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 (lb/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 P_2O_5 applied are the same. There is no restriction on the amount of **K_2O and lime** that can be applied in addition to the quantity specified. No additional P_2O_5 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 this table.

P_2O_5 Level*	Suggested Fertilizer Analysis	Desired Pounds of Nutrients per Acre (N-P_2O_5-K_2O)					Lime
		45-0-0	45-45-45	45-90-45	45-90-90	45-170-90	
Exception**	5-10-10				900 lb/A**		2 ton/A of lime at 100% CCE (±10%)
L- to L	5-10-10 Plus 0-46-0					900 lb/A of 5-10-10 plus175 lb/A of 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****

Nitrogen (N) application is limited to 45 lb/A of N (1 lbs/1000 ft^2) at each application and separated by at least 30 days with a maximum of 90 lb/A (2 lbs/1000 ft^2) **per year**. Contact the District Roadside Manager if fertilizer with a N source with at least 30% Water Insoluble Nitrogen (WIN) is to be used.

Organic Sources of nutrients may be used for only for Active Construction. They should be applied to supply 45-50 lbs/A of plant available nitrogen (PAN).

Nutrient application **set-backs** as set forth in Section 1B (e.g. 100 feet from wells or springs, 50 feet from surface water, 50 feet from sinkholes, 50 feet from naturally occurring limestone outcrops and 25 feet from all other naturally occurring rock outcrops) will be rigorously followed. However, nutrients may be applied closer to surface waters when appropriate erosion and sediment control BMP's are in place.

* These indicate the level of P_2O_5 reported in the soil test, ie. L=Low, M=Medium, H=High, and VH=Very High. When the soil test level of P_2O_5 is at H- or greater, no P may be applied.

** The only time this rate is applied is if the total disturbed area for the project is less than 2 acres AND the subsoil is exposed. This amount of N and P_2O_5 may be applied without a soil test as a one time application.

*** This ratio may be used when P_2O_5 may not be applied OR when a soil test is not taken, but when N is required to improve turf quality.

**** Lime quantities will be calculated based on soil test buffer pH.

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Table 3-1 Lime Recommendations (tons/acre)
Target Soil pH 6.2
Lime Rates based on VA Tech Soil buffer pH (Buffer meq/100g)

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	2.50
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 [1] (tons/acre) to achieve desired pH of 6.2 based on SMP Buffer Test

Target Soil pH

Soil-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**
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 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

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

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Suggested Fertilizer Analysis based on NMP and soil tests

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2.5	5.00	4.25	3.50	3.25	2.75	2.50	2.25	2.00	2.00	1.50	1.50
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