming time. (Where calcium is low and no lime is recommended.)

15. Corn on sandy soils may respond to nitrogen rates up to 150 lb. per acre. On sandy soils apply 3 lb. zinc (Zn) per acre in fertilizer after liming or where pH is above 6.0. (Comment to be used only on Class 1 and 2 soils.)

138. If the recommended amounts of P and K are applied to corn, no P or K should be needed for peanuts the following year.

Crop Code No. 15

CORN (IN ROTATION BEFORE SOYBEANS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0-0	120- 0-80	120- 0-120	120- 0-160
High	120- 0-0	120- 0-0	120- 0-80	120- 0-120	120- 0-160
Medium	120- 80-0	120- 80-0	120- 80-80	120- 60-120	120- 80-160
Low	120-160-0	120-160-0	120-160-80	120-160-160	120-160-160
Very low	120-160-0	120-160-0	120-160-80	120-160-160	120-160-160

Soybeans Next Year 0-0-0

K Requirement level	1	N Rate	120
Lime Code No.	1	PK Code No.	11
Mg Code No.	1		

COMMENT:

15. Corn on sandy soils may respond to nitrogen rates up to 150 lb. per acre. On sandy soils apply 3 lb. zinc (Zn) per acre in fertilizer after liming or where pH is above 6.0. (Comment to be used only on Class 1 and 2 soils.)

Crop Code No. 16

IRRIGATED CORN, CORN OR SORGHUM SILAGE

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	180- 0-0	180- 0-30	180- 0-60	180- 0-120	180- 0-120
High	180- 30-0	180- 30-30	180- 30-60	180- 30-120	180- 30-120
Medium	180- 60-0	180- 60-30	180- 60-60	180- 60-120	180- 60-120
Low	180-120-0	180-120-30	180-120-60	180-120-120	180-120-120
Very low	180-120-0	180-120-30	180-120-60	180-120-120	180-120-120

K Requirement level	1	N Rate	180
Lime Code No.	1	PK Code No.	26
Mg Code No.	1		

NOTE:

For grain sorghum silage, reduce N to 120 lb.

COMMENT:

16. On sandy soils apply 3 lb. zinc (Zn) per acre in fertilizer after liming or where pH is above 6.0. (Comment to be used only on Class 1 and 2 soils.)

INTERPRETING REPORT OF SOIL TESTS

Soil Testing Ratings

Soil test results are rated based on soil type and crop to be grown. **Very Low (VL)** means that the crop may yield less than 50% of its potential if the fertilizer nutrient is not applied. **Low (L)** means that the crop may yield only 50 to 75% of its potential. **Medium (M)** soil will yield 75 to 100% of its potential. **High (H)** is the desirable level which should be the objective of most soil building programs. It means that the supply of the nutrient in the soil is adequate for the crop. **Very High (VH)** means that the soil supply of the nutrient is more than double the amount considered adequate. **Extremely High (EH)** is used on soils where the P or K level is excessive and further additions of P may be detrimental.

Soil Fertility Index

In addition to the ratings, a fertility index is used to give a more precise evaluation of fertility status. The index can be used for keeping soil fertility records. Index values do not vary due to crops to be grown. Over a period of years, the index will indicate how much soil building or fertility depletion is resulting from a management program.

The index is expressed as a percentage of the amount of P, K, Mg or Ca in the soil that is adequate for top yields of cotton and most legumes. The relationship between soil test ratings and fertility indexes for P, K, Mg, and Ca is as follows:

Soil test rating	P	K		Mg	Ca
	All crops	Cotton, most legumes	Soybeans, peanuts, grasses	All crops	Peanuts, tomatoes
		Index (percent sufficiency)			
Very low	0-50	0-50	0	-----	-----
Low	60-70	60-70	10-60	0-100	0-70
Medium	80-100	80-100	70-80	-----	80-100
High	110-200	110-200	90-130	110+	110+
Very high	210-400	210-400	140-270	-----	-----
Extremely high	410+	410+	280+	-----	-----

Fertilizer Recommendations

Fertilizer recommendations are for annual applications unless otherwise indicated. Follow these for 2 or not more than 3 years and then resample. Rates of P and K recommended for soils testing Medium may be applied broadcast or in the row. On soils testing Low or Very Low, some fertilizer should be placed in the row.

Rates of fertilizer recommended are based on yield response obtained in experiments conducted on soils similar to the one sampled. Phosphorus and potassium recommendations are in one of the approved P_2O_5 to K_2O ratios. Select a fertilizer grade with the ratio recommended. Plant nutrients are listed on a fertilizer tag or label in the order of N- P_2O_5 - K_2O . For example, 100 pounds of 4-8-16 contains 4 pounds of N, 8 pounds of P_2O_5 and 16 pounds of K_2O . Calculate the amount required to supply rates of P_2O_5 and K_2O recommended. Additional nitrogen recommended may be applied as a side or top dressing.

**REPORT OF
AUBURN
SOIL TESTING
Auburn University**

NAME ALABAMA RESIDENT
ADDRESS 118 MAIN STREET
CITY HOMETOWN, AL 36830

LAB. NO.	SENDER'S SAMPLE DESIGNATION	AND CROP TO BE GROWN	SOIL GROUP
23887	1	SOYBEANS	2
COMMENT 224 - SOIL ACIDITY (LOW pH) CAN BE CORRECTED WITH LIME			
23888	2	CORN	1
SEE COMMENT 224 ABOVE.			
COMMENT 15 - CORN ON SANDY SOILS MAY RESPOND TO NITROGEN AND ZINC (Zn) PER ACRE IN FERTILIZER AFTER LIMING OR WHERE pH IS BELOW 6.5			
23889	3	BAHIA	1
23890	GARDEN	VEGETABLES	3
SEE COMMENT 224 ABOVE.			
COMMENT 82 - PER 100 FT. OF ROW APPLY 6 LBS. 8-8-8 (3 QTS. 8-8-8)			
***ON SUMMERGRASS PASTURES APPLY P AND K PER ACRE ON SEPTEMBER 1 REPEAT THE N APPLICATIONS WHEN MORE GROWTH IS OBSERVED			
***1.0 TON LIMESTONE PER ACRE IS APPROXIMATELY 100 LBS. OF 8-8-8			
***FOR CAULIFLOWER, BROCCOLI AND ROOT CROPS APPLY 1 TABLESPOON BORAX PER 100 FT. OF ROW.)			
THE NUMBER OF SAMPLES PROCESSED IN THIS REPORT IS 10			

*1. Sandy soils
2. Loams & light clays

3. Heavy clays (excluding Blackbelt)
4. Heavy clays of the Blackbelt

**7.4 or less
6.6 - 7.4

L TESTS
ERSITY
ORATORY
AL 36849

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COUNTY LEE
 DISTRICT 2
 DATE 1/04/80

SOIL TEST RESULTS				RECOMMENDATIONS			
PHOSPHORUS	POTASSIUM	MAGNESIUM	CALCIUM	LIME-STONE	N	P ₂ O ₅	K ₂ O
P***	K***	Mg***	Ca***	TONS/ACRE	POUNDS PER ACRE		
L 70	M 70	H 160	****	2.0	0	80	40
PER DOLOMITIC OR CALCITIC LIME.							
L 70	M 70	H 160	****	1.0	120	60	60
ES UP TO 150 LBS. PER ACRE. ON SANDY SOILS APPLY 3 LBS. ABOVE 6.0.							
M 100	H 140	H 240	****	0.0	60	40	0
M 90	M 70	H 160	****	3.0	120	120	120
AT PLANTING AND SIDEDRESS WITH 4 LBS. 8-8-8 (2 QUARTS).							
COMMENDED AND 60 LBS. OF N BEFORE GROWTH STARTS. UP TO ERED.							
EQUIVALENT TO 50 LBS. PER 1,000 SQ. FT.							
PLY 1.0 LB. OF BORON (B) PER ACRE. (FOR HOME GARDENS, IS 4.							

C. E. Evans

APPROVED

SOIL TESTING FORM B

Lime Recommendations

Lime should not be applied without a reliable soil test. The rate recommended is in tons of agricultural limestone with 90% calcium carbonate equivalent and ground so that at least 90% passes a 10-mesh and 50% passes a 60-mesh sieve. The amount of lime recommended is based on a plow depth of 8 inches. If soil is plowed to a greater depth, the rate of lime should be increased at least $\frac{1}{2}$ for each additional inch of depth. Lime should be thoroughly mixed with the soil of the plow layer rather than turned to the bottom of the furrow.

Secondary and Micronutrient Elements

All soil samples are analyzed for calcium (Ca) and magnesium (Mg). Calcium is not reported except for peanuts and tomatoes, but is used in calculating the cation exchange capacity, which determines the soil group. Dolomitic lime is recommended on acid soils testing low in Mg. Sulfur is not determined because the amount in the topsoil is not a reliable indication of the need for this element. All mixed fertilizers should contain enough S to supply 10 lb. per acre per year. This is especially important on the sandy soils of Group 1.

