Nutrient Recommendations for Alabama Row Crops

Crop, Soil and Environmental Sciences Departmental Series
Alabama Agricultural Experiment Station
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Nutrient Recommendation Tables for Alabama Crops

Introduction

The following tables contain recommendations by crop based on test rating (low, medium, high, etc.) for P and K. These tables allow quick recommedations without using the P and K formulas. Auburn University Soil Testing Recommendations use research-based tables to calculate recommended P and K to the nearest 10 - 30 pounds of P_2O_5 (phosphate) and K_2O (potash). Comments that are printed on the soil test report are also given for each crop.

Interpretation of the Soil Test and Recommendations

The following information is contained in recommendations in this publication:

•**N rate.** Each crop is assigned a standard, annual N rate based upon research conducted throughout Alabama. However, comments given with each crop may modify this rate based upon yield potential, soil, time of application, cropping system, etc.

•**P requirement level.** There are only two levels. Level 1 is for those crops with a low P requirement such as peanut. All other crops fall in level 2. Critical soil test levels for each soil group are presented in Table A. The critical value is that point above which no additional fertilizer is needed for 100 percent yield (See Table A).

•**K requirement level.** Crops are divided into three classes based on their K requirements (Table 1). These classes are (1) low K requirement ex. peanuts) (2) medium K requirement (ex. soybeans and corn and other grasses; and (3) high K requirement (ex. cotton). Ratings for K according to soil group are presented in Table 3.

•**Mg Ratings and Mg Codes.** Magnesium is rated either High (above the critical value) or Low (below the critical value) based on the soil group (Table A). There are three Mg recommendation codes for different crops (page 8).

•**Ca ratings.** Extractable Ca is calibrated only for peanuts. (Table 1). All other crops are not expected to respond to direct Ca applications if the soil is properly limed but receive at rating based upon that for peanuts.

•**Lime recommendation code.** Crops vary in the amount of acidity they can tolerate and still make top yields. They are divided into six classes based on the pH ranges in which they produce best. The classes in Table C provide the basis for ground limestone recommendations for each crop.

Soil-Test Ratings

Results of chemical tests are used to rate the fertility levels of soils for each nutrient element tasted. The ratings range from very low to extremely high. They are influenced by both the nutrient requirments of the crop to be grown and the soil group. The ratings for P and K are based on the relative yield that may be expected without adding the nutrient and when all other elements are in adequate supply.

Very Low (VL)

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

Low (L)

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

Medium(M)

Soil will yield 75 to 100 percent of its potential. Continued annual applications should be made in this range.

High (H)

Nutrient is adequate/optimum/sufficient for the crop, and none is recommended for field and forage crops. Where this recommendation is followed, the soil should be resampled each year.

Very High (VH)

The nutrient is at least twice the amount considered adequate. Application of this nutrient is wasteful.

Extremely High (EH)

The nutrient is at least five times the amount considered High. The level is excessive and further additions may be detrimental to the crop and may contribute to pollution of ground and surface waters.

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Soil Groups

Soils can be Placed into one of four groups based upon the estimat-ed cation exchange capacity (ECEC) of the soil and its location within the state.

Soil Group 1

Sandy soils with an ECEC less than 4.6 cmolc kg^{-1} of soil. Examples of soil series in this group are Dothan, Orangeburg, Alaga, Ruston, and Troup.

Soil Group 2

Loamy and clayey soils with an ECEC of 4.6 to 9.0 cmolc kg^{-1} of soil. Examples of soil series in this group are Madison, Lucedale, Allen, Hartselle, Cecil, Pacolet, and Savannah.

Soil Group 3

High clay or high organic matter (OM) soils with an ECEC greater to 9.0 cmolc kg^{-1+} that do not fall into the Black Belt category. Colbert, Decatur, Dewey, Talbott, Boswell, and Iredell are examples of soil series from this group.

