ROADSIDE DEVELOPMENT SHEET - NMP Lime And Fertilizer Calculations

Fertilizer Guidance for Active Construction Suggested Fertilizer Analysis based on NMP and soil tests

This table provides guidance for the amount of fertilizer that can be applied according to the NMP. These are examples of fertilizers and their rates (Ib/A) that can be used to meet each N-P-K ratio as indicated from laboratory soil test levels. Other ratios may be used as long as the desired pounds of nutrients per acre of N and P₂O₈ applied are the same. There is no restriction on the amount of K₂O and lime that can be applied in addition to the quantity specified. No additional P₂O₅ can be applied for the term of the project without a new soil sample and calculation of the desired pounds of nutrients per acre are based on the soil test and be.

P ₂ O ₆	Suggested Fertilizer	Desired	Pounds of I	Nutrients p	er Acre (N-F	205-K2O)	Lime				
Level*	Analysis	45-0-0	45-45-45	45-90-45	45-90-90	45-170-90					
Exception**	5-10-10		2 ton/A of lime at 100% CCE (<u>+</u> 10%)								
L- to L	5-10-10 Plus 0-46-0		Soil Test Rate****								
L+ to M-	15-30-15	15-30-15 300 lb/A									
M to M+	10-10-10		450 lb/A				Soil Test Rate****				
days with a r N source wit Organic Sou 50 lbs/A of p	naximum of 90 h at least 30% urces of nutrie lant available i) lb/A (2 lbs/10 Water Insolui nts may be us nitrogen (PAN	000 ft ²) per ye ble Nitrogen (¹ bed for <u>only</u> fo).	ear. Contact WIN) is to be r Active Con	the District Ro used. struction. They	adside Manag / should be ap	ted by at least 30 er if fertilizer with a plied to supply 45-				
water, 50 fee naturally occ waters when * These indic	t from sinkhole urring rock out appropriate e	es, 50 feet from crops) will be rosion and see f P ₂ O ₅ reporte	m naturally oc rigorously foll diment control ed in the soil to	curring lime owed. Howe BMP's are est, ie. L=Lo	stone outcrops ever, nutrients in place. w, M=Medium,	and 25 feet fr may be applie) feet from surface rom all other d closer to surface VH=Very High.				
** The only ti is exposed.	ime this rate is This amount of	applied is if th N and P₂O₅ r	ne total disturi nay be applie	oed area for d without a s	the project is l soil test as a or	ne time applica					
*** This ratio to improve tu		when P2O5 ma	ay not be appl	lied OR whe	n a soil test is	not taken, but	when N is required				
**** Lime quantities will be calculated based on soil test buffer pH.											

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	Table 2.1 Lime	Recommendations (tons/acre)
		rget Soil pH 6.2
Lime	1a Dotos bosod on VA	Fech Soil buffer pH (Buffer meq/100g
Linic	Buffer pH	Tons/Acre
	6.60	0.00
	6.50	0.00
	6.40	0.00
	6.38	0.25
	6.36	0.25
	6.34	0.25
	6.32	0.50
	6.30	0.50
	6.28	0.75
	6.26	0.75
	6.24	0.75
	6.22	1.00
	6.20	1.00
	6.18	1.25
	6.16	1.25
	6.14	1.20
	6.12	1.50
	6.10	1.50
	6.08	1.75
	6.06	1.75
	6.04	2.00
	6.02	2.00
	6.00	2.00
	5.95	2.25
	5.90	2.50
	5.85	2.75
	5.80	3.25
	5.75	3.50
	5.70	3.75
	5.65	4.00
	5.60	4.25
	5.55	4.50
	5.50	4.75
	5.40	5.25
	5.30	5.75

Lime recommendations in the table above are based on the use of a liming material equivalent in neutralizing power to 100% CaCO3. For application rates of liming material that is less than 100% neutralizing power of CaCO3 (pure calcium carbonate) use the table in this section, Lime Rate Adjustment for CCE.

Lime Recommendations Using Other Testing Labs

For approved labs other than Virginia Tech, use the lime recommendations given by the lab. IF there are no recommendations with the soil analysis, use the table below for A&L Agricultural, Spectrum Analytical, and Brookside Laboratories.

