

Lime Recommendation and Cost Comparison Worksheet

Developing a Lime Recommendation

Tables referred to in the instructions are from *Tri-State Fertilizer Recommendations. Bulletin 974. College of Food, Agricultural, and Environmental Sciences. Columbus, OH.*

Example:

Determine the lime recommendation using the lowest cost lime material for a no-till field with a desired pH of 6.5 and a soil test Buffer pH of 6.4. Lime Source has an ENP of 1800.

Steps	Example	Your Lime Need
Step 1) Determine Lime the Recommendation		
a) Identify desired target pH (from Table 1, Page 14).	6.5	
b) Identify Buffer pH from your soil test report.	6.4	
c) Determine lime recommendation using desired target pH and Buffer pH using Table 4, Page 15.	3.1	
Step 2) Adjust recommendation based on tillage depth.		
<p>Recommendation is based on 8-inch tillage depth. Adjust rate to tillage depth using the adjustment below. For no-till assume a 4-inch depth.</p> <p><u>Equation:</u></p> $\text{(Lime Recommendation / 8) X Tillage Depth} = \text{Adjusted Lime Recommendation}$ <p><u>Example:</u> $(3.1 / 8) \times 4 =$</p>	1.6	
Step 3) Adjusting Rate for a Lime Source that is less than 2000 Effective Neutralizing Power (ENP).		
<p><u>Equation:</u></p> $\text{Lime Recommendation X (2000 / ENP)} = \text{Tons of material / A}$ <p><u>Example:</u> $1.6 \times (2000 / 1800) =$</p>	1.8	

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Comparing Lime Sources with Different Cost

The cost of lime material is affected by transportation cost between the lime quarry and the delivery point. In a region there may be several lime material sources and a comparison of material to determine the most cost-effective material is useful to make the best economic decision. Another common situation is where a lime source may be offered at a low price.

Materials sold for agricultural lime purposes is regulated by the Ohio Department of Agriculture (ODA). Each material must have a labeled Effective Neutralizing Power (ENP) value that allows materials from different sources to be compared. Test results are published by ODA at <https://agri.ohio.gov/divisions/plant-health/fertilizers/lime-analysis>

The equation below can be used to compare different lime materials with various cost per ton.

$$\text{Cost (\$ / A)} = (\text{LR} / (2000 / \text{ENP})) \times (\$ / \text{ton})$$

LR = Lime Recommendation

ENP = Effective Neutralizing Power

Example:

Lime Source 1 has an ENP of 1800 and field applied price of \$12 per ton. Source 2 has an ENP of 1200 and field applied price of \$9 per ton.

Lime Source	Lime Recommendation at 2000 ENP (Ton/A)	ENP of Lime Source	Amount of Material to Meet Lime Need (Ton/A)	Cost of Lime Applied (\$/Ton)	Lime Cost (\$/A)
Source 1	1.6	1800	1.8 ^{a)}	12	21.60 ^{b)}
			a) $1.6 \times (2000 / 1800) = 1.8$		b) $1.8 \times 12 = 21.60$
Source 2	1.6	1200	2.7 ^{c)}	9	24.00 ^{d)}
			c) $1.6 \times (2000 / 1200) = 2.7$		d) $2.7 \times 9 = 24.00$

Useful References

Culman, S., Fulford, A., Camberato, J., & Steinke, K. (2020). *Tri-State Fertilizer Recommendations*. Bulletin 974. College of Food, Agricultural, and Environmental Sciences. Columbus, OH: The Ohio State University. <https://extensionpubs.osu.edu/tri-state-fertilizer-recommendations-for-corn-soybean-wheat-and-alfalfa-pdf/>

Mullen, R., E. Lentz and M. Watson. (2016) Soil Acidity and Liming for Agronomic Production <https://ohioline.osu.edu/factsheet/AGF-505-07>