Soil Group 4

Calareous clayey soils of the Black Belt with an ECEC greater than 9.0 cmolc kg of soil. These soils are extracted using the Mississippi/Lancaster extractant instead of the Mehlich-1. Examples of soil series in this group are Houston, Sumter, Oktibbeha, Leeper, and Vaiden.

The group in which a soil is classified may affect the fertitility ratings and therefore the P, K Ca, and Mg recommendations. When a soil is near the borderline between groups, (e.g. 4.6 cmolc kg) it may fall into one soil group one year and the other group the following year. Liming and/or fertilizing the soil may also cause it to be shifted from Group
1 to Group 2 or from Group 2 to Group 3 because of the increase in extractable cations.

Table 1 . Critical Soil Test P, K, Mg, and Ca Values[1]

Crops	Soil Group and Extractant			
	1 Sandy soils (CEC 0-4.6) Mehlich-1	2 Loams (CEC 4.6-9.0) Mehlich-1	3 Clayey soils of Limestone Valleys and high organic matter soils (CEC 9.0+) Mehlich-1	4 Clays of Black Belt (CEC 9.0+) Mississippi/Lancaster
	Extractable P (lb/A)			
P Level 1 Peanuts	19	19	11	27
P Level 2 All other crops	50	50	30	72
	Extractable K (lb/A)			
K Level 1 Peanuts	40	60	80	120
K Level 2 Corn, soybeans, and small grains	80	160	160	190
K Level 3 Cotton	120	180	240	240
	Extractable Mg (lb/A)			
All crops	25	50	50	50
	Extractable Ca (lb/A)			
Peanuts	500	500	500	500
Other crops (no response to Ca is expected)	500	500	500	500

[1] Critical soil test level is that concentration of nutrient at which 95 percent of maximum relative yield is achieved. Additonal application of that nutrient above the critical level is not expected to increase yield.

Table 2. Soil Test P Ratings Based on Soil Group, Crop, and Extractable P				
Phosphorus				
—P requirement and Rating—		————————Soil Test P————————		
P Level 2 Other crops	P Level 1 Peanuts	Soil group 1,2	Soil group 3	Soil group 4*
————————Rating————————		————————————lb/A————————————		
V low	V low	0	0	0-3
V low	V low	1-2	1	4-6
V low	V low	3-4	2	7-9
V low	Low	5-7	3	10-12
V low	Low	8-10	4-5	13-15
V low	Medium	11-12	6-7	16-18
Low	Medium	13-19	8-11	19-27
Low	High	20-25	12-15	28-36
Medium	High	26-34	16-21	37-48
Medium	High	35-43	22-26	49-60
Medium	High	44-50	27-30	61-72
High	V high	51-65	31-40	73-94
High	V high	66-100	41-60	95-144
V high	V high	101-135	61-81	145-195
V high	V high	136-250	82-150	196-360
E high	E high	251+	151+	361+

Table 3. Soil Test K Ratings Based on Soil Group, Crop, and Extractable K

Potassium						
K requirement and Rating			Soil Test K			
K Level 3 Cotton	K Level 2 Corn, soybeans, and small grains	K Level 1 Peanut	Soil group 1	Soil group 2	Soil group 3	Soil group 4
Rating			lb/A			
V low	V low	V low	0-20	0-30	0-40	0-50
V low	Low	Low	21-22	31-33	41-44	51-56
V low	Low	Low	23-24	34-36	45-48	57-62
V low	Low	Low	25-26	37-39	49-52	63-68
V low	Low	Low	27-28	40-42	53-57	69-74
V low	Low	Medium	29-30	43-45	58-60	75-80
Low	Low	Medium	31-40	46-60	61-80	81-120
Low	Medium	High	41-60	61-90	81-120	121-160
Medium	Medium	High	61-80	91-120	121-160	161-190
Medium	High	High	81-100	121-150	161-200	191-220
Medium	High	V high	101-120	151-180	201-240	221-240
High	High	V high	121-160	181-240	241-320	241-320
High	V high	V high	161-240	241-360	321-480	321-480
V high	V high	V high	241-320	361-480	481-640	481-640
V high	E high	E high	321-480	481-720	641-960	641-960
E high	E high	E high	481+	721+	961+	961+

K Level 1 = peanut with a low K requirement.
K Level 2 = corn, soybeans, and small grains with a moderate K requirement.
K Level 3 = cotton with a high K requirement
*Group 4 soils are from Black Belt and are extracted with the Mississippi/Lancaster Procedure. All others are extracted with Mehlich-1.