Table 3-2

Lime Application Rate (tons/acre) to achieve desired pH of 6.2 based on SMP Buffer Test

Targe	Target Soil pH I-Buffered pH Tons/Acre 6.9 0.50 6.8 1.00 6.7 1.50 6.6 2.00 6.5 2.50 6.4 4.00				
Soil-Buffered pH	Tons/Acre				
6.9	0.50				
6.3	4.00				

 1 Ag-ground lime of 90% plus total neutralizing power (TNP) or CaCO3 equivalent., and fineness of 40% < 100 mesh, 50% < 60 mesh, 70% < 20 mesh and 95% < 8 mesh. Adjustments in the application rate should be made for liming materials with different particle sizes, or neutralizing value.

Waters Agricultural Laboratories uses the Adams and Evans single buffer method which uses a different table for recommendations than the Mehlich or the SMP tables supplied here. In the event you would have lab reports from Waters Lab, which do not have lime recommendations, contact the lab for recommendations based on their analysis procedure.

Lime Rate Adjustment for CCE All Labs

Liming rates (tons/acre) for materials that are not 100% CCE (+ 10%) must be adjusted based on table 3-3. Using the lime application rate to achieve the desired target pH based on the soil test buffer pH, use the table below to adjust that rate based on the % CCE of the liming material to be applied.

Table 3-3												
Lime												
% CCE of Your Liming Material												
50	60	70	80	90	100	110	120	130	140	150		
1.00	0.75	0.75	0.75	0.50	0.50	0.50	0.50	0.50	0.25	0.25		
2.00	1.75	1.50	1.25	1.00	1.00	1.00	0.75	0.75	0.75	0.75		
3.00	2.50	2.25	2.00	1.75	1.50	1.25	1.25	1.25	1.00	1.00		
4.00	3.25	2.75	2.50	2.25	2.00	1.75	1.50	1.50	1.50	1.25		
5.00	4.25	3.50	3.25	2.75	2.50	2.25	2.00	2.00	1.50	1.50		
6.00	5.00	4.25	3.75	3.25	3.00	2.75	2.50	2.25	2.25	2.00		
7.00	5.75	5.00	4.50	4.00	3.50	3.25	3.00	2.75	2.50	2.25		
8.00	6.75	5.75	5.00	4.50	4.00	3.75	3.25	3.00	2.75	2.75		
	50 1.00 2.00 3.00 4.00 5.00 6.00 7.00	50 60 1.00 0.75 2.00 1.75 3.00 2.50 4.00 3.25 5.00 4.25 6.00 5.00 7.00 5.75	50 60 70 1.00 0.75 0.75 2.00 1.75 1.50 3.00 2.50 2.25 4.00 3.25 2.75 5.00 4.25 3.50 6.00 5.00 4.25 7.00 5.75 5.00	Lime Application Rate Adju % C 50 60 70 80 1.00 0.75 0.75 0.75 2.00 1.75 1.50 1.25 3.00 2.50 2.25 2.00 4.00 3.25 2.75 2.50 5.00 4.25 3.50 3.25 6.00 5.00 4.25 3.75 7.00 5.75 5.00 4.50	Lime Application Rate Adjustment H % CCE of Y 50 60 70 80 90 1.00 0.75 0.75 0.75 0.50 2.00 1.75 1.50 1.25 1.00 3.00 2.50 2.25 2.00 1.75 4.00 3.25 2.75 2.50 2.25 5.00 4.25 3.50 3.25 2.75 6.00 5.00 4.25 3.75 3.25 7.00 5.75 5.00 4.50 4.00	Lime Application Rate Adjustment Based or % CCE of Your Lim 50 60 70 80 90 100 1.00 0.75 0.75 0.50 0.50 2.00 1.00 1.75 1.50 1.25 1.00 1.00 3.00 2.50 2.25 2.00 1.75 1.50 4.00 3.25 2.75 2.50 2.25 2.00 5.00 4.25 3.75 3.25 2.75 2.50 6.00 5.00 4.25 3.75 3.25 3.00 7.00 5.75 5.00 4.50 4.00 3.50	Lime Application Rate Adjustment Based on % CCF % CCE of Your Liming Mat 50 60 70 80 90 100 110 1.00 0.75 0.75 0.50 0.50 0.50 0.50 2.00 1.75 1.50 1.25 1.00 1.00 1.00 3.00 2.50 2.25 2.00 1.75 1.50 1.25 4.00 3.25 2.75 2.50 2.25 2.00 1.75 5.00 4.25 3.50 3.25 2.75 2.50 2.50 2.75 6.00 5.00 4.25 3.75 3.25 3.00 2.75 7.00 5.75 5.00 4.50 4.00 3.50 3.25	Lime Application Rate Adjustment Based on % CCE of Your Liming Material % CCE of Your Liming Material 50 60 70 80 90 100 110 120 1.00 0.75 0.75 0.75 0.50 0.50 0.50 2.00 1.75 1.50 1.25 1.00 1.00 0.75 3.00 2.50 2.25 2.00 1.75 1.50 1.25 1.25 4.00 3.25 2.75 2.50 2.25 2.00 1.75 1.50 5.00 4.25 3.50 3.25 2.75 2.50 2.25 2.00 6.00 5.00 4.25 3.75 3.25 3.00 2.75 2.00 7.00 5.75 5.00 4.50 4.00 3.50 3.25 3.00	Lime Application Rate Adjustment Based on % CCE of Material % CCE of Your Liming Material 50 60 70 80 90 100 110 120 130 1.00 0.75 0.75 0.75 0.50 0.50 0.50 0.50 0.50 2.00 1.75 1.50 1.25 1.00 1.00 0.75 0.75 3.00 2.50 2.25 2.00 1.75 1.50 1.25 1.25 1.25 4.00 3.25 2.75 2.50 2.25 2.00 1.75 1.50 1.50 1.25 1.25 1.25 5.00 4.25 3.50 3.25 2.75 2.50 2.25 2.00 1.75 1.50	Lime Application Rate Adjustment Based on % CCE of Material % CCE of Your Liming Material 50 60 70 80 90 100 110 120 130 140 1.00 0.75 0.75 0.75 0.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50		

