Environmental Fertilisers

July 2011

Newsletter 01

This Newsletter highlights our new-look Environmental Fertilisers logo and heralds a change in both frequency and length of future newsletters. They will be shorter and bullet pointed for quick and easy reading, and we plan to send them out monthly or bi-monthly.

Inside this issue:

Pg 1 Spring pasture growth

Pg 2 Biological Agriculture Seminar

Pg 2 The role of Calcium within nature

Pg 3 Breathing soil may be good for you

Pg 3 New team member

Pg 4 8 reasons why honey bees could be disappearing

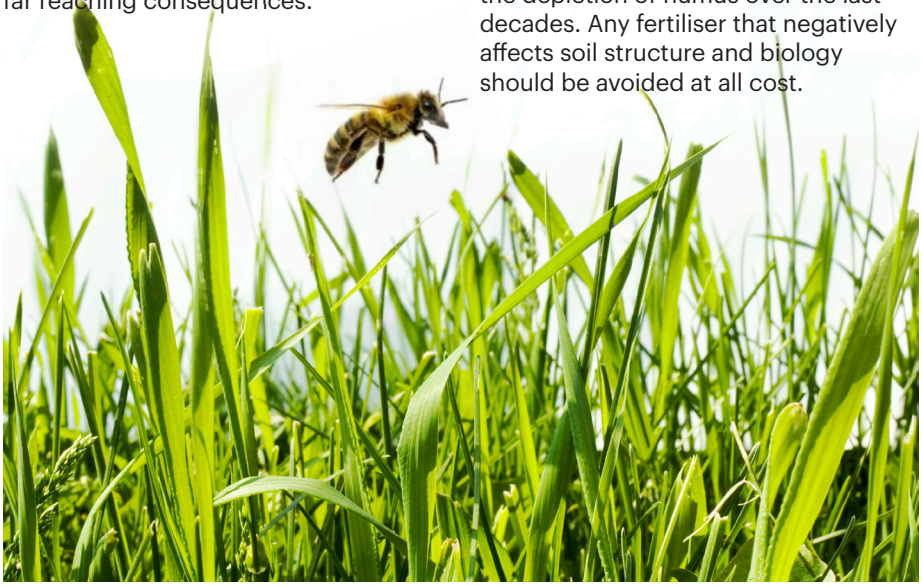
Spring pasture growth

Now is the time to be preparing for early spring growth. Wet soil means less available N and pasture growth needs N.

Heavy use of N however is debilitating to soil. It shuts down natural atmospheric N fixation, carries a lot of water into the pasture with it (low brix/low nutrition), leaches nitrates and depletes soil humus levels by causing soil bacteria to go on a feeding frenzy. To maintain their correct C:N ratio they are forced to rob carbon from soil humus; that is, humus is depleted. This is a serious consequence of high N application that will cost you in carbon taxes and waterway pollution and negatively affect generations to come unless brought under control. So how you generate spring growth can have far reaching consequences.

Biological agriculture is the only approach to soil management that actually grows soil carbon, improving the carbon balance and the mineral content of pasture. It does this by balancing N with sufficient carbon to maintain the crucial bacterial C:N ratio and ensuring conditions are right for soil microbes responsible for building new humus.

If you are short of N in early spring, use sulphate of ammonia buffered with humates. If you can't ground-spread it due to ground conditions, fly it on. SOA supplies both N and sulphur, the ammonia has a warming effect in cold soils, the added humate prevents the S and N leaching, protects the microbes and supplies carbon to prevent bacteria raiding existing soil humus. SOA is a much better option than urea which has been a major factor in the depletion of humus over the last decades. Any fertiliser that negatively affects soil structure and biology should be avoided at all cost.



Beyond Organics

Biological Agriculture Seminar

An introductory seminar for dairy and drystock farmers will be held in the Boardroom, Environmental Fertilisers, Kerepehi on Wed 6 June, from 1-3 pm.

Space is limited to 30 maximum so be in early to reserve a seat as we expect places to fill quickly. An entry charge of $40 per person applies. This will give attendees an overview of this exciting approach to soil fertility management. The biological approach is both scientifically sound and an eye opener for those struggling to grow enough grass and avoid the costly problems associated with conventional farming.

Phone
07 867 6737
to book your place.

The role of Calcium within nature

Some bullet points from Dr A F Beddoe that highlights the crucial role that calcium plays in both soil and human health and why plant availability of soil calcium is paramount to soil fertility.

CALCIUM AND SOIL/PLANT HEALTH

Calcium is the most important element in soil health, the mineral against which all others release growth energy for plant life and health. The poorer the available calcium reserve the more irregular the energy delivery.

Calcium is required by weight and volume more than any other element. Calcium is to soil what grease is to a bearing.

Calcium is the key to proper soil structure. Calcium + carbon + water opens up soil structure to oxygen. Applying ground limestone results in less energy required to cultivate, softer soil to greater depths, improved drainage and increased yields.