Magnesium Recommendation Codes

Code 1

If magnesium is low and lime is recommended, 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, no magnesium is required. (These crops have not been shown to respond to magnesium.)

Code 2

If magnesium is low and lime is recommended, 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 recom-mended, 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, and orchards).

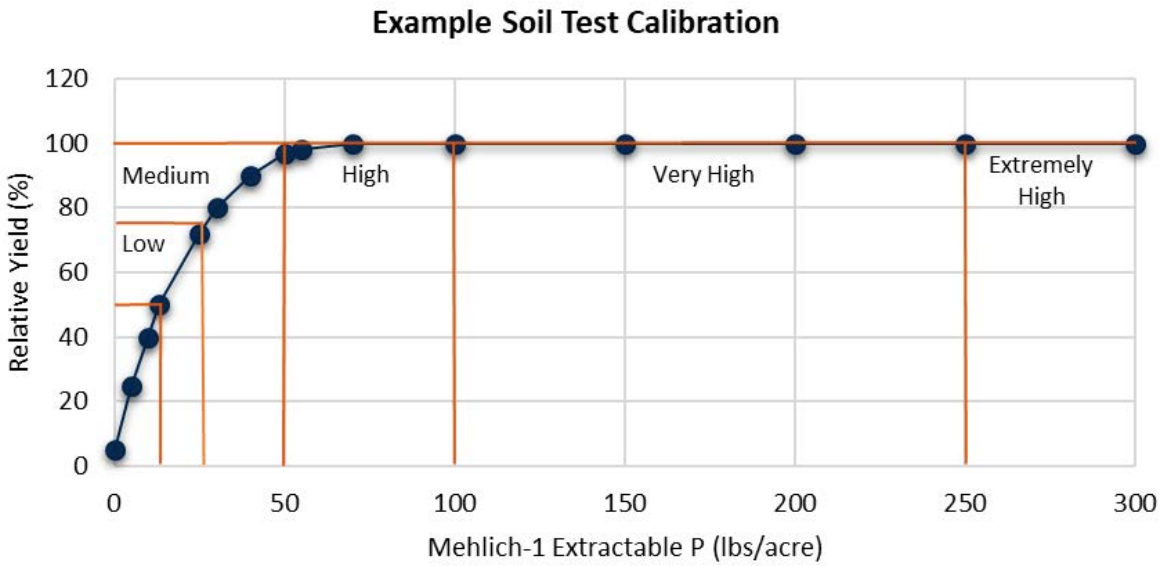
Code 3

If magnesium is low and lime is recommended, 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, low magnesium may be corrected by applying 25 pounds per acre of Mg as magnesium sulfate, magnesium oxide, or sulfate of potash-magnesium. Potatoes, blueberries, pines, and tobacco have a high Mg requirement but are sensitive to high pH.

Table 4. Lime Recommendation Codes

Code	Lime if below	Lime to	Crops
	——————pH——————		
0	Lime recommended only under special conditions		Blueberries, azaleas
1	5.8	6.5	All except those listed below
2	6.0	6.5	Corn, cotton, most clovers, gardens, vegetable crops, and most fruits and nuts
3	6.5	7.0	Alfalfa
4	5.0	5.5	Irish potatoes, tobacco, Christmas trees
5	5.6	6.0	Centipedegrass

Figure 1. Example of soil test calibration for P on sandy and loamy Alabama soils for most crops. The critical value is that point above which no additional fertilizer P is needed for 100 percent yield.