Lime recommendation to adjust pH as determined from soil test analysis.

ROADSIDE DEVELOPMENT SHEET - NMP Lime And Fertilizer Calculations

Fertilizer Guidance for Active Construction Suggested Fertilizer Analysis based on NMP and soil tests

This table provides guidance for the amount of fertilizer that can be applied according to the NMP. These are examples of fertilizers and their rates (Ib/A) that can be used to meet each N-P-K ratio as indicated from laboratory soil test levels. Other ratios may be used as long as the desired pounds of nutrients per acre of N and P₂O₈ applied are the same. There is no restriction on the amount of K₂O and lime that can be applied in addition to the quantity specified. No additional P₂O₅ can be applied for the term of the project without a new soil sample and calculation of the desired pounds of nutrients per acre are based on the soil test and be.

P ₂ O ₆	Suggested Fertilizer	Desired	Pounds of I	Nutrients p	er Acre (N-F	205-K2O)	Lime
Level*	Analysis	45-0-0 45-45-45 45		45-90-45	45-90-45 45-90-90 45-		2
Exception**	5-10-10		2 ton/A of lime at 100% CCE (<u>+</u> 10%)				
L- to L	5-10-10 Plus 0-46-0		Soil Test Rate****				
L+ to M-	15-30-15			300 lb/A			Soil Test Rate****
M to M+	10-10-10		450 lb/A				Soil Test Rate****
days with a r N source with Organic Son 50 lbs/A of p Nutrient appl water, 50 fee naturally occ	maximum of 90 h at least 30% urces of nutrie lant available r lication set-bas at from sinkhole	I Ib/A (2 Ibs/10 Water Insolut nts may be us hitrogen (PAN cks as set for es, 50 feet from crops) will be	000 ft ²) per ye ble Nitrogen (\ bled for <u>only</u> fo). th in Section 1 m naturally oc rigorously foll	ear. Contact WIN) is to be r Active Con IB (e.g. 100 courring lime lowed. Howe	the District Ro sused. struction. The feet from wells stone outcrops ever, nutrients	adside Manag y should be ap or springs, 50 and 25 feet fr	ted by at least 30 ler if fertilizer with a plied to supply 45- 0 feet from surface om all other d closer to surface
* These india When the so	cate the level o il test level of F	f P₂O₅ reporte P₂O₅ is at H- o	ed in the soil te r greater, no f	est, ie. L=Lo P may be ap	w, M=Medium plied.	5.	VH=Very High.
	ime this rate is This amount of						es AND the subsoil ition.
to improve tu	urf quality.		,			not taken, but	when N is required
**** Lime	quantities will k	e calculated l	based on soil	test buffer p	H.		