Boron (B) and zinc (Zn) are recommended for certain crops. Soil tests for these elements have not been adequately calibrated to serve as a basis for recommendations on most Alabama soils. Copper (Cu), manganese (Mn), iron (Fe), and molybdenum (Mo) have not been found to be deficient in Alabama soils.

Most Frequently Recommended Grades and Ratios

N-P ₂ O ₅ -K ₂ O ratios	Common grades	N-P ₂ O ₅ -K ₂ O ratios	Common grades	Fertilizer material	Common grades
0-1-1	0-20-20	X-1-2	5-15-30	Ammonium	
0-1-2	0-10-20	1-4-2	4-16- 8	nitrate	33- 0- 0
0-2-1	0-16- 8	1-3-3	4-12-12	Concentrated	
1-0-1	15- 0-15	1-3-3	8-24-24	superphosphate	0-46- 0
1-1-1	8- 8- 8	1-3-0	18-46- 0	Muriate of	
1-1-1	13-13-13			potash	0- 0-60

Examples of Sources of Secondary and Micronutrient Elements

Element and materials	% of Element	Pounds for 1 lb. nutrient	Element and materials	% of Element	Pounds for 1 lb. nutrient
Magnesium (Mg)			Zinc (Zn)		
Dolomitic Limestone	12	8	Zinc Sulfate	36	3
Magnesium Sulfate	16	6	Zinc Oxide	68	2
Sulfate Potash-Magnesium	10	10	Zinc Chelate	14	7
Boron (B)			Sulfur (S)		
Borax Fertilizer	11	9	Gypsum	19	5
Borate 46 Fertilizer	14	7	Ammonium Sulfate	24	4
Borate 65 Solubor	20	5	Elemental Sulfur	100	1
Iron (Fe)			Potassium Sulfate	18	5
Iron Sulfate	35	3	Superphosphate (20%)	12	8
Iron Chelate	14	7	Ammonium Thiosulfate	26	4
Iron Chelate	10	10			
Iron Chelate	6	17			

For additional information contact the County Extension Office.

Crop Code No. 17

PEANUTS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
High	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
Medium	0- 40-0	0- 40-0	0- 40-40	0- 40- 80	0- 50-100
Low	0- 80-0	0- 80-0	0- 80-40	0- 80- 80	0-100-100
Very low	0-120-0	0-120-0	0-120-60	0-100-100	0-120-120
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			5	

NOTE:

For Spanish peanuts, use 20 lb. N.

COMMENTS:

11. For peanuts apply 0.3 to 0.5 lb. of boron (B) per acre in the fertilizer, gypsum, or disease control spray or dust.

13. Apply 250 lb. of gypsum at blooming time. (Where calcium is medium and no lime is recommended or calcium is low and lime is recommended.)

14. Apply 500 lb. of gypsum at blooming time. (Where calcium is low and no lime is recommended.)

Crop Code No. 18

SMALL GRAIN - PEANUT ROTATION

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 0-0	60- 0-0	60- 0-80	60- 0-120	60- 0-160
High	60- 0-0	60- 0-0	60- 0-80	60- 0-120	60- 0-160
Medium	60- 80-0	60- 80-0	60- 80-80	60- 60-120	60- 80-160
Low	60-160-0	60-160-0	60-160-80	60-160-160	60-160-160
Very low	60-160-0	60-160-0	60-160-80	60-160-160	60-160-160
	Peanuts next year 0-0-0				
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			11	

COMMENTS:

11. For peanuts apply 0.3 to 0.5 lb. of boron (B) per acre in the fertilizer, gypsum, or disease control spray or dust.

13. Apply 250 lb. of gypsum at blooming time. (Where calcium is medium and no lime is recommended or calcium is low and lime is recommended.)

14. Apply 500 lb. of gypsum at blooming time. (Where calcium is low and no lime is recommended.)

18. If the recommended amounts of P and K are applied to small grain in the fall, no additional P or K should be needed for peanuts planted the following spring.

34. For small grains and ryegrass planted on fallowed fields in early September for grazing, apply 100 lb. of N at planting and 60 lb. in early spring for grazing or grain. Those crops grown for grain only should receive 20 lb. of N in the fall and 60 lb. in the spring. Ryegrass planted alone for grazing should receive no more than 60 lb. of N in the fall and up to 100 lb. N in the early spring.

Crop Code No. 19

ANNUAL LEGUMES (CRIMSON CLOVER, BALL CLOVER,
ANNUAL LESPEDEZA, CALEY PEAS, AND VETCH)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-50	0- 0-100	0- 0-100
High	0- 0-0	0- 0-0	0- 0-60	0- 0- 80	0- 0-100
Medium	0- 50-0	0- 60-0	0- 50-50	0- 40- 80	0- 50-100
Low	0- 80-0	0- 80-0	0- 80-40	0- 80- 80	0-100-100
Very low	0-100-0	0-100-0	0-100-50	0-100-100	0-120-120
K Requirement level			2	N Rate	
Lime Code No.			1	PK Code No.	
Mg Code No.			1	3	

COMMENT:

7. For reseeding clover, or clover seed harvest, apply 1 to 1.5 lb. B (boron) per acre.

Crop Code No. 20

SOUTHERN PEAS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	30- 0-0	30- 0-0	30- 0-50	30- 0-100	30- 0-100
High	30- 0-0	30- 0-0	30- 0-60	30- 0- 80	30- 0-100
Medium	30- 50-0	30- 60-0	30- 50-50	30- 40- 80	30- 50-100
Low	30- 80-0	30- 80-0	30- 80-40	30- 80- 80	30-100-100
Very low	30-100-0	30-100-0	30-100-50	30-100-100	30-120-120
K Requirement level			2	N Rate	
Lime Code No.			1	PK Code No.	
Mg Code No.			1	3	

Crop Code No. 21

GRAIN SORGHUM, SWEET SORGHUM, SUGAR CANE,
AND SUNFLOWER

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0	80- 0-0	80- 0-40	80- 0-80	80- 0-80
High	80- 0-0	80- 0-0	80- 0-40	80- 0-60	80- 0-80
Medium	80-40-0	80-40-0	80-40-40	80-60-60	80-40-80
Low	80-60-0	80-60-0	80-60-60	80-60-60	80-80-80
Very low	80-80-0	80-80-0	80-80-40	80-80-80	80-80-80
K Requirement level			1	N Rate	
Lime Code No.			1	PK Code No.	
Mg Code No.			1	4	

Crop Code No. 22

ALFALFA

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-120	0- 0-240	0- 0-300
High	0- 0-0	0- 0-0	0- 0-120	0- 0-240	0- 0-300
Medium	0- 80-0	0- 80-0	0- 80-160	0-100-200	0- 80-300
Low	0-120-0	0-120-0	0-120-120	0-120-240	0-150-300
Very low	0-200-0	0-200-0	0-200-200	0-240-240	0-200-300

K Requirement level2 N Rate0
 Lime Code No.3 PK Code No.7
 Mg Code No.1

COMMENTS:

21. For establishment of alfalfa the recommended amount of lime should be applied and incorporated prior to planting. Soil pH and fertility status should be monitored annually.

23. For alfalfa apply 3 lb. of boron (B) per acre annually.

Crop Code No. 23

SERICEA LESPEDEZA

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
High	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
Medium	0- 40-0	0- 40-0	0- 40-40	0- 40- 80	0- 50-100
Low	0- 80-0	0- 80-0	0- 80-40	0- 80- 80	0-100-100
Very low	0-120-0	0-120-0	0-120-60	0-100-100	0-120-120

K Requirement level2 N Rate0
 Lime Code No.1 PK Code No.5
 Mg Code No.1

COMMENT:

24. Fertilizer recommended should be sufficient for 2 years.

Crop Code No. 24

SOYBEANS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
High	0- 0-0	0- 0-0	0- 0-40	0- 0- 80	0- 0-120
Medium	0- 40-0	0- 40-0	0- 40-40	0- 40- 80	0- 50-100
Low	0- 80-0	0- 80-0	0- 80-40	0- 80- 80	0-100-100
Very low	0-120-0	0-120-0	0-120-60	0-100-100	0-120-120
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			5	

Crop Code No. 25

SMALL GRAIN - SOYBEAN ROTATION

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	100- 0-0	100- 0-0	100- 0-80	100- 0-120	100- 0-160
High	100- 0-0	100- 0-0	100- 0-80	100- 0-120	100- 0-160
Medium	100- 80-0	100- 80-0	100- 80-80	100- 60-120	100- 80-160
Low	100-160-0	100-160-0	100-160-80	100-160-160	100-160-160
Very low	100-160-0	100-160-0	100-160-80	100-160-160	100-160-160
	Soybeans next year 0-0-0				
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			11	

COMMENTS:

25. If the recommended amounts of P and K are applied to small grain in the fall, no additional P or K should be needed for soybeans the following year.

