CALCULATIONS AND CONVERSIONS

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Formula to Determine TEC

TEC = (lb/A Ca/400 + lb/A Mg/240 + lb/A K/780 + lb/A Na/460) x 100

100 - (other bases + exchangeable hydrogen)

Other bases:

= 11.4 – pH if soil pH >6.1

= 17.4 – (2 x pH) if soil pH >3.0 and <6.1

= 13.3 – (.6 x pH) if soil pH > 2.2 and 3

= 17.4 – (2 x pH) if soil pH <2.2

Exchangeable Hydrogen:

= 0 if pH >7.0

= (7 – pH) x 15 if pH >6.0 and < 7.0

= 195 – (30 x pH) if pH >5.0 and <6.0

= 145 – (20 x pH) if pH >4.0 and <5.0

= 105 – (10 x pH) if pH 3.0 and <4.0

= 93 – (6 x pH) if pH >2.2 and <3.0

= 155 – (25 x pH) if pH <2.2

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Desired Values Calculations

Calcium: For 68% Base Saturation

Desired Value = (TEC x 400 x.68)

Magnesium: For 12% Base Saturation

Desired Value = (TEC x 240 x .12)

Potassium: For 4% Base Saturation

Desired Value = (TEC x 780 x .04)

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Helpful Conversions

Multiply to the Right (Cu.Ft. x 7.5 = Gal)

Divide to the Left (Gal / 7.5 = Cu. Ft.)

Cubic Feet	7.5	Gallons
	1,728	Cubic Inches
	62.4	Pounds Water
Gallons	231	Cubic Inches
	0.134	Cubic Feet
	8.3	Pounds Water
Cubic yard	27	Cubic Feet
Acres	43,560	Square Feet
	4,840	Square Yards
Miles	5,280	Feet
	1,760	Yards
Acre-Inch	27,154	Gallons
	3,621	Cubic Feet
	113.3	Tons
Acre-Foot	325,848	Gallons
	43,560	Cubic Feet
Acre-In/Hr	450	Gallon per Minute
PSI	2.31	Feet of Water Head
Ppm or mg/L	.0001	Percent

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Unit Conversions

ppm to pounds per acre = ppm x (sampling depth/3)

pounds per acre to ppm = pounds per acre / (sampling depth/3)

Phosphorous Conversions

ppm to pounds per acre P = ppm x (sampling depth/3)

ppm to pounds per acre P2O5 = ppm x 2.29 x (sampling depth/3)

Pounds per acre P to ppm = pounds per acre / (sampling depth/3)

Pounds per acre P2O5 to P ppm = (pounds per acre/ 2.29) / (sampling depth / 3)

Pounds per acre P2O5 to pounds per acre P = Pounds per acre P2O5/ 2.29

Pounds per acre P2O5 to ppm P2O5 = pounds per acre P2O5/ (sampling depth/3)

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Estimated Nitrogen Release Calculated from Organic Matter (ENR)

Estimation of nitrogen potentially available over the year from the decomposition of organic matter.

=20 + [(OM -.5) x 40] if OM <1%

= 40 + [(OM – 1) x 20] if OM >1% and <3%

= 80 + [(OM – 3) x 10] if OM >3% and <5%

= 100 + [(OM – 5) x 5] if OM >5% and <10%

= 125 + [(OM-10) x .5] if OM >10% and <20%

= > 130lbs of N if OM >20%

Estimated Nitrogen Release is not a valid estimation on a soilless media.

*****It is not valid for anything with an Organic Matter over 20%.**

Nitrogen (N) is essential to nearly every aspect of plant growth. We frequently get questions about nitrogen test results and recommendations, as well as testing opinions.

1. If Nitrogen is so important, why do I not see Nitrogen results on my report?

Plants absorb nitrogen as nitrate (NO3-) and ammonium (NH4+). Soil NO3- and NH4+ levels can fluctuate widely with weather and soil conditions over very short time periods. For this reason, soil nitrogen testing is only useful for predicting immediate fertilizer needs. Nitrogen recommendations are based on crop needs with the assumption that very little available N remains in the soil at the end of the growing season. Recommendations given reflect the amount of nitrogen needed for one growing season.

2. If I want to know my available nitrogen levels, what do I ask for?

Ask for...nitrate and ammonium.

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Interpretation of Soil Test Lead (Mehlich III extractable screening)

Lead (ppm)	Interpretation
0-47	Soil test is at background levels.
47-202	Soil has elevated levels of lead, though below the recommended action limits.
202-278	Soil test indicates that there is significant contamination with lead.
> 278	This level meets soil clean up criteria for residential soil.

****Information provided by Rutgers New Jersey Agricultural Experiment Station.**