Calcium feeds soil bacteria. Dormant bacteria come to life and start building soil and releasing energy. Bacterial action builds biological carbon compounds for storage and release of energy, no matter what the pH is.

Calcium is the major mineral determining soil reserve energy. Available calcium determines available energy.

Calcium is the major contributor to structure and chemical reactions in soil and plants, as well as in humans and animals. It is the main buffering agent in intracellular reactions and increases cell permeability to mineral energy. Calcium's presence in cell walls thickens and strengthens them to increase resistance to disease and insect attack. It is also the major cementing medium between cells.

Calcium stabilises proteins. Too little calcium enables nitrogen to pull excess water into foliage. Adequate calcium means less nitrogen to produce a crop.

Calcium is vital to the proper manufacture of plant sugars. Without calcium there will be inadequate buffering of plant acids. While an acidic taste results from low calcium availability, greatly improved flavour results from high calcium availability.

CALCIUM AND HUMAN HEALTH

Calcium is vastly superior to other minerals in assisting elements into cells. It can bind to several different elements at once, enabling it to bind and bunch up long proteins, an ability necessary for regulating entry of ions into cells. Calcium brings the most nutrients into the cell.

Calcium is responsible for cell density, colour and function. When mineral ratios become abnormal because of calcium changes, tissue colour changes along with an alteration in the function of that tissue.

Calcium can bond more efficiently to both protein and water simultaneously than any other major mineral. Calcium is the most flexible element in biological systems.

Calcium requires the least ionisation to produce voltage to enter through cell membranes.

Calcium is the most efficient pH buffer for extracellular fluid. This is crucial for allowing glucose to break down into the basic building blocks of DNA.

Calcium overall is nature's best tranquilizer.

Calcium releases the energy of food during digestion. The less calcium in your food the less mineral energy you get from that food. For example, a cow eating lucerne hay with a sugar (brix) level of 16"% requires only 10-12 kg of protein to produce 100 kg of milk. Whereas a cow consuming low brix feed will require up to 40% more protein to achieve the same production.

Calcium is one of the most difficult minerals to digest in an inorganic state. That is why it is most important to let nature digest it – as it was designed to – from the soil up, through the plant. You have the best high-calcium supplement when eating high quality food.

Little wonder then that Environmental Fertilisers majors on calcium availability and Reams soil tests.

Breathing soil may be good for you

Scientists at the Sage Colleges of Troy, N.Y., have discovered that exposure to certain kinds of soil bacteria can reduce anxiety and increase learning capabilities when ingested or inhaled, reports Physorg.com. (Dirt may actually make you smarter!)

The amazing bacterium in question is Mycobacterium vaccae, which occurs naturally in soil and is often breathed in innocuously when people spend time in nature. Previous studies had revealed that when the bacteria is injected into mice, it stimulates neuron growth and causes serotonin levels to increase. Since increased serotonin levels are known to decrease anxiety, researchers already suspected that the bacteria could have antidepressant benefits.

But decreased anxiety isn't the only effect of increased serotonin, and researchers wanted to investigate further. "Since serotonin plays a role in learning, we wondered if live M. vaccae could improve learning in mice," said Dorothy Matthews, who conducted the research.

After feeding the live bacteria to a group of mice, Matthews and her colleague Susan Jenks subjected the mice to a test of wits with a control group by having them run a maze.

"We found that mice that were fed live M. vaccae navigated the maze twice as fast and with less demonstrated anxiety behaviors as control mice," said Matthews.

Two subsequent experiments revealed that the mice fed the bacteria still ran the maze slightly faster than the control group once the bacteria was withheld from their diet, but the effect did not last for long — meaning the effect was a result of the presence of M. vaccae. If the bacteria had a similar effect on humans, it could mean that spending periods of time outdoors would need to be part of a regular routine for maximum neurological benefit.

"It is interesting to speculate that creating learning environments in schools that include time in the outdoors where M. vaccae is present may decrease anxiety and improve the ability to learn new tasks," noted Matthews.

New team member

Alan Rockell
New Farm Consultant for Northland

Alan grew up on a dairy farm so he knows this industry well. After leaving school Alan trained as an engineer. At 22 he took up an opportunity to go back to dairy farming in a 50:50 share milking agreement with 150 cows on 40 Ha in the Waikato region. He progressed to 600 cows before buying his first farm in Te Puke milking 200 cows in 1990.

Once he sold the Te Puke property he had a short break from farming before buying 1000 rolling acres in Northland and converting 500 Ha of gorse and tea tree back into grass, milking 180 cows with dry stock. He sold this property in 2007.

This lead onto managing a small dairy farm where he developed his passion and understanding of organics achieving Biogrow certification for the property.

Having recently remarried, Alan felt it was time to offer his breadth of knowledge to assist and support the farming community, choosing to be a soil management consultant for Environmental Fertilisers.

Alan enjoys fishing and diving, growing a great vegetable garden.