34. For small grains and ryegrass planted on fallowed fields in early September for grazing, apply 100 lb. of N at planting and 60 lb. in early spring for grazing or grain. Those crops grown for grain only should receive 20 lb. of N in the fall and 60 lb. in the spring. Ryegrass planted alone for grazing should receive no more than 60 lb. of N in the fall and up to 100 lb. N in the early spring.

Crop Code No. 26

TOBACCO (FLUE CURED)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	60- 50-100	60- 60-120	60- 80-160	60- 50-200	60- 50-200
High	60- 50-100	60- 60-120	60- 80-160	60- 50-200	60- 50-200
Medium	60-100-100	60-120-120	60-100-200	60-100-200	60-100-200
Low	60-200-100	60-200-100	60-200-200	60-200-200	60-200-200
Very low	60-200-100	60-200-100	60-200-200	60-200-200	60-200-200
K Requirement level	2			N Rate	
Lime Code No.	4			PK Code No.	
Mg Code No.	3			8	

NOTE:

Increase N to 140 lb. per acre for Burley and Darkfire tobacco.

Crop Code No. 27

SMALL GRAIN OR TEMPORARY WINTER GRASS PASTURE
(OATS, RYE, WHEAT, RYEGRASS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	100- 0-0	100- 0-0	100- 0-60	110- 0- 90	100- 0-120
High	100- 0-0	100- 0-0	100- 0-60	100- 0- 90	100- 0-120
Medium	100- 60-0	100- 60-0	100- 60-60	100- 50-100	100- 60-120
Low	100-100-0	100-100-0	100-100-50	100- 90- 90	100-120-120
Very low	100-120-0	100-120-0	100-120-60	100-120-120	100-140-140
K Requirement level	1			N Rate	
Lime Code No.	1			PK Code No.	
Mg Code No.	1			2	

COMMENT:

34. For small grains and ryegrass planted on fallowed fields in early September for grazing, apply 100 lb. of N at planting and 60 lb. in early spring for grazing or grain. For late-planted fields, N application at planting should be reduced to 60 lb. Those crops grown for grain only should receive 20 lb. of N in the fall and 60 lb. in the spring. Ryegrass planted alone for grazing should receive no more than 60 lb. of N in the fall and up to 100 lb. N in the early spring.

RECOMMENDATIONS FOR TURFGRASSES, LAWNS, GOLF COURSES, ATHLETIC FIELDS, AND ROADSIDES

Crop Code No. 40

BERMUDA, ZOYSIA, ST. AUGUSTINE LAWN

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0 (27)	80- 0-0 (27)	80- 0-40 (28)	80- 0-80 (29)	80- 0-80 (29)
High	80- 0-0 (27)	80- 0-0 (27)	80-40-40 (31)	80-40-80 (32)	80-40-80 (32)
Medium	80-40-0 (30)	80-40-0 (30)	80-40-40 (31)	80-40-80 (32)	80-40-80 (32)
Low	80-80-0 (33)	80-80-0 (33)	80-80-80 (35)	80-80-80 (35)	80-80-80 (35)
Very low	80-80-0 (33)	80-80-0 (33)	80-80-80 (35)	80-80-80 (35)	80-80-80 (35)
K Requirement level	.....2			N Rate	.....80
Lime Code No.	.....5			PK Code No.	.....12
Mg Code No.	.....1				

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft. Suggestions for meeting recommendations:

27. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) when spring growth begins and repeat in mid-summer. If more growth or better color is desired make additional applications of 1 lb. N at 2-month intervals.

28. Per 1,000 sq. ft. apply 6 lb. 15-0-15, or equivalent low phosphorus fertilizer, when spring growth begins and apply 1 lb. N (3 lb. ammonium nitrate or equivalent) in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N at 2-month intervals.

29. Per 1,000 sq. ft. apply 6 lb. 15-0-15, or equivalent low phosphorus fertilizer, when spring growth begins and repeat in mid-summer. If more growth or better color is desired, made additional applications of 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

30. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) and 5 lb. superphosphate or equivalent when spring growth begins and apply 1 lb. N in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N at 2-month intervals.

31. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent when spring growth begins and apply 1 lb. N (3 lb. ammonium nitrate or equivalent) in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N at 2-month intervals.

32. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent when spring growth begins and apply 6 lb. 15-0-15 or equivalent low phosphorus fertilizer in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

33. Per 1,000 sq. ft. apply 10 lb. superphosphate or equivalent and 1 lb. N (3 lb. ammonium nitrate or equivalent) when spring growth begins and apply 1 lb. N in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N at 2-month intervals.

35. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent when spring growth begins and repeat in mid-summer. If more growth or better color is desired, make additional applications of 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

CENTIPEDE LAWN

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	40- 0-0 (39)	40- 0-0 (39)	40- 0-40 (40)	40- 0-40 (40)	40- 0-40 (40)
High	40- 0-0 (39)	40- 0-0 (39)	40- 0-40 (40)	40- 0-40 (40)	40- 0-40 (40)
Medium	40- 0-0 (39)	40- 0-0 (39)	40-40-40 (44)	40-40-40 (44)	40-40-40 (44)
Low	40-40-0 (43)	40-40-0 (43)	40-40-40 (44)	40-40-40 (44)	40-40-40 (44)
Very low	40-40-0 (43)	40-40-0 (43)	40-40-40 (44)	40-40-40 (44)	40-40-40 (44)
K Requirement level			2	N Rate	40
Lime Code No.			5	PK Code No.	13
Mg Code No.			1		

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.

Suggestions for meeting recommendations:

39. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) when spring growth begins. If phosphorus is excessive, fertilizers containing this element should not be used. Excessive phosphorus may cause an iron deficiency. The symptoms occur as a general yellowing of new growth. To correct, spray with a soluble source of iron which can be found at garden supply stores.

40. Per 1,000 sq. ft. apply 6 lb. 15-0-15 or equivalent low phosphorus fertilizer when spring growth begins. If phosphorus is excessive, fertilizers containing this element should not be used. Excessive phosphorus may cause an iron deficiency. The symptoms occur as a general yellowing of new growth. To correct, spray with a soluble source of iron which can be found at garden supply stores.

43. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) and 5 lb. superphosphate or equivalent when spring growth begins.

44. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent when spring growth begins.

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

**WINTER LAWN
(RYEGRASS, FESCUE, BLUEGRASS)**

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0 (45)	80- 0- 0 (45)	80- 0-40 (46)	80- 0-80 (47)	80- 0-80 (47)
High	80- 0-0 (45)	80- 0- 0 (45)	80-40-40 (49)	80-40-80 (50)	80-40-80 (50)
Medium	80-40-0 (48)	80-40- 0 (48)	80-40-40 (49)	80-40-80 (50)	80-40-80 (50)
Low	80-80-0 (51)	80-80- 0 (51)	80-80-80 (53)	80-80-80 (53)	80-80-80 (53)
Very low	80-80-0 (51)	80-80- 0 (51)	80-80-80 (53)	80-80-80 (53)	80-80-80 (53)
K Requirement level	.....2			N Rate	.....80
Lime Code No.	.....5			PK Code No.	.....12
Mg Code No.	.....1				

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.

Suggestions for meeting recommendations:

45. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) in the fall and repeat in the spring. If more growth or better color is desired, add 1 lb. N at 2-month intervals.

46. Per 1,000 sq. ft. apply 6 lb. 15-0-15 or equivalent low phosphorus fertilizer in the fall and apply 1 lb. N (3 lb. ammonium nitrate or equivalent) in the spring. If more growth or better color is desired, add 1 lb. N at 2-month intervals.

47. Per 1,000 sq. ft. apply 6 lb. 15-0-15 or equivalent low phosphorus fertilizer in the fall and repeat in the spring. If more growth or better color is desired, add 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

48. Per 1,000 sq. ft. apply 1 lb. N (3 lb. ammonium nitrate or equivalent) and 5 lb. superphosphate or equivalent in the fall and apply 1 lb. N in the spring. If more growth or better color is desired, add 1 lb. N at 2-month intervals.

49. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent in the fall and apply 1 lb. N (3 lb. ammonium nitrate or equivalent) in the spring. If more growth or better color is desired, add 1 lb. N at 2-month intervals.

50. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent in the fall and apply 6 lb. 15-0-15 or equivalent low phosphorus fertilizer in the spring. If more growth or better color is desired, add 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

51. Per 1,000 sq. ft. apply 10 lb. superphosphate or equivalent and 1 lb. N (3 lb. ammonium nitrate or equivalent) in the fall and apply 1 lb. N in the spring. If more growth or better color is desired, add 1 lb. N at 2-month intervals.

53. Per 1,000 sq. ft. apply 12 lb. 8-8-8 or equivalent in the fall and repeat in the spring. If more growth or better color is desired, add 1 lb. N (3 lb. ammonium nitrate or equivalent) at 2-month intervals.

