

Products & Advice for Regenerative Agriculture

How the use of Urea can affect the Mineral levels in your soil

A True Story...

About ten years ago just after we started this business, a farmer did an experiment that opened our eyes...

Jim, (name changed for purpose of privacy) was a cane farmer and had been growing cane and grazing cattle for many years.

Like many farmers Jim was conscious of the fact his cane ground was getting harder to cultivate and he was having to use higher and higher amounts of fertilizer to get a crop.

His experiment was simple: He took two pots of soil from his grazing country and applied urea to one pot. (Urea applied at equivalent to 100kg / acre.)

He then proceeded to water both pots of soil with equal amounts of water each day. Here is what he observed ...

- In the pot where he had used the Urea, the soil caked over within a few days and water penetration became increasingly slow compared to the pot with no Urea.
- Each day the water applied to the urea pot took longer and longer to penetrate.
- The soil in the urea pot cracked and dried out quicker.
- The colour of the water coming out of the bottom of each pot was different. Water from the Urea pot was brown and the water from the other pot was relatively clear.

As a result of these visual signs in the soil, Jim then went on to have a laboratory perform the same experiment, collecting the water from the bottom of the pots and testing both the soil and the water. These tests showed a very interesting result...

Minerals and organic matter were leached out of the soil where Urea was applied

	SOIL		WATER	
	Untreated mg / kg	Urea mg / kg	Untreated mg / L	Urea mg / L
Phosphate	34.2	38.1 ↑		
Potassium	375.0	191.0 ↓	2.3	31.1 ↑
Sodium	55.0	53.0 ↓	9.3	12.4 ↑
Calcium	1215.0	1198.0 ↓	16.0	26.5 ↑
Magnesium	387.0	371.0 ↓	3.3	5.6 ↑
Manganese	1594.0	900.0 ↓	1.5	2.2 ↑
Iron	331.0	58.0 ↓	0.3	23.8 ↑
Copper	5.0	3.6 ↓		
Zinc	3.9	3.6 ↓		
Sulphur	41.0	37.0 ↓		
Organic Matter	6.6%	6.0% ↓		
Conductivity			320	1400 ↑
Total dissolved solids			160	970 ↑
Colour PC Std			34	16250 ↑
Suspended solids NFR			10	7050 ↑
Filterable Residue			2	3100 ↑
Bicarbonate			114	1104 ↑
Alkalinity as CaCO ₃			95	920 ↑

* Nitrate unable to be measured due to sample high colour interference

Water from bottom of the Urea treated pot had increased level of minerals...

Water from the urea pot had higher levels of potassium, manganese, iron, calcium, magnesium and sodium compared to the control (zinc, copper, phosphorus and sulphur levels were not tested). These results reflect the decreased levels of the same elements in the soil test, indicating that these minerals had been leached from the soil in the pot that had been treated with urea.

One farmer had his answer, he proceeded to remineralize his soil and to reduce (not eliminate) the amount of water soluble fertilizers that he was using.

What does this mean for you?

For those of you who were around when fertilizer use was just coming into vogue, you will remember getting great results from using a very small amount.

Over the years however, most farmers can identify with having to steadily increase the amount of fertilizer used to get the result that they want.

Over the last couple of years, we have had many farmers even saying that they don't get results despite using higher levels of fertilizer.

So what has changed over the years?

We believe that two factors have contributed to the need to increase the use of fertilizer...

- the depletion of mineral elements in the soil
- the depletion of soil organisms in the soil (microbe and worm activity).

The depletion of minerals in the soil...

Mineral elements have probably been slowly reducing over the centuries, however Jim's story has highlighted the possibility that this mineral depletion has escalated due to the use of water soluble fertilizer.

The depletion of life in the soil - microbe & worm activity...

Many farmers are not aware of the detrimental effect that water soluble fertilizer can have on their soil life... the microbes and worms in their soil.

