

thorough aeration. If this method does not work, complete renovation may be the only answer.

**Why does young grass in many greens show a nitrogen deficiency even when greater rates of N are applied than normally required?**

In most instances when this occurs, raw or readily decomposable organic matter was used in the mixture. For the most part, organic matter breakdown is dependent upon soil microbes. While their growth responds to temperature changes, they, like the grass, require nutrients for growth; and when an organic material is available, they seem to prosper. Inasmuch as the bodies of the microbes are rich in proteins (which are about 6.25 per cent nitrogen), much of the nitrogen in the soil is tied up in their bodies as they grow.

The microbes consume the available substrate (the rough organic in this case) until their population becomes too great

for it to support. At that point, death of the older and weaker of the microbes begins to occur until an equilibrium in population is established. It is during the period prior to the establishment of the equilibrium that the deficiency develops; during this time supplemental applications of an inorganic and readily available source of nitrogen are warranted.

While much nitrogen can be tied up in proteins and complex nucleo-proteins, later it will become available for turf consumption as those complex compounds are broken down, as described above, and also through chemical decomposition.

The deficiency should not cause alarm but should be expected and its management planned when such sources of organic matter are utilised. It is for this same reason that farmers must fertilize more after a cover crop than when no cover crop was ploughed in prior to planting.



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