Nutrient Recommendations for Alabama Row Crops

Cotton

Crop Code 10

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see Table 3. on page 7 to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see Table 2. on page 6 to determine phosphorous rating	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	90-60-90	90-60-90	90-60-120
	Low	90-100-0	90-100-0	90-100-60	90-100-90	90-100-120
	Very low	90-120-0	90-120-0	90-120-60	90-120-90	90-120-120

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code
90	2	3	1	2

*See Table 1 **See Table 4

Comments:
For cotton, use the 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 pounds per acre. Where vegetative growth has been inadequate, increase the N rate by this amount. Apply 0.3 pound of B per acre in the fertilizer or in the insecticide spray. For cotton following hay crops, pasture, or soybeans on soils testing Low or Medium in K, increase K_2O application 30 to 60 pounds per acre above the amount recommended.

Starter fertilizer containing 25 to 30 pounds N and 15 to 40 pounds of P_2O_5 per acre may be used under reduced tillage condition by placing material in a 2-X 2-inch band, in a subsoil slit, or in a surface-applied band at planting.

Nitrogen may be applied in split applications up to early bloom. Additional N, if needed, can be foliar-applied at rate of approximately 5 pounds N per acre per application.

Nutrient Recommendations for Alabama Row Crops

Corn (Non-irrigated)

120 to 150 bushels/A

Crop Code 13

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	Very high	120-0-0	120-0-0	120-0-40	120-0-60	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	120-40-60	120-40-80
	Low	120-60-0	120-60-0	120-60-40	120-60-60	120-60-80
	Very low	120-80-0	120-80-0	120-80-40	120-80-60	120-80-80

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
120	2	2	1	1

*See Table 1 **See Table 2 ***See Table 3

Comments:

Non-irrigated corn may respond to nitrogen rates up to 150 pounds per acre. If yield potential is greater than 120 bushels per acre, apply up to 1.25 pounds N per bushel of anticipated yield. Nitrogen should always be applied in split applications with one-quarter to one-half of the total N applied at or near planting and the remainder as a sidedress. On sandy soils apply 3 pounds Zn per acre in fertilizer after liming or where pH is above 6.0.

Nutrient Recommendations for Alabama Row Crops

Corn (Non-irrigated) before Soybean

Crop Code 15

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	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	120-48-120	120-80-160
	Low	120-160-0	120-160-0	120-160-80	120-160-120	120-160-160
	Very low	120-160-0	120-160-0	120-160-80	120-160-120	120-160-160

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
120	2	2	1	1

*See Table 1 **See Table 2 ***See Table 3

Comments:
Non-irrigated corn may respond to nitrogen rates up to 150 pounds per acre. If yield potential is greater than 120 bushels per acre, apply up to 1.25 pounds N per bushel of anticipated yield. Nitrogen should always be applied in split applications with one-quarter to one-half of the total N applied at or near planting and the remainder as a sidedress. On sandy soils apply 3 pounds Zn per acre in fertilizer after liming or where pH is above 6.0.

If this recommendation is followed for corn in rotation before soybean, then no additional nutrients are needed for the soybean crop.

Nutrient Recommendations for Alabama Row Crops

Corn (Irrigated) or Corn or Sorghum Silage

180 bushels/A

Crop Code 16

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	Very high	200-0-0	200-0-30	200-0-60	200-0-120	200-0-120
	High	200-30-0	200-30-30	200-30-60	200-30-120	200-30-120
	Medium	200-60-0	200-60-30	200-60-60	200-60-120	200-60-120
	Low	200-120-0	200-120-30	200-120-60	200-120-120	200-120-120
	Very low	200-120-0	200-120-30	200-120-60	200-120-120	200-120-120

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
200	2	2	1	1

*See Table 1 **See Table 2 ***See Table 3

Comments:

If yield potential is greater than 200 bushels per acre, apply up to 1.25 pounds N per bushel of anticipated yield. Nitrogen shoul always be applied in split applications with one-quarter to one-half of the total N applied at or near planting and the remainder as a sidedress. On sandy soils apply 3 pounds Zn per acre in fertilizer after liming or where pH is above 6.0.