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

GOLF GREEN, TEE, COMMERCIAL SOD

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	400- 0-0 (54)	400- 0- 0 (54)	400- 0-100 (55)	400- 0-200 (56)	400- 0-200 (56)
High	400- 0-0 (54)	400- 50- 50 (58)	400- 50-100 (59)	400- 50-200 (60)	400- 50-200 (60)
Medium	400-100-0 (61)	400-100-100 (62)	400-100-100 (62)	400-100-200 (63)	400-100-200 (63)
Low	400-200-0 (64)	400-200-100 (65)	400-200-100 (65)	400-200-200 (66)	400-200-200 (66)
Very low	400-200-0 (64)	400-200-100 (65)	400-200-100 (65)	400-200-200 (66)	400-200-200 (66)
K Requirement level	.....2			N Rate	.....400
Lime Code No.	.....1			PK Code No.	.....14
Mg Code No.	.....1				

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.
 54. For all greens and tees, the 400 lb. N recommendation is the sum of approximately ten 4- to 5-week applications of 1 lb. of N per 1,000 sq. ft. from soluble N sources. This may be supplied as 3 lb. of ammonium nitrate (or equivalent) when N is supplied alone or as 8-8-8, 15-0-15, or other equivalent grades suggested when P₂O₅ or K₂O are recommended. Nitrogen applications should be alternated with application of other materials and modified to maintain desired growth and color. If slow release materials are used, rates and frequency of application may be modified.

Suggestions for meeting P & K recommendations:

- 55. Per 1,000 sq. ft. apply 8 lb. of 15-0-15 or equivalent low phosphorus fertilizer in the spring and repeat in the fall.
- 56. Per 1,000 sq. ft. apply 6 lb. of 15-0-15 or equivalent low phosphorus fertilizer in the spring and repeat every 2 months for a total of 4 applications.
- 58. Per 1,000 sq. ft. apply 14 lb. 8-8-8 or equivalent.
- 59. Per 1,000 sq. ft. apply 14 lb. 8-8-8 or equivalent in the spring and 6 lb. in the fall.
- 60. Per 1,000 sq. ft. apply 14 lb. of 8-8-8 or equivalent in the spring and 4 applications of 6 lb. 15-0-15 at 2-month intervals.
- 61. Per 1,000 sq. ft. apply 6 lb. of superphosphate in the spring and repeat in the fall.
- 62. Per 1,000 sq. ft. apply 14 lb. of 8-8-8 or equivalent in the spring and repeat in the fall.
- 63. Per 1,000 sq. ft. apply 14 lb. of 8-8-8 or equivalent in the spring and repeat in the fall. Apply applications of 6 lb. 15-0-15 or equivalent low phosphorus fertilizer at 2-month intervals.
- 64. Per 1,000 sq. ft. apply 12 lb. of superphosphate or equivalent in the spring and repeat in the fall.
- 65. Per 1,000 sq. ft. apply 12 lb. of superphosphate or equivalent in the spring to build up soil phosphorus. Apply 14 lb. of 8-8-8 or equivalent in the spring and repeat in the fall.
- 66. Per 1,000 sq. ft. apply 14 lb. 8-8-8 or equivalent in the spring and at 2-month intervals for four applications.

Crop Code No. 45

GOLF FAIRWAY

Phosphorus	Potassium					
	Very high	High	Medium	Low	Very low	
	Pounds N-P ₂ O ₅ -K ₂ O per acre					
Very high	120- 0-0	120- 0-0	120- 0-40	120- 0-80	120- 0-80	
High	120- 0-0	120- 0-0	120-40-40	120-40-80	120-40-80	
Medium	120-40-0	120-40-0	120-40-40	120-40-80	120-40-80	
Low	120-80-0	120-80-0	120-80-80	120-80-80	120-80-80	
Very low	120-80-0	120-80-0	120-80-80	120-80-80	120-80-80	
K Requirement level				2	N Rate	120
Lime Code No.				5	PK Code No.	12
Mg Code No.				1		

COMMENT:

67. On fairways, apply 60 lb. of N with the recommended rates of P₂O₅ and K₂O in the spring. Apply additional N as needed at the rate of 60 lb. per acre per application.

Crop Code No. 46

ATHLETIC FIELD

Phosphorus	Potassium					
	Very high	High	Medium	Low	Very low	
	Pounds N-P ₂ O ₅ -K ₂ O per acre					
Very high	200- 0-0	200- 0-0	200- 0-40	200- 0-80	200- 0-80	
High	200- 0-0	200- 0-0	200-40-40	200-40-80	200-40-80	
Medium	200-40-0	200-40-0	200-40-40	200-40-80	200-40-80	
Low	200-80-0	200-80-0	200-80-80	200-80-80	200-80-80	
Very low	200-80-0	200-80-0	200-80-80	200-80-80	200-80-80	
K Requirement level				2	N Rate	200
Lime Code No.				5	PK Code No.	12
Mg Code No.				1		

COMMENT:

68. For athletic fields, nitrogen should be divided into four applications at 2-month intervals beginning in March. Apply additional nitrogen at the rate of 50 lb. of N (150 lb. ammonium nitrate or equivalent) per acre if needed to maintain desired growth and color. A football field plus 20 feet on all sides is about 2 acres.

Crop Code No. 47

ROADSIDE TURF ESTABLISHMENT

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0- 0	120- 0-80	120- 0-160	120- 0-160
High	120- 0-0	120- 40-40	120- 40-80	120- 40-160	120- 40-160
Medium	120- 80-0	120- 80-40	120- 80-80	120- 80-160	120- 80-160
Low	120-160-0	120-160-40	120-160-80	120-160-160	120-160-160
Very low	120-160-0	120-160-40	120-160-80	120-160-160	120-160-160
K Requirement level	2			N Rate	
Lime Code No.	1			120	
Mg Code No.	1			PK Code No.	
	1			15	

COMMENTS:

69. Before planting turf, mix recommended lime, phosphorus, potassium, and 80 lb. of N/acre into the surface soil before planting. One month after planting, apply 40 lb. of N/acre.

70. After establishing turf as recommended above, apply 40 lb. of N, P₂O₅, and K₂O/acre at 6-month intervals.

Crop Code No. 48

ROADSIDE TURF MAINTENANCE

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0	80- 0-0	80- 0-40	80- 0-80	80- 0-80
High	80- 0-0	80- 0-0	80-40-40	80-40-80	80-40-80
Medium	80-40-0	80-40-0	80-40-40	80-40-80	80-40-80
Low	80-80-0	80-80-0	80-80-80	80-80-80	80-80-80
Very low	80-80-0	80-80-0	80-80-80	80-80-80	80-80-80
K Requirement level	2			N Rate	
Lime Code No.	1			80	
Mg Code No.	1			PK Code No.	
	1			12	

RECOMMENDATIONS FOR GARDENS AND COMMERCIAL VEGETABLE CROPS

Crop Code No. 60

HOME VEGETABLE GARDEN

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0 (72)	120- 0-60 (73)	120- 0-120 (74)	120- 0-180 (75)	120- 0-180 (75)
High	120- 60-0 (76)	120- 60-60 (77)	120- 60-120 (78)	120- 60-180 (79)	120- 60-180 (79)
Medium	120-120-0 (80)	120-120-60 (81)	120-120-120 (82)	120-120-180 (83)	120-120-180 (83)
Low	120-180-0 (84)	120-180-60 (85)	120-180-120 (86)	120-180-180 (87)	120-180-180 (87)
Very low	120-180-0 (84)	120-180-60 (85)	120-180-120 (86)	120-180-180 (87)	120-180-180 (87)
K Requirement level	.....2			N Rate .....120	
Lime Code No.	.....1			PK Code No. ....21	
Mg Code No.	.....2				

COMMENTS:

