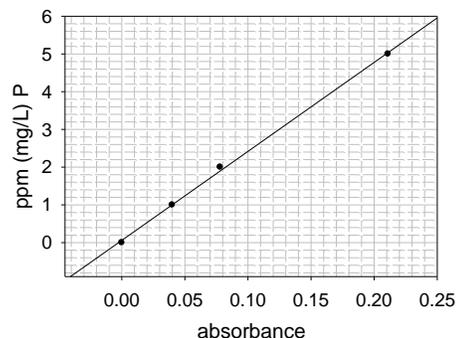


SOME FERTILIZER CALCULATIONS...

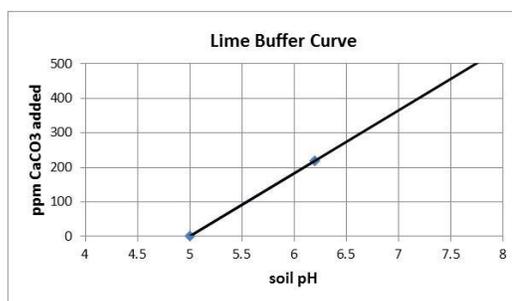
CRSS/FANR 3060

- An extractable P test was performed on a sample, using 5 g of soil and 30 ml of extracting reagent; The absorbance reading obtained was 0.10; use the graph at right, and calculate lbs. P / afs. Then make a fertilizer recommendation using the table below.
NOTE: Eqn of calibration curve: $\text{mg P/L} = 23.8 \times (\text{Abs})$



soil test level (lbs/afs)	rating	lbs P ₂ O ₅ required
0-30	L	80
31-60	M	60
61-90	H	30
91+	VH	0

- A fertilizer recommendation calls for 80 lbs N per acre; how much 12-20-15 should you apply? How much K₂O and P₂O₅ would also be added with this application rate?
- A soil contains 0.01% K; how many lbs K/acre-furrow slice is this?
- A soil has 1.5% humus in the top 6" of soil; humus is 50% C, and has a C:N ratio of 12:1. How many lbs N/acre is in this soil?
- A sample of soil weighing 5 g is extracted with 60 mL of extracting solution; an analysis of this solution shows it contains 3 ppm NO₃ (mg /L) in solution. How many lbs NO₃/acre [acre-furrow slice] is in this soil? [Remember ppm soil = mg/kg]
- A soil requires 100 lbs P₂O₅/acre to be added; how many lbs of 20-10-5 should be applied per acre to meet this recommendation?
- In 6) above, how much K₂O (in lbs/acre) is also applied in the 20-10-5 when it is added to meet the P₂O₅ recommendation?
- A soil with a water-pH = 5.0 increased to 6.2 after adding a lime solution equivalent to 220 mg CaCO₃/kg soil (see graph).
 - What is the LBC (lime buffer capacity)?
 - How much pure CaCO₃ is needed to reach pH 6.5 in lbs/afs?
 - how much lime with purity of 75% should be added to a 9" thick acre-furrow slice?



Bonus 1. A manure is analyzed to contain 2.2% K. What is the %K₂O? (Atomic mass K= 39)

Bonus 2. Explain how you would make 1 ton of a blended fertilizer with analysis 15-22-0 by mixing 30-0-0, 0-50-0, and sand (0-0-0).

ANSWERS: 1) 2.2 mg/L, 13.2 mg/kg, 26.4 lbs/a: LOW, 80 lbs P₂O₅. 2) 667 lbs fert; 133 lbs P₂O₅, 100 lbs K₂O. 3) 200 lbs K. 4) 1,250 lbs N. 5) 72 lbs/afs. 6) 1000 lbs/a. 7) 50 lbs/a
8A) LBC (slope) = 183 lbs CaCO₃/kg/pH unit. 8B) 183x(6.5-5.0)x2=550 lbs CaCO₃/afs. 8C) 550 x (1/.75) x (9/6) = 1100 lbs lime/(9"-afs) Bonus 1) 2.65% K₂O. Bonus 2) 1000 lbs 30-0-0. 880 lbs 0-50-0, 120 lbs sand.