Nutrient Recommendations for Alabama Row Crops

Peanut

Crop Code 17

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	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	0-40-120
	Low	0-80-0	0-80-0	0-80-40	0-80-80	0-80-120
	Very low	0-120-0	0-120-0	0-120-40	0-120-80	0-120-120

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
0	1	1	1	1

*See Table 1 **See Table 2 ***See Table 3

Comments:
Apply 1,000 pounds per acre of gypsum if no lime is required. Note that gypsum application is especially critical for large-seeded cultivars and non-irrigated peanuts due to the need for calcium to dissolve and move through soio to the developing kernels

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

Nutrient Recommendations for Alabama Row Crops

Grain Sorghum

Crop Code 21

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	Very high	80-0-0	80-0-0	80-0-40	80-0-60	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	80-40-60	80-40-80
	Low	80-60-0	80-60-0	80-60-60	80-60-60	80-60-80
	Very low	80-80-0	80-80-0	80-80-40	80-80-60	80-80-80

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
80	2	2	1	1

*See Table 1 **See Table 2 ***See Table 3

Nutrient Recommendations for Alabama Row Crops

Soybean

Crop Code 24

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	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	0-40-120
	Low	0-80-0	0-80-0	0-80-40	0-80-80	0-80-120
	Very low	0-120-0	0-120-0	0-120-40	0-120-80	0-120-120

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
0	2	2	1	1

*See Table 1 **See Table 2 ***See Table 3

Comments:

On all soils of northrn Alabama and on fine-textured, acid soils in other areas of Alabama, apply the equivalent of 1 ounce per acre of sodium molybdate or ammonium molybdate to the seed at planting.

Nutrient Recommendations for Alabama Row Crops

Small Grain

Wheat, Oats, Rye, Triticale

Crop Code 27

Amount of N-P_2O_5-K_2O Needed Per Acre Based on P and K Ratings*						
		Potassium (K) rating *see **Table 2.** on **page 7** to determine potassium ratings for cotton				
		Very high	High	Medium	Low	Very low
Phosphorous (P) rating *see **Table 1.** on page 6 to determine phosphorous rating	Very high	100-0-0	100-0-0	100-0-60	100-0-100	100-0-120
	High	100-0-0	100-0-0	100-0-60	100-0-100	100-0-120
	Medium	100-60-0	100-60-0	100-60-60	100-60-100	100-60-120
	Low	100-100-0	100-100-0	100-100-60	100-100-100	100-100-120
	Very low	100-120-0	100-120-0	100-120-60	100-120-100	100-120-120

*Rate is given in pounds of N-P_2O_5-K_2O per acre.

Fertilizer Requirement Levels and Recommendation Codes				
N rate	P level*	K level*	Lime code**	Mg code***
60	2	3	4	2

*See Table 1 **See Table 2 ***See Table 3

Comments:

Apply 20 pounds N per acre in the fall and 60 to 80 pounds in the late winter to early spring. The fall N can be eliminated following a good soybean crop or othr legume.

APPENDIX A. Lime Tables

The following tables can be used to estimate agricultural limestone requirement to raise the soil pH to a target pH of 5.5, 6.0, 6.5, or 7.0. Values in these tables assume the following:

1. An acre furrow slice, 6-inch deep weighs 2 million pounds.

2. Limestone is mixed with an 8-inch furrow slice e.g. 2,670,000 pounds of soil per acre.

3. Recommended, ground agricultural limestone has an effective calcium carbonate equivalency of 63 percent of pure $CaCO_3$ This is the calculated value for minimum quality agricultural limestone as regulated by the Alabama Department of Agriculture and Industries.