- 26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.
- 71. For cauliflower, broccoli and root crops on sandy soils apply 1 lb. boron (B) per acre. (For home gardens, 1 tablespoon borax per 100 ft. of row). For corn in home gardens on sandy soils apply 1 tablespoon zinc sulfate per 100 ft. of row.
- 72. Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 73. Per 1,000 sq. ft. broadcast 2.3 lb. muriate of potash (1 quart). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 74. Per 1,000 sq. ft. broadcast 4.6 lb. muriate of potash (2 quarts). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 75. Per 1,000 sq. ft. broadcast 7 lb. muriate of potash (3 quarts). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 76. Per 1,000 sq. ft. broadcast 7.5 lb. superphosphate (4 quarts). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 77. Per 100 ft. of row apply 5 lb. of 8-8-8 (2½ quarts) at planting and sidedress with 0.4 lb. N (1 pint ammonium nitrate).
- 78. Per 1,000 sq. ft. broadcast 2.3 lb. muriate of potash (1 quart). Per 100 ft. of row apply 5 lb. 8-8-8 (2½ quarts) at planting and sidedress with 0.4 lb. N (1 pint ammonium nitrate).
- 79. Per 1,000 sq. ft. broadcast 4.6 lb. muriate of potash (2 quarts). Per 100 ft. of row apply 5 lb. 8-8-8 (2½ quarts) at planting and sidedress with 0.4 lb. N (1 pint ammonium nitrate).
- 80. Per 1,000 sq. ft. broadcast 15.0 lb. superphosphate (8 quarts). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 81. Per 1,000 sq. ft. broadcast 7.5 lb. superphosphate (4 quarts). Per 100 ft. of row apply 5 lb. 8-8-8 (2½ quarts) at planting and sidedress with 0.4 lb. N (1 pint ammonium nitrate).
- 82. Per 100 ft. of row apply 6 lb. 8-8-8 (3 quarts) at planting and sidedress with 4 lb. 8-8-8 (2 quarts).
- 83. Per 1,000 sq. ft. broadcast 2.3 lb. muriate of potash (1 quart). Per 100 ft. of row apply 6 lb. 8-8-8 (3 quarts) at planting and sidedress with 4 lb. 8-8-8 (2 quarts).
- 84. Per 1,000 sq. ft. broadcast 20 lb. superphosphate (11 quarts). Per 100 ft. of row apply 0.4 lb. N (1 pint ammonium nitrate) at planting and sidedress with 0.4 lb. N.
- 85. Per 1,000 sq. ft. broadcast 7.5 lb. superphosphate (4 quarts). Per 100 ft. of row apply 6 lb. 8-8-8 (3 quarts) at planting and sidedress with 0.4 lb. N (1 pint ammonium nitrate).
- 86. Per 1,000 sq. ft. broadcast 7.5 lb. superphosphate (4 quarts). Per 100 ft. of row apply 6 lb. 8-8-8 (3 quarts) at planting and sidedress with 4 lb. 8-8-8 (2 quarts).

87. Per 1,000 sq. ft. broadcast 35 lb. 4-12-12 at planting. Per 100 ft. of row sidedress with 0.4 lb. N (1 pint ammonium nitrate).

88. For strawberries apply about 1/3 of the fertilizer in September, 1/3 about 90 days before ripening and 1/3 after harvest. (60, 63)

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use contact your county agent or fertilizer supplier.

Crop Code No. 61

COMMERCIAL VEGETABLE CROPS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0-60	120- 0-120	120- 0-180	120- 0-180
High	120- 60-0	120- 60-60	120- 60-120	120- 60-180	120- 60-180
Medium	120-120-0	120-120-60	120-120-120	120-100-200	120-100-200
Low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180
Very low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180
K Requirement level	.....2			N Rate .....120	
Lime Code No.	.....1			PK Code No. ....18	
Mg Code No.	.....2				

COMMENT:

100. For cauliflower, broccoli, and root crops, apply 1 lb. of boron (B) per acre.

Crop Code No. 62

TOMATOES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0-60	120- 0-120	120- 0-180	120- 0-180
High	120- 60-0	120- 60-60	120- 60-120	120- 60-180	120- 60-180
Medium	120-120-0	120-120-60	120-120-120	120-100-200	120-100-200
Low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180
Very low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180
K Requirement level	.....2			N Rate .....120	
Lime Code No.	.....2			PK Code No. ....18	
Mg Code No.	.....2				

COMMENTS:

89. Apply 1,000 lb. of gypsum per acre to tomatoes before planting. (Where calcium is rated low and no lime is recommended.)

90. Apply 500 lb. of gypsum per acre to tomatoes before planting. (Where calcium is rated medium and no lime is recommended.)

Crop Code 63.

SWEET POTATOES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0	80- 0-80	80- 0-120	80- 0-160	80- 0-200
High	80- 40-0	80- 40-80	80- 60-120	80- 80-160	80- 40-200
Medium	80- 80-0	80- 80-80	80- 80-160	80- 80-160	80-100-200
Low	80-120-0	80-160-80	80-120-120	80-160-160	80-200-200
Very low	80-120-0	80-160-80	80-120-120	80-160-160	80-200-200
K Requirement level	.....2			N Rate .....80	
Lime Code No.	.....1			PK Code No. ....24	
Mg Code No.	.....2				

Crop Code No. 64

IRISH POTATOES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 50-0	120- 50- 50	120- 50-100	120- 50-150	120- 50-150
High	120-100-0	120-100-100	120- 70-140	120-100-200	120-100-200
Medium	120-150-0	120-150-100	120-150-150	120-100-200	120-100-200
Low	120-200-0	120-200-100	120-200-100	120-200-200	120-200-200
Very low	120-200-0	120-200-100	120-200-100	120-200-200	120-200-200
K Requirement level	.....2			N Rate .....120	
Lime Code No.	.....4			PK Code No. ....17	
Mg Code No.	.....3				

COMMENT:

98. Where Irish potatoes are grown in rotation with other crops, follow lime recommendation for Irish potatoes.

Crop Code No. 65

WATERMELONS, CANTALOUPEs, CUCUMBERS, LIMA BEANS,
SNAP BUNCH BEANS, SQUASH, AND OKRA

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	80- 0-0	80- 0-40	80- 0-80	80- 0-120	80- 0-120
High	80- 80-0	80- 40-40	80- 40-80	80- 60-120	80- 60-120
Medium	80- 80-0	80- 80-40	80- 80-80	80- 60-120	80- 60-120
Low	80-120-0	80-120-60	80-120-60	80-120-120	80-120-120
Very low	80-120-0	80-120-60	80-120-60	80-120-120	80-120-120
K Requirement level	.....2			N Rate .....80	
Lime Code No.	.....1			PK Code No. ....19	
Mg Code No.	.....2				

Crop Code No. 66

SWEET CORN

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	150- 0-0	150- 0-0	150- 0-60	150- 0- 90	150- 0-120
High	150- 0-0	150- 0-0	150- 0-60	150- 0- 90	150- 0-120
Medium	150- 60-0	150- 60-0	150- 60-60	150- 50-100	150- 60-120
Low	150-100-0	150-100-0	150-100-50	150- 90- 90	150-120-120
Very low	150-120-0	150-120-0	150-120-60	150-120-120	150-140-140
K Requirement level				N Rate	150
Lime Code No.				PK Code No.	2
Mg Code No.					2

COMMENT:

91. Apply 3 lb. of zinc (Zn) per acre in corn fertilizer.

Crop Code No. 67

PEPPER, PIMIENTO

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	100- 0- 0	100- 0-60	100- 0-120	100- 0-180	100- 0-180
High	100- 60- 0	100- 60-60	100- 60-120	100- 60-180	100- 60-180
Medium	100-120- 0	100-120-60	100-120-120	100-100-200	100-100-200
Low	100-180- 0	100-180-90	100-180- 90	100-180-180	100-180-180
Very low	100-180- 0	100-180-90	100-180- 90	100-180-180	100-180-180
K Requirement level				N Rate	100
Lime Code No.				PK Code No.	18
Mg Code No.					2

RECOMMENDATIONS FOR SHRUBS AND FLOWERS

Crop Code No. 80

SHRUBS AND PERENNIAL FLOWERS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0 (92)	120- 0-0 (92)	120- 0-60 (93)	120- 0-120 (94)	120- 0-120 (94)
High	120- 0-0 (92)	120- 0-0 (92)	120- 0-60 (93)	120- 0-120 (94)	120- 0-120 (94)
Medium	120- 60-0 (115)	120- 60-0 (115)	120- 60-60 (95)	120- 60-120 (96)	120- 60-120 (96)
Low	120-120-0 (97)	120-120-0 (97)	120-120-60 (116)	120-120-120 (99)	120-120-120 (99)
Very low	120-120-0 (97)	120-120-0 (97)	120-120-60 (116)	120-120-120 (99)	120-120-120 (99)
K Requirement level	.....2			N Rate .....120	
Lime Code No.	.....1			PK Code No. ....16	
Mg Code No.	.....2				

Suggestions for meeting recommendations:

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.
 92. Per 100 sq. ft. apply 1 cup ammonium nitrate or equivalent in early spring and repeat in early summer.

93. Per 100 sq. ft. apply 1 pint 15-0-15 or equivalent in early spring and then apply 1 cup ammonium nitrate or equivalent in early summer.

94. Per 100 sq. ft. apply 1 pint 15-0-15 or equivalent in early spring and repeat in early summer.

95. Per 100 sq. ft. apply 1 quart 8-8-8 or equivalent in early spring and then apply 1 cup ammonium nitrate or equivalent in early summer.

96. Per 100 sq. ft. apply 1 quart 8-8-8 or equivalent in early spring and then apply 1 pint 15-0-15 in early summer.

97. Per 100 sq. ft. apply 1½ pints superphosphate or equivalent and 1 cup ammonium nitrate or equivalent in early spring and then apply 1 cup ammonium nitrate in early summer.

99. Per 100 sq. ft. apply 1 quart 8-8-8 or equivalent in early spring and repeat in early summer.

115. Per 100 sq. ft. apply ¾ pint superphosphate or equivalent plus 1 cup ammonium nitrate or equivalent in early spring then 1 cup ammonium nitrate or equivalent in early summer.

