

MINIMUM LEVELS FOR SUSTAINABLE NUTRITION (MLSN)

MLSN soil guidelines were developed by Dr Micah Woods and Dr Larry Stowell after many years reviewing and correlating over 17,000 soil test results from turf around the world. What they have developed has, for the first time, allowed us to give great precision to our soil test interpretation. Knowing the minimum levels for K, Ca, Mg, P and S (measured in ppm) in a soil test that we should not go below, means we can help our clients accurately plan their fertiliser programs based around how much nitrogen they wish to apply.

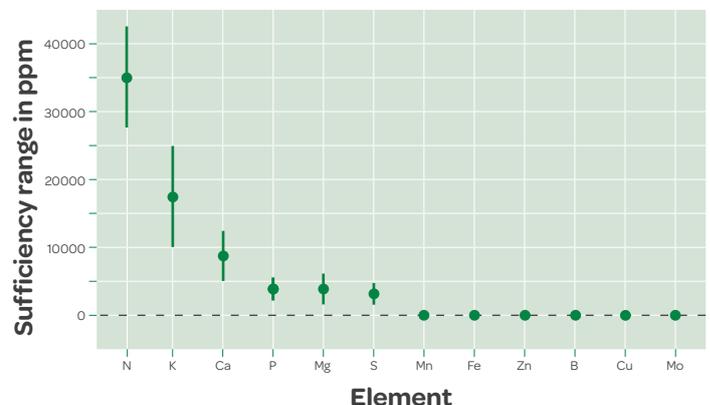
The MLSN Guidelines define a safe, minimum level of key nutrients in the soil. For healthy turf, you want your soil test results to be consistently maintained above these numbers:

MLSN Soil Guideline

| | |
|------------------------------------|------|
| pH | >5.5 |
| Potassium (K ppm) | 37 |
| Phosphorous (P ppm) | 21 |
| Calcium (Ca ppm) | 331 |
| Magnesium (Mg ppm) | 47 |
| Sulphur as sulphate (S ppm) | 7 |

The graph below explains what nutrients turf requires for healthy growth and how turf accesses the nutrients it needs. The required amount of K, Ca, Mg, P and S is a function of the amount of nitrogen applied.

Approximate amounts of essential mineral elements found in healthy turf



Data from Table 1 in:
<http://plantscience.psu.edu/research/centers/turf/extension/factsheets/turfgrass-fertilization-professional>

Turf takes up its required nutrients from the soil in a set ratio relative to nitrogen. The amount it takes up is directly correlated to the amount of nitrogen applied. For example, a healthy bent / *Poa* golf green that is fertilised with 200 kg/ha actual N per year requires half the amount of K, Ca, Mg, P and S required by an elite level sports field fertilised with 400 kg/ha actual N per year.

Using the MLSN principles allows you to accurately calculate how much, if any K, Ca, Mg, P and S needs to be applied over a specified time period to not let nutrient levels fall below these minimum levels.