ALPHA OMEGA LLC

THE MICROBIAL NITROGEN CYCLES

FACTOIDS:

1. 99.9% of all of the earth's nitrogen is atmospheric
2. Only 0.1% or less is available to be managed by microbes based in any geomicrochemical natural transformations.
3. Plants, animals and microbes all use nitrogen FOR DNA/RNA and proteins in the form of natural, microbally produced ammonia (NO2H4……nitrite+ oxygen + hydrogen).
4. Microbes decompose dead things releasing the decomposed proteins DNA/RNA back into atmospheric nitrogen (N2 or NO2). These are "denitrifiers".
5. According to The American Microbial Society, every tablespoon of microbially fertilized soil contains ***over one billion microbes***……..representing multiple species and sub-species of at least 5,000 different microbial genus types. A chemically fertilized tablespoon of chemically fertilized soil has about 2,000 to 3,000, representing only 700 to 800 genus types. Normal, unfertilized prairie soil falls in between those two sets of figures.

EXPLANATION:

Use of chemical fertilizers:

When the nitrogen returns to the atmosphere as NO2,as a gas, it is called nitrogenous oxide, or "laughing gas". This in turn, depletes the ozone layer, which protects the earth from the harmful radiation coming from the sun. When chemical fertilizer is added to the soil….or from manure that is used as fertilizer in its biochemical released form as digested or partially digested "laying mash,"for example, it usually always has methane and hydrogen sulfide in the manure, and the nitrates act the same as the chemical fertilizers, forming the same kind of potent nitrate molecule that depletes the ozone layer.

Undissolved nitrogen salts encourage the growth of cyanobacterium and cyanocholophyta as well as excessive filamentous green algae. These plants require copious amounts of oxygen, and if allowed to continue to grow, the aquatic system will become depleted of oxygen and all the fish, frogs, turtles, phytoplankton and zooplankton will die off. This encourages the increase in mosquitoes and flies all over the farm. A chemical nitrate that is released back into the atmosphere, instead of replacing the beneficial nitrate, destroys the ozone layer. Chemical nitrates return to the atmosphere as a nitrate salt and acts as a particulate around which water forms and returns to earth as acid rain. This does not happen with microbially bound nitrogen.

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In a natural ecosystem, all matter cycles and all energy flows:

Microbe-formed nitrate binds in legumes (plants with Rhizobium, a fungal organism, with a series of hyphae [root-like structures] that act like a super-highway, that carry and store nitrogen.) There also are Mycorrhizae (a "fungal root") structures which work in conjunction with the bacteria, algae and protozoans to complete the microbial ecosytems that carry out the microgeochemical cycles.

Microbial "nitrogen fixers" live as part of the Rhizobium and the Mycorrhizae and as free-living microbes 'fixing' or 'binding' nitrate in a form that is easily used by plants, animals and other microbes to make proteins and DNA/RNA, through a series of complex biochemical reactions.

When microbial nitrogen fixers die, an opposite but equally complex set of biochemical cycles release the nitrogen back into the atmosphere. These microbes are called "denitrifiers". Instead of releasing the potent Nitrous Oxide, NO2, nitrites are released, becoming part of the 99.9%, leaving the soil and water with its normal 0.1%.

In the case of treating manure with Manure Management Plus, our naturally balanced microecosystem is a balanced consortium that has numerous cycles, made up of specific microbes that have been selected for the treatment of the manure piles. It contains both the ***denitrifiers*** to separate out and degrade the ammonia into a nitrogen form that produces an easily absorbed nitrate that will produce excellent corn and tomatoes . This step is done by the ***nitrogen fixers*** that bind tightly to the soil particles, using a kind of 'glue'produced by their cell walls, take up residence in the Rhizobium nodules and form the Mycorrhizae .

The nitrogen, phosphate, sulfate and potassium in their microbial form, do not wash out of the soil and into farm streams and ponds as easily and if they do, as microbial generated nitrates (N3), they are taken back up into the atmosphere and the process starts all over again, with no damage to the ozone layer, no "burned crops" from the nitrogen salts used in chemical fertilizer, and no eutrophication from undissolved chemical salts.

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