116. Per 100 sq. ft. apply ¾ pint superphosphate or equivalent plus 1 quart 8-8-8 or equivalent in early spring then apply 1 cup ammonium nitrate or equivalent in early summer.

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

117. Shrubs - Final remark on liming. For shrubs such as azaleas, gardenias, and rhododendron which require acid soil do not apply lime. If the pH is below 5.0 you may wish to check with your county agent concerning the advisability of using a reduced rate of lime for these shrubs.

ROSES, MUMS, AND ANNUAL FLOWERS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0 (103)	120- 0-0 (103)	120- 0-60 (104)	120- 0-120 (105)	120- 0-120 (105)
High	120- 0-0 (103)	120- 0-0 (103)	120- 0-60 (104)	120- 0-120 (105)	120- 0-120 (105)
Medium	120- 60-0 (102)	120- 60-0 (102)	120- 60-60 (106)	120- 60-120 (107)	120- 60-120 (107)
Low	120-120-0 (108)	120-120-0 (108)	120-120-60 (109)	120-120-120 (110)	120-120-120 (110)
Very low	120-120-0 (108)	120-120-0 (108)	120-120-60 (109)	120-120-120 (110)	120-120-120 (110)
K Requirement level	.....2			N Rate	.....120
Lime Code No.	.....1			PK Code No.	.....16
Mg Code No.	.....2				

Suggestions for meeting recommendations:

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft.
 102. Per 100 sq. ft. apply ¾ pint superphosphate or equivalent and ½ cup ammonium nitrate or equivalent when spring growth begins. Repeat the ammonium nitrate application monthly until August 1.

103. Per 100 sq. ft. apply ½ cup ammonium nitrate or equivalent when spring growth begins and repeat monthly until August 1. If phosphorus is excessive then fertilizers containing this element should not be used. Excessive phosphorus may cause an iron deficiency. The symptoms occur as a general yellowing of new growth. To correct, spray with a soluble source of iron which can be found at garden supply stores.

104. Per 100 sq. ft. apply alternately 1 cup 15-0-15 or equivalent and ½ cup ammonium nitrate or equivalent monthly starting when spring growth begins. Make last application about August 1. If phosphorus is excessive, then fertilizers containing this element should not be used. Excessive phosphorus may cause an iron deficiency. The symptoms occur as a general yellowing of new growth. To correct, spray with a soluble source of iron which can be found at garden supply stores.

105. Per 100 sq. ft. apply 1 cup 15-0-15 when spring growth begins and repeat monthly until August 1. If phosphorus is excessive then fertilizers containing this element should not be used. Excessive phosphorus may cause an iron deficiency. The symptoms occur as a general yellowing of new growth. To correct, spray with a soluble source of iron which can be found at garden supply stores.

106. Per 100 sq. ft. apply alternately 2 cups 8-8-8 and ½ cup ammonium nitrate or equivalent at monthly intervals starting when spring growth begins. Make last application about August 1.

107. Per 100 sq. ft. apply 2 cups 8-8-8 or equivalent and 1 cup 15-0-15 or equivalent at monthly intervals starting when spring growth begins. Make last application about August 1.

108. Per 100 sq. ft. apply 1½ pints superphosphate or equivalent, apply ½ cup ammonium nitrate or equivalent when spring growth begins and repeat ammonium nitrate application monthly until August 1.

109. Per 100 sq. ft. apply 1 cup superphosphate or equivalent as corrective treatment. Then apply alternately 2 cups 8-8-8 and ½ cup ammonium nitrate or equivalent at monthly intervals starting when spring growth begins. Make the last application about August 1.

110. Per 100 sq. ft. apply 1½ cups 8-8-8 or equivalent when spring growth begins and repeat monthly until August 1.

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

GREENHOUSE CROPS (ANNUALS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	240- 0-0 (202)	240- 0-120 (203)	240- 0-120 (203)	240- 0-240 (204)	240- 0-240 (204)
High	240-120-0 (205)	240-120-120 (206)	240-120-120 (206)	240-120-240 (207)	240-120-240 (207)
Medium	240-120-0 (205)	240-120-120 (206)	240-240-240 (208)	240-240-240 (208)	240-240-240 (208)
Low	240-240-0 (209)	240-240-120 (210)	240-240-240 (208)	240-240-240 (208)	240-240-240 (208)
Very low	240-240-0 (209)	240-240-120 (210)	240-240-240 (208)	240-240-240 (208)	240-240-240 (208)

K Requirement level	.....2	N Rate	.....240
Lime Code No.	.....1	PK Code No.	.....22
Mg Code No.	.....2		

COMMENTS:

201. To correct acidity, apply dolomitic limestone as recommended. 1.0 ton per acre is 5 lb. per 2 cu. yd. or per 100 sq. ft.

211. The soluble salts reading is _____.

Suggestions for meeting recommendations.

202. Per 100 sq. ft. apply ½ cup ammonium nitrate or equivalent every 2 weeks in 25 gallons of water.

203. Per 100 sq. ft. apply alternately 1 cup 15-0-15 or equivalent and ½ cup ammonium nitrate or equivalent every 2 weeks in 25 gallons of water.

204. Per 100 sq. ft. apply 1 cup 15-0-15 or equivalent every 2 weeks in 25 gallons of water.

205. Per 2 cu. yd. or 100 sq. ft. apply 2½ lb. superphosphate or equivalent as a corrective treatment. Per 100 sq. ft. apply ½ cup ammonium nitrate or equivalent every 2 weeks in 25 gallons of water.

206. Per 2 cu. yd. or 100 sq. ft. apply 4 lb. 8-8-8 or equivalent as a corrective treatment. Per 100 sq. ft. apply ¼ cup ammonium nitrate or equivalent every 2 weeks in 25 gallons of water.

207. Per 2 cu. yd. or 100 sq. ft., apply 4 lb. 8-8-8 or equivalent as a corrective treatment. Per 100 sq. ft., apply ½ cup 15-0-15 every 2 weeks in 25 gal. water.

208. Per 2 cu. yd. or 100 sq. ft. apply 4 lb. 8-8-8 or equivalent as a corrective treatment. Per 100 sq. ft. apply 1 lb. 8-8-8 or equivalent every 2 weeks in 25 gal. water.

209. Per 2 cu. yd. or 100 sq. ft. apply 5 lb. superphosphate or equivalent as a corrective treatment. Per 100 sq. ft. apply ¼ cup ammonium nitrate or equivalent every 2 weeks in 25 gal. water.

210. Per 2 cu. yd. or 100 sq. ft., apply 4 lb. 8-8-8 or equivalent plus 2½ lb. superphosphate or equivalent as a corrective treatment. Per 100 sq. ft., apply ¼ cup ammonium nitrate or equivalent every 2 weeks in 25 gal. water.

Crop Code No. 84

This crop code is primarily used for potting soil. The computer prints pounds per acre of soil-test P, K, Ca, and Mg. It also gives the soil pH and the lime requirement to bring the soil pH up to 6.5. Spaces are also printed in which soluble salts and nitrates are recorded by hand. Generally all reports that receive crop code 84 are sent to the extension horticulture specialist for fertilizer and lime recommendations.

Crop Code No. 85

CHRISTMAS TREES (CEDAR, VA. PINES,
PINES, ARIZONA CYPRUS)

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	•- 0-0	•- 0-0	•- 0-40	•- 0-80	•- 0-80
High	•- 0-0	•- 0-0	•- 0-40	•- 0-60	•- 0-80
Medium	•-40-0	•-40-0	•-40-40	•-60-60	•-40-80
Low	•-60-0	•-60-0	•-60-60	•-60-60	•-80-80
Very low	•-80-0	•-80-0	•-80-40	•-80-80	•-80-80

K Requirement level 1 N Rate *

Lime Code No. 4 PK Code No. 4

Mg Code No. 3

COMMENT:

*172. Christmas trees - Final remark. Apply dolomitic lime and P and K fertilizer as recommended and work into the soil before planting. After the first year, make applications of up to 30 lb. N per acre as needed to give desired growth.

RECOMMENDATIONS FOR FRUITS AND NUTS

Crop Code No. 89

STRAWBERRIES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	120- 0-0	120- 0-60	120- 0-120	120- 0-180	120- 0-180
High	120- 60-0	120- 60-60	120- 60-120	120- 60-180	120- 60-180
Medium	120-120-0	120-120-60	120-120-120	120-100-200	120-100-200
Low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180
Very low	120-180-0	120-180-90	120-180- 90	120-180-180	120-180-180

K Requirement level 2 N Rate 120

Lime Code No. 1 PK Code No. 18

Mg Code No. 2

COMMENT:

88. For strawberries, apply about 1/3 of the fertilizer in September, about 1/3 90 days before ripening and the remainder after harvesting.