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Table 2.1 Lime D	Recommendations (tons/ac
	get Soil pH 6.2
Lime Rates based on VA To	
Buffer pH	Tons/Acre
6.60	0.00
6.50	0.00
6.40	0.00
6.38	0.25
6.36	0.25
6.34	0.25
6.32	0.50
6.30	0.50
6.28	0.75
6.26	0.75
6.24	0.75
6.22	1.00
6.20	1.00
6.18	1.25
6.16	1.25
6.14	1.50
6.12	1.50
6.10	1.50
6.08	1.75
6.06	1.75
6.04	2.00
6.02	2.00
6.00	2.00
5.95	2.25
5.90	2.23
5.85	2.30
5.80	3.25
5.75	3.50
5.70	3.75
5.65	4.00
5.60	4.25
5.55	4.50
5.50	4.75
5.40	5.25
5.30	5.75

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	Soil-Buffered pH	Tons/Acre								
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	6.8	1.00								
Ļ	6.7	1.50								
Ļ	6.6	2.00								
Ļ	6.5	2.50								
ļ	6.4									
	6.3	4.00								

 1 Ag-ground lime of 90% plus total neutralizing power (TNP) or CaCO3 equivalent., and fineness of 40% < 100 mesh, 50% < 60 mesh, 70% < 20 mesh and 95% < 8 mesh. Adjustments in the application rate should be made for liming materials with different particle sizes, or neutralizing value.

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Lime Rate Adjustment for CCE All Labs

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Table 3-3												
	Lime Application Rate Adjustment Based on % CCE of Material											
	% CCE of Your Liming Material											
T/ac*	50	60	70	80	90	100	110	120	130	140	150	
0.5	1.00	0.75	0.75	0.75	0.50	0.50	0.50	0.50	0.50	0.25	0.25	
1.0	2.00	1.75	1.50	1.25	1.00	1.00	1.00	0.75	0.75	0.75	0.75	
1.5	3.00	2.50	2.25	2.00	1.75	1.50	1.25	1.25	1.25	1.00	1.00	
2.0	4.00	3.25	2.75	2.50	2.25	2.00	1.75	1.50	1.50	1.50	1.25	
2.5	5.00	4.25	3.50	3.25	2.75	2.50	2.25	2.00	2.00	1.50	1.50	
3.0	6.00	5.00	4.25	3.75	3.25	3.00	2.75	2.50	2.25	2.25	2.00	
3.5	7.00	5.75	5.00	4.50	4.00	3.50	3.25	3.00	2.75	2.50	2.25	
4.0	8.00	6.75	5.75	5.00	4.50	4.00	3.75	3.25	3.00	2.75	2.75	
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0	$ \begin{array}{r} 1.00 \\ 2.00 \\ 3.00 \\ 4.00 \\ 5.00 \\ 6.00 \\ 7.00 \\ 8.00 \\ \end{array} $	0.75 1.75 2.50 3.25 4.25 5.00 5.75 6.75	0.75 1.50 2.25 2.75 3.50 4.25 5.00	80 0.75 1.25 2.00 2.50 3.25 3.75 4.50 5.00	90 0.50 1.00 1.75 2.25 2.75 3.25 4.00 4.50	100 0.50 1.00 2.00 2.50 3.00 3.50 4.00	110 0.50 1.00 1.25 1.75 2.25 2.75 3.25 3.75	120 0.50 0.75 1.25 1.50 2.00 2.50 3.00 3.25	0.50 0.75 1.25 1.50 2.00 2.25 2.75 3.00	0.25 0.75 1.00 1.50 2.25 2.50	0.25 0.75 1.00 1.25 1.50 2.00 2.25	

Lime recommendation to adjust pH as determined from soil test analysis.