



Primary Numbers: The Big 5 Every Homeowner Should Understand

TEST	OPTIMAL RANGE	TYPICAL LI	STATUS	WHAT IT MEANS FOR YOUR LAWN
pH	6.0-7.0	5.9-6.2	Often low	Controls nutrient availability. Below 6.0, nutrients lock up in the soil even if they're present. Target 6.5. Fix with lime.
Phosphorus (P)	4-14 ppm	22-29 ppm	Usually high	86% of submitted LI samples test sufficient or excessive for P. NYS law prohibits P fertilizer unless test shows deficiency. Don't add P unless your test specifically says "Low."
Potassium (K)	100-160 ppm	80-101 ppm	Often low	Stress tolerance, disease resistance, winter hardiness. Sandy soil leaches K fast. Correction needs 3-5x the normal rate on sand (CEC-dependent). Max 0.50 lbs K2O per app.
Calcium (Ca)	500-1500 ppm	Variable	Often low	Cell wall structure and root development. Lime adds calcium automatically (every lime product is a calcium compound). If pH is low, fixing pH fixes calcium.
Magnesium (Mg)	50-120 ppm	Variable	Check ratio	Chlorophyll production (green color). If Mg is low AND pH is low, use dolomitic lime (adds both Ca and Mg). If only pH is low, use calcitic lime.

Secondary Numbers

CEC (cation exchange capacity) 3-12

Your soil's "grip strength" for nutrients. Low CEC (under 5) = nutrients leach fast. Typical deep LI sand: under 3. Maintained lawns: up to 12. Higher is better.

Organic Matter (OM) 3-5%

Sponge for water and nutrients. Each 1% increase adds 1.5-2.5% available water capacity. Build with topdressing compost (0.25 inches per year).

Iron (Fe) 4-10 ppm

Dark green color without excess growth. Foliar iron spray is fast-acting cosmetic fix. Low iron often caused by high pH locking it out.

Micronutrients (Usually Fine)

Sulfur (S) 10-30 ppm

Manganese (Mn) 2-10 ppm

Zinc (Zn) 1-5 ppm

Boron (B) 0.5-2.0 ppm

Copper (Cu) 0.5-2.0 ppm

Micronutrient deficiency in home lawns is rare. Don't add micronutrient supplements unless your soil test specifically identifies a deficiency. Fix pH first because low pH locks out multiple micronutrients simultaneously.

The #1 rule of soil tests: Fix pH first. A lawn with perfect P, K, Ca, and Mg levels but a pH of 5.2 will still look terrible because those nutrients are locked in the soil, unavailable to the grass. Get pH to 6.0-7.0 and everything else starts working.

Fix pH First
RULE #1

6.0-7.0
TARGET PH

No P
UNLESS TEST SAYS LOW

3-5x K
CORRECTION ON SAND

Annual
TEST ON LI SAND

Your test result says X. Here's what to apply, how much, and when.

Soil Test Action Table (Long Island Sandy Soil)

RESULT	READING	ACTION	PRODUCT	RATE (PER 1K)	TIMING + NOTES
pH Low	BeLow 6.0	Apply lime	Pelleted calcitic lime	25 lbs per 1.0 pH unit	Fall preferred. Max 50 lbs per app. Retest in 12 weeks. Full effect: 1-2 years.
pH High	Above 7.2	Apply sulfur (rare on LI)	Elemental sulfur	10-15 lbs per 1.0 pH unit	Max 5 lbs per app. Check for construction fill or concrete runoff. Retest in 12 weeks.
P Low	BeLow 4 ppm	Apply P fertilizer	Starter fert (18-24-12) or bone meal	1.0 lb P205 max/yr	NYS allows P only with soil test proof of deficiency. Apply at seeding or in fall. Rare on LI.
P High	Above 20 ppm	No P fertilizer	Use O-P products (X-O-X)	0	86% of LI samples are here. Excess P runs off into waterways. Choose fertilizers with zero middle number.
K Low	BeLow 100 ppm	Apply potash	Sulfate of potash (0-0-50) or 0-0-60	0.50 lbs K20 max	Sandy soil needs 3-5x normal K correction. Split into multiple apps at 0.50 lbs K2O max each. 4-6 weeks apart.
Ca Low	BeLow 500 ppm	Apply lime (adds Ca)	Calcitic lime	Per pH table	If pH is also low, lime solves both. If pH is fine but Ca is low (rare), use gypsum (calcium sulfate).
Mg Low	BeLow 50 ppm	Apply dolomitic lime or Epsom salt	Dolomitic lime or MgSO4	Per pH table	If pH also low: dolomitic lime (fixes pH + Mg). If pH is fine: Epsom salt foliar spray (1 lb/1K dissolved).
CEC Low	BeLow 5	Build organic matter	Screened compost topdressing	0.25 in/year	CEC can't be changed directly. OM is the lever. Each 1% OM gain adds 1.5-2.5% AWC and improves CEC. Multi-year process.
OM Low	BeLow 3%	Topdress with compost	Screened compost (STA certified)	0.25 in/year	Core aerate first, then topdress. Best in fall. Spread thin, work into aeration holes. Don't bury grass.
Fe Low	BeLow 4 ppm	Iron spray or granular	Ironite or ferrous sulfate spray	Follow label	Quick green-up without growth surge. Check if low Fe is caused by high pH first. Fix pH and Fe often corrects itself.

Every correction in this table assumes established turf on LI sandy soil. New lawn installation rates are approximately 2x (full 6-inch incorporation). K corrections on sand with CEC under 5 use the 5x multiplier. Modified Morgan extract ranges shown. Mehlich-3 optimal ranges are higher.

A table tells you what. The engine tells you how much.

Upload your soil test to the Blade Boss Soil Correction Engine. It reads your actual numbers, factors in your soil texture and CEC, and gives you exact product amounts for every zone on your property.

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