Crop Code No. 90

PEACHES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	*- 0-0	*- 0-0	*- 0-30	*- 0-60	*- 0-60
High	*- 0-0	*- 0-0	*- 0-30	*- 0-60	*- 0-60
Medium	*-30-0	*-30-0	*-30-30	*-30-60	*-30-60
Low	*-60-0	*-60-0	*-60-30	*-60-60	*-90-90
Very low	*-60-0	*-60-0	*-60-30	*-90-90	*-90-90

K Requirement level 1 N Rate *

Lime Code No. 2 PK Code No. 20

Mg Code No. 2

COMMENT:

*114. Peaches - Final remark. For establishing new orchards, apply lime and P and K fertilizer as recommended and turn to a depth of 12 to 16 inches, then repeat the application and disk into the topsoil. Apply 0.2 lb. Zn (½ lb. 36 percent zinc sulfate) per tree at planting. Maintain soil pH at about 6.5 by reliming as needed by soil test.

For annual maintenance apply P and K fertilizer as recommended. For the first and second leaf apply 0.08 lb. N (4 oz. ammonium nitrate or equivalent) per tree per year of age about February 15, then repeat 2 or 3 times at 6-week intervals beginning at initiation of new growth. In third leaf apply 0.6 lb. N (1½ lb. ammonium nitrate) per tree, in fourth leaf apply 0.8 lb. N (2 1/3 lb. ammonium nitrate), and in 5th leaf or older apply 1.0 lb. N (3 lb. ammonium nitrate) per tree. Beginning in third leaf apply 2/3 of the N in February and 1/3 of the N after harvest.

Crop Code No. 91

MUSCADINE GRAPES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	*- 0-0	*- 0-0	*- 0-30	*- 0-60	*- 0-60
High	*- 0-0	*- 0-0	*- 0-30	*- 0-60	*- 0-60
Medium	*-30-0	*-30-0	*-30-30	*-30-60	*-30-60
Low	*-60-0	*-60-0	*-60-30	*-60-60	*-90-90
Very low	*-60-0	*-60-0	*-60-30	*-90-90	*-90-90

K Requirement level 1 N Rate *

Lime Code No. 2 PK Code No. 20

Mg Code No. 2

COMMENT:

*124. Muscadine grapes - Final remark. Apply P and K as recommended above and maintain pH in range of 6.0 to 7.0 by liming as needed according to soil test.

Nitrogen should be applied as follows: In first and second year apply 0.04 lb. N (2 oz. ammonium nitrate) per plant per year of age in February and repeat in May and early July.

In third year apply 0.16 lb. N (½ lb. ammonium nitrate) per plant in March and repeat in late May after fruit set.

In fourth year and later apply 0.32 lb. N (1 lb. ammonium nitrate) in March and 0.16 lb. N per plant per year of age in late May up to a maximum application of .55 lb. N per plant or 100 lb. N per acre.

APPLES, PEARS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	* 0-0	* 0-0	* 0-30	* 0-60	* 0-60
High	* 0-0	* 0-0	* 0-30	* 0-60	* 0-60
Medium	* 30-0	* 30-0	* 30-30	* 30-60	* 30-60
Low	* 60-0	* 60-0	* 60-30	* 60-60	* 90-90
Very low	* 60-0	* 60-0	* 60-30	* 90-90	* 90-90

K Requirement level 1 N Rate *

Lime Code No. 2 PK Code No. 20

Mg Code No. 2

COMMENT:

*125. Apples - Final remark. For establishing new orchards, apply lime and P and K fertilizer as recommended and turn to a depth of 12 to 16 inches, then repeat the application and disk into topsoil. Maintain soil pH in range of 6.0 to 7.0 by reliming as needed by soil test.

For annual maintenance apply P and K fertilizer as recommended. For young trees apply 0.1 lb. N (10 oz. calcium nitrate) per tree per year of age through the fourth leaf. For the fifth through ninth leaf apply 50 to 60 lb. N per acre and for 10 year or older trees apply 70 lb. N per acre. (Calcium nitrate is recommended as a source of N for apples.)

Zinc: To correct zinc (Zn) deficiency in apples apply 0.08 lb. Zn (.24 lb. zinc sulfate) per tree. To prevent Zn deficiency apply 0.04 lb. Zn (.12 lb. zinc sulfate) per tree. This rate is based on about 200 trees per acre. For higher populations reduce the rate per tree so that not more than 50 lb. zinc sulfate per acre is used for correction and not more than 25 lb. for prevention.

Boron: Make 2 sprays using 1 lb. Solubor per 100 gallons of water. Begin at late bloom and repeat 2 weeks later. If B sprays are not used make a soil application of 2lb. B per acre annually.

Calcium: Make 4 sprays using either 3 lb. calcium nitrate or 3 lb. calcium chloride per 100 gallons of water. Begin 2 weeks after late bloom and repeat 3 times at 2-week intervals.

For bitter pit: If calcium sprays are not made in early spring they should be applied as recommended above beginning 8 weeks prior to anticipated harvest.

Crop Code No. 93

PLUMS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	°- 0-0	°- 0-0	°- 0-30	°- 0-60	°- 0-60
High	°- 0-0	°- 0-0	°- 0-30	°- 0-60	°- 0-60
Medium	°-30-0	°-30-0	°-30-30	°-30-60	°-30-60
Low	°-60-0	°-60-0	°-60-30	°-60-60	°-90-90
Very low	°-60-0	°-60-0	°-60-30	°-90-90	°-90-90

K Requirement level	1	N Rate	°
Lime Code No.	2	PK Code No.	20
Mg Code No.	2		

COMMENT:

*135. Plums - Final remark. For establishing new orchards, apply lime and P and K fertilizer as recommended and turn to a depth of 12 to 16 inches, then repeat the application and disk into the topsoil. Apply 0.2 lb. Zn (½ lb. 36 percent zinc sulfate) per tree at planting. Maintain soil pH at about 6.5 by reliming as needed by soil test.

For annual maintenance apply P and K fertilizer as recommended. For the first and second leaf apply 0.08 lb. N (4 oz. ammonium nitrate or equivalent) per tree per year of age about February 15, then repeat 2 or 3 times at 6-week intervals beginning at initiation of new growth. In third leaf apply 0.6 lb. N (1½ lb. ammonium nitrate) per tree, in fourth leaf apply 0.8 lb. N (2 1/3 lb. ammonium nitrate) and in fifth leaf or older apply 1.0 lb. N (3 lb. ammonium nitrate) per tree. Beginning in third leaf apply 2/3 of the N in February and 1/3 of the N after harvest. If borated fertilizer is not used to supply boron, apply 1.0 lb. boron (B) per acre or 5 tablespoons borax per tree.

Crop Code No. 94

PECANS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	°- 0-0	°- 0-0	°- 0-30	°- 0-60	°- 0-60
High	°- 0-0	°- 0-0	°- 0-30	°- 0-60	°- 0-60
Medium	°-30-0	°-30-0	°-30-30	°-30-60	°-30-60
Low	°-60-0	°-60-0	°-60-30	°-60-60	°-90-90
Very low	°-60-0	°-60-0	°-60-30	°-90-90	°-90-90

K Requirement level	1	N Rate	°
Lime Code No.	2	PK Code No.	20
Mg Code No.	2		

*136. Pecans - Final remark. Apply P and K as recommended above. For trees 20 years old or more apply 6 to 8 lb. N (20 to 25 lb. ammonium nitrate or equivalent) per tree or 100 lb. N per acre broadcast in February. For younger trees apply 0.5 lb. of N (1.5 lb. ammonium nitrate or equivalent) per tree per year of age. For trees 4 years and older showing zinc deficiency apply 35 to 50 lb. of Zn (100 to 140 lb. 36 percent zinc sulfate) per acre and disk into topsoil to about 6 inches. In addition, apply 2 to 4 foliar sprays of zinc sulfate at the rate of 2 to 4 lb. per 100 gallons of water during April and early May the first year after soil application. Thereafter, monitor Zn leaf levels by leaf analysis. For younger trees apply 0.25 lb. of Zn per tree per year of tree age and work into soil. Full benefit from fertilization will not be obtained unless a good spray program for disease and insect control is followed.

HOME ORCHARD

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	• 0-0 (158)	• 0-0 (158)	• 0-50 (159)	• 0-50 (159)	• 0-50 (159)
High	• 0-0 (158)	• 0-0 (158)	• 0-50 (159)	• 0-50 (159)	• 0-50 (159)
Medium	• 50-0 (160)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)
Low	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)
Very low	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)	• 50-50 (161)

K Requirement level2 N Rate*

Lime Code No.2 PK Code No.23

Mg Code No.2

COMMENTS:

26. 1.0 ton limestone per acre is approximately equivalent to 50 lb. per 1,000 sq. ft. No P or K needed. Apply N for individual trees as recommended below.

159. Per 1,000 sq. ft. apply 2.0 lb. muriate of potash then apply N for individual trees as recommended below.

160. Per 1,000 sq. ft. apply 6 lb. 20 percent superphosphate or equivalent. Apply N for individual plants as recommended below.