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8 reasons why our honey bees could be disappearing. Pg 4

8 reasons why honey bees could be disappearing

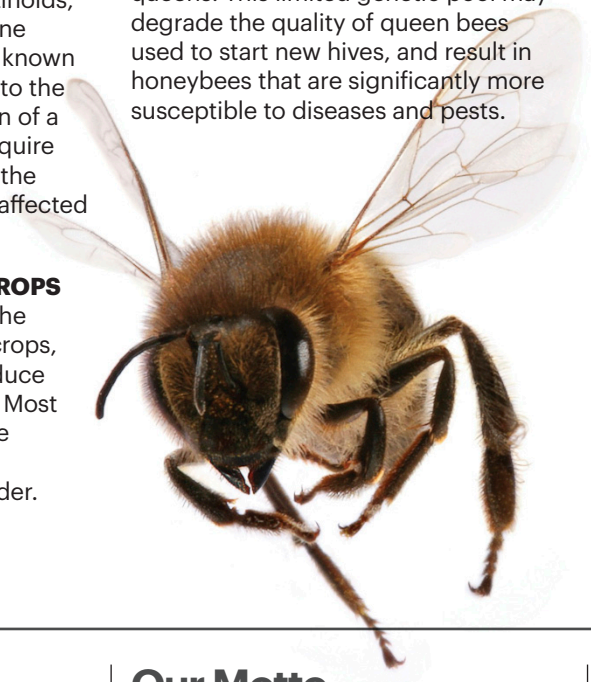
1. MALNUTRITION Wild honeybees forage on the diversity of flowers in their habitat, enjoying a variety of pollen and nectar sources. Honeybees used commercially limit their foraging to specific crops, such as almonds, blueberries, or cherries. Colonies kept by hobbyist beekeepers may fare no better, as suburban and urban neighbourhoods offer limited plant diversity. Honeybees fed on single crops, or limited varieties of plants, may suffer nutritional deficiencies that stress their immune systems.

2. PESTICIDES Any disappearance of an insect species would implicate pesticide use as a potential cause, and CCD is no exception. Beekeepers are particularly concerned about a possible connection between Colony Collapse Disorder and neonicotinoids, or nicotine-based pesticides. One such pesticide, imidacloprid, is known to affect insects in ways similar to the symptoms of CCD. Identification of a causative pesticide will likely require studies of pesticide residues in the honey or pollen abandoned by affected colonies.

3. GENETICALLY MODIFIED CROPS Another suspect in the case is the pollen of genetically modified crops, specifically corn altered to produce Bt (Bacillus thuringiensis) toxin. Most researchers agree that exposure to Bt pollen alone is not a likely cause of Colony Collapse Disorder. Not all hives foraging on Bt pollen succumbed to CCD, and some CCD-impacted colonies never foraged near genetically modified crops. However, a possible link may exist between Bt and disappearing colonies when those bees had compromised health for other reasons. German researchers note a possible correlation between exposure to Bt pollen and compromised immunity to the fungus Nosema.

4. MIGRATORY BEEKEEPING Commercial beekeepers rent their hives to farmers, earning more from pollination services than they could ever make from honey production alone. Hives are stacked on the back of tractor trailers, covered, and driven thousands of miles. For honeybees, orientation to their hive is vital to life, and being relocated every few months must be stressful. Additionally, moving hives around the country may spread diseases and pathogens as honeybees intermingle in the fields.

5. LACK OF GENETIC BIODIVERSITY Nearly all queen bees in the U.S., and subsequently all honeybees, descend from one of several hundred breeder queens. This limited genetic pool may degrade the quality of queen bees used to start new hives, and result in honeybees that are significantly more susceptible to diseases and pests.



6. BEEKEEPING PRACTICES Studies of how beekeepers manage their bees may determine trends that lead up to the disappearance of colonies. How and what bees are fed would certainly impact their health directly. Splitting or combining hives, applying chemical miticides, or administering antibiotics are all practices worthy of study. Few beekeepers or researchers believe these practices, some of which are centuries old, are the single answer to CCD. These stresses on the bees could be contributing factors, however, and require closer review.

7. PARASITES AND PATHOGENS Known honeybee pests, such as American foulbrood and tracheal mites, do not lead to Colony Collapse Disorder on their own, but some suspect they may make bees more susceptible to it. Beekeepers fear varroa mites the most, because they transmit viruses in addition to the direct damage they do as a parasite. The chemicals used to control varroa mites further compromise the honeybees' health. The answer to the CCD puzzle might lie in the discovery of a new, unidentified pest or pathogen. For example, researchers discovered a new species of Nosema in 2006; Nosema ceranae was present in the digestive tracts of some colonies with symptoms of CCD.

8. TOXINS IN THE ENVIRONMENT Honeybee exposure to toxins in the environment warrants research as well, and some suspect chemicals as a cause of Colony Collapse Disorder. Water sources may be treated to control other insects, or contain chemical residues from runoff. Foraging bees might be impacted by household or industrial chemicals, through contact or inhalation. The possibilities for toxic exposure make pinpointing a definitive cause difficult, but this theory requires attention by scientists.