4. Values are rounded off to the nearest 100 pounds of ground limestone.

Target pH = 5.5

Hundreds of pounds of ag. lime at different water pH

	Current Soil pH						
Buffer pH	5.4	5.3	5.2	5.1	5	4.9	4.8
7.9	1	2	3	4	5	7	7
7.8	2	4	7	9	11	14	15
7.7	3	7	10	13	16	20	22
7.6	5	9	13	17	22	27	29
7.5	6	11	16	21	27	34	36
7.4	7	13	20	26	32	41	44
7.3	8	16	23	30	38	47	51
7.2	9	18	26	34	43	54	58
7.1	10	20	29	39	48	61	65

Target pH = 6.0

Hundreds of pounds of ag. lime at different water pH

	Current Soil pH											
Buffer pH	5.9	5.8	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5	4.9	4.8
7.9	1	2	3	4	5	6	7	7	8	9	10	10
7.8	2	5	7	8	10	12	13	15	16	17	19	20
7.7	4	7	10	13	15	17	20	22	24	26	29	30
7.6	5	9	13	17	20	23	26	29	32	35	39	40
7.5	6	11	16	21	25	29	33	36	40	44	48	50
7.4	7	14	20	25	30	35	39	44	48	52	58	60
7.3	8	16	23	29	35	41	46	51	56	61	68	70
7.2	10	18	26	33	40	46	52	58	64	70	77	80
7.1	11	21	30	38	45	52	59	65	72	78	87	90

Target pH = 6.5

Hundreds of pounds of ag. lime at different water pH

	Current Soil pH																
Buffer pH	6.4	6.3	6.2	6.1	6	5.9	5.8	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5	4.9	4.8
7.9	2	3	4	5	6	7	7	8	8	9	10	10	10	11	11	12	12
7.8	3	6	8	10	12	13	15	16	17	18	19	20	21	22	23	24	24
7.7	5	9	12	15	17	20	22	24	25	27	29	30	31	33	34	36	37
7.6	6	11	16	20	23	26	29	32	34	36	38	40	42	44	45	48	49
7.5	8	14	20	25	29	33	36	39	42	45	48	50	52	54	57	60	61
7.4	9	17	24	30	35	39	44	47	51	54	57	60	63	65	68	72	73
7.3	11	20	28	35	41	46	51	55	59	63	67	70	73	76	79	84	85
7.2	12	23	32	40	46	53	58	63	68	72	76	80	83	87	91	96	97
7.1	14	26	36	44	52	59	65	71	76	81	86	90	94	98	102	108	110

Target pH = 6.5

Hundreds of pounds of ag. lime at different water pH

	Current Soil pH																					
Buffer pH	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.2	6.1	6	5.9	5.8	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5	4.9	4.8
7.9	2	4	6	7	8	9	9	10	10	11	11	12	12	12	12	13	13	13	13	14	14	14
7.8	5	9	11	14	16	17	18	20	21	22	22	23	24	24	25	25	26	26	27	27	28	28
7.7	7	13	17	21	23	26	28	29	31	32	33	35	36	36	37	38	39	39	40	41	42	42
7.6	10	17	23	27	31	34	37	39	41	43	45	46	47	49	50	51	52	53	53	54	56	56
7.5	12	21	28	34	39	43	46	49	52	54	56	58	59	61	62	63	65	66	67	68	70	70
7.4	15	26	34	41	47	51	55	59	62	65	67	69	71	73	74	76	77	79	80	82	84	84
7.3	17	30	40	48	54	60	65	69	72	75	78	81	83	85	87	89	90	92	94	95	97	98
7.2	20	34	46	55	62	69	74	79	83	86	89	92	95	97	99	101	103	105	107	109	111	112
7.1	22	38	51	62	70	77	83	88	93	97	100	104	107	109	112	114	116	118	120	123	125	126

References

Huluka, G. 2005. A modification to the Adams-Evans soil buffer determination solution. Commuications in Soil Science and Plant Analysis. 36: 2005-2014.5