161. Per 1,000 sq. ft. apply 8 lb. 0-14-14. Apply N for individual trees as recommended below.

162. Home orchards - Final remark. Apply nitrogen for individual plants as follows:
Peaches, plums, pecans: Apply 0.16 lb. N (½ lb. ammonium nitrate) per plant per year of age up to a maximum of 1.0 lb. N per tree for peaches, 0.8 lb. N per tree for plums, and 10 lb. N per tree for pecans.

Pears: Apply 0.06 lb. N (.2 lb. ammonium nitrate) per tree per year of age up to a maximum of 0.56 lb. N per tree.

Apples: Apply 0.08 lb. N (.25 lb. ammonium nitrate) per plant per year of age up to a maximum of 0.56 lb. N per plant.

Figs, grapes: Apply 0.04 lb. N (.12 lb. ammonium nitrate) per plant per year of age up to a maximum of 0.56 lb. per plant.

Strawberries: Apply 0.3 lb. N (1 lb. ammonium nitrate) per 100 ft. of row in October; repeat 90 days before ripening and again after harvest.

Blackberries: Apply 1.0 to 1.3 lb. N (3 to 4 lb. ammonium nitrate) per 100 ft. of row in February and 0.5 to 0.7 lb. N (1½ to 2 lb. ammonium nitrate) after harvest.

Blueberries: Apply 0.02 lb. N (0.1 lb. ammonium sulfate) per plant per year of age up to a maximum of 0.14 lb. N per plant. Split into two applications — one in February and one in June or after harvest. Ammonium N sources are recommended for blueberries. **Do Not Lime** for blueberries.

Note: For plants not mentioned above use the recommendations for plants with similar growth characteristics.

*112. - Final remark. For small areas, comments give examples of ways to meet the fertilizer recommendations. Other fertilizer grades or materials that supply equivalent amounts of plant nutrients may be used with equal results. If you need assistance in calculating amounts of other materials to use, contact your county agent or fertilizer supplier.

Crop Code No. 96

BLUEBERRIES

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	*- 0-0	*- 0- 0	*- 0-50	*- 0-50	*- 0-50
High	*- 0-0	*- 0- 0	*- 0-50	*- 0-50	*- 0-50
Medium	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
Low	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
Very low	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
K Requirement level	.....2			N Rate *	
Lime Code No.	.....0			PK Code No. ....25	
Mg Code No.	.....3				

COMMENT:

*163. Blueberries - Final remark. Apply P and K as recommended in February. Apply 2 to 4 oz. magnesium sulfate per plant on non-bearing plants and 6 to 8 oz. on fruit bearing plants.

Apply nitrogen as follows: During first 3 years, apply 0.01 lb. N (0.05 lb. ammonium sulfate) per plant per year of age in February and repeat in June.

Beginning in fourth year, apply 0.01 lb. N (0.05 lb. ammonium sulfate) per plant per year of age in February and repeat after harvest up to a maximum of 0.07 lb. N per application or 0.14 lb. N per year.

Ammonium N sources are recommended for blueberries.

Crop Code No. 97

FIGS

Phosphorus	Potassium				
	Very high	High	Medium	Low	Very low
	Pounds N-P ₂ O ₅ -K ₂ O per acre				
Very high	*- 0-0	*- 0- 0	*- 0-50	*- 0-50	*- 0-50
High	*- 0-0	*- 0- 0	*- 0-50	*- 0-50	*- 0-50
Medium	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
Low	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
Very low	*-50-0	*-50-50	*-50-50	*-50-50	*-50-50
K Requirement level	.....2			N Rate *	
Lime Code No.	.....2			PK Code No. ....25	
Mg Code No.	.....2				

COMMENT:

*166. Figs - Final remark. Apply P and K fertilizer as recommended in February and lime as needed according to soil test to maintain soil pH in range of 6.0 to 7.0.

Apply 0.04 lb. N (.12 lb. ammonium nitrate) per plant per year of age up to a maximum of .56 lb. N per plant split into two applications — one in late winter and a second in May or June.

Crop Code No. 98

CHECKS AND BLANKS

A supply of check soil samples from each soil group and on which the soil test values are known is maintained in the laboratory. One of these samples and a blank, which contains no soil, are run through all procedures with each batch of 30 to 45 samples, to be certain that accuracy of analysis is maintained in the laboratory.

RESEARCH

This crop code number is used primarily for research samples. The computer prints pounds per acre of soil-test P, K, Ca, and Mg, and soil pH on regular soil-test forms. Lime recommended is to raise soil pH to 6.5. This code can also be used on other samples when this information is desired.

Special Comments That May Be Added By The Computer When Needed.

146. Type of pasture plants to be grown was unknown. If other than above, please notify the Soil Testing Laboratory and proper recommendations will be given.

149. Crops to be grown were unknown. If other than above, please notify the Soil Testing Laboratory for proper recommendations.

150. For a nematode analysis, contact your local County Extension Office for supplies and instructions.

151. Type of lawn grass that you are growing was unknown. If it is other than above, notify the Soil Testing Laboratory for proper recommendations.

152. It was not known if grass species is for a lawn or pasture. Therefore, we have given you both recommendations for this grass and you should follow the appropriate one.

153. If above lawn grasses are mixed, follow the recommendation for the grass you prefer.

154. For additional information, contact your local County Extension Office.

157. If cool-season grasses (fescue, orchardgrass, ryegrass, etc.) and clovers are grown in the same pasture with summer grasses (bahia, bermuda, dallis, etc.) follow the recommendation for the crop which you prefer.

Comment 221. Both soil acidity and low magnesium can be corrected by applying dolomitic lime at the recommended rate.

Comment 222. Low magnesium may be corrected by applying 25 pounds per acre of Mg as magnesium sulfate, magnesium oxide, or sulfate of potash-magnesium; or if the pH is 6.5 or below, by applying 1,000 pounds per acre of dolomitic limestone.

Comment 223. Low magnesium may be corrected by applying 25 pounds per acre of Mg as magnesium sulfate, magnesium oxide, or sulfate of potash-magnesium. These crops have a high Mg requirement but are sensitive to high pH. (Irish potatoes, blueberries, Christmas trees, tobacco).

If crop codes 13 and 17 appear together then comment 250 should appear:

Comment 250. For corn-peanut rotations, apply all the recommended P and K to the corn. No additional P or K should be needed by the peanuts the following year. The recommendation for corn in the rotation is:

If crop codes 13 and 24 appear together then comment 251 should appear:

Comment 251. For corn-soybean rotations, apply all the recommended P and K to the corn. No additional P or K should be needed by the soybeans the following year. The recommendation for corn in the rotation is:

If crop codes 27 and 17 appear together then comment 252 should appear:

Comment 252. For small grain-peanut rotations, apply all the recommended P and K to the small grain. No additional P or K should be needed for peanuts the following year. The recommendation for small grain in the rotation is:

If crop codes 27 and 24 appear together then comment 253 should appear:

Comment 253. For small grain-soybean rotations, apply all the recommended P and K to the small grain. No additional P or K should be needed for soybeans the following year. The recommendation for small grain in the rotation is:

If lime is recommended and comments 221 or 222 do not appear then comment 254 should appear:

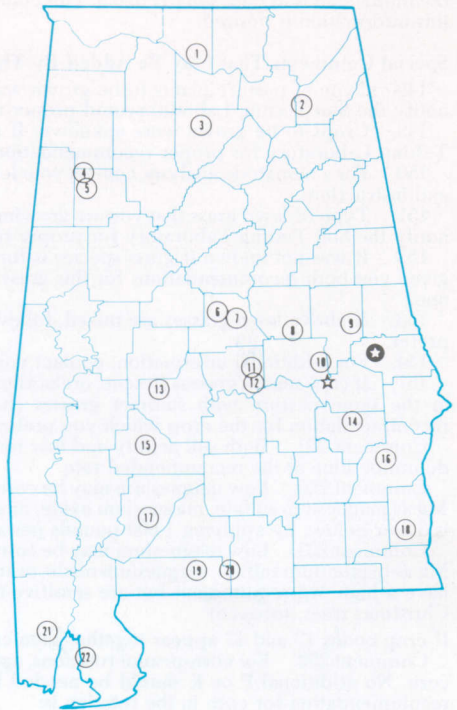
Comment 254. Soil acidity (low pH) can be corrected with either dolomitic or calcitic lime.

If no P or K is recommended on crop codes 1 through 27 then comment 255 should appear:

Comment 255. If no P or K is recommended and none is applied, sample again next year.

Alabama's Agricultural Experiment Station System AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

- ★ Main Agricultural Experiment Station, Auburn.
- ☆ E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. The Turnipseed-Ikenberry Place, Union Springs.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Solon Dixon Forestry Education Center,
Covington and Escambia counties.
21. Ornamental Horticulture Field Station, Spring Hill.
22. Gulf Coast Substation, Fairhope.