CSIRO research has found that 80 kg/ha of Nitrogen fertilizer can reduce soil microbe populations by 25% and that high Phosphorus inputs reduce the beneficial effects of mycorrhizae fungi. In addition, the use of high levels of fertilizer can reduce humus levels in your soil. For every 1 kg of excess Nitrogen applied, 100 kg of soil humus is destroyed. Ref: The Carbon Connection by Leonard Ridzon. (continued over page)

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Fertile soil can **INCREASE** your production and **SAVE** you money.
Fax your soil test or phone us now for practical advice
on how to regenerate fertility to your soil.

Replace Soil Minerals and Stimulate the Life in Your Soil...

What effect does the depletion of soil microbes have?

Soil microbes play a vital role in the conversion of mineral elements into plant available form. Even the effectiveness of water soluble fertilizer is linked to the level of microbe and worm activity in your soil.

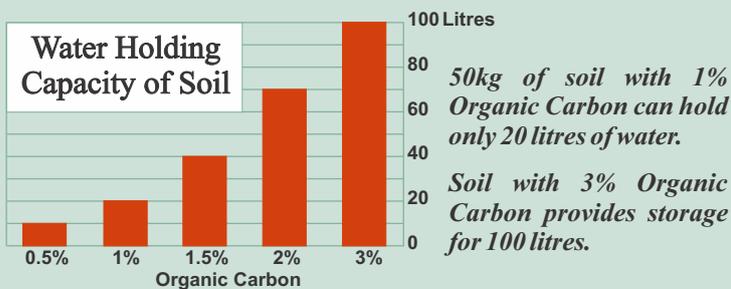
The depletion of soil microbes results in low levels of organic carbon in the soil, poor water infiltration and moisture retention, as well as structural problems such as crusting or compacted soil that is difficult and expensive to work.

The end result... lower yielding crops that require increasing levels of fertilizer and chemical sprays.

How would you like to build a dam in your soil?

Soil humus can hold up to 250 kg of stored Nitrogen/ha and can provide a storehouse for water, helping to drought proof your farm. Organic Carbon is an indication of humus levels and the higher the level, the greater water holding capacity.

Because soil microbes produce their own weight in humus every day, management practices that support their numbers will be reflected in the capacity of your soil to act as a reservoir for plant nutrients and water. (See chart below.)



How to restore mineral elements and bring your soil back to life...

The biomass of microbes in healthy, living soil can easily amount to 4 or 5 tonne per hectare. Minerals, Mulch, Moisture and Air are the essential ingredients in your soil to enable these microbes to thrive,

Natra Min provides the broad spectrum of mineral elements and is formulated to stimulate microbe and worm activity in your soil.

The use of Natra Min can prove to be a cost effective alternative to water soluble fertilizer...

In addition to having to use higher amounts of water soluble fertilizer over the years, the cost of each tonne of fertilizer has increased out of proportion to the payments you receive for your produce.

By following a program of remineralization with Natra Min, mulching, crop rotation and soil aeration when necessary, many farmers have found that they have been able to steadily reduce the amount of water soluble fertilizer needed.

Phone us on 1800 81 57 57 and we can advise you on how to build your soil fertility and reduce your fertilizer needs.

NATRA MIN

Mineral Soil Conditioner

Broad Spectrum Minerals and Microbe Stimulant
Also available with extra Phosphorus, Calcium, Potassium and Sulphur

SUPERIOR MINERAL SUPPLEMENT



MEGA MINERALS LICK BLOCKS

Broad Spectrum Minerals give results during drought

Cattle and sheep producer, Tim Wright from Uralla NSW, who has helped pioneer cell grazing practices in Australia, believes that the broad range of minerals supplied in Superior Mineral Supplement and Mega Minerals Organic Lick Blocks are playing a vital role in the management of his property and stock during the current drought conditions. Here is what he has to say...

Digestion of dry feed - similar to using Urea...

"Cattle appear to be getting similar digestion of dry feed compared to when I was using Urea."

Cattle and sheep in good condition...

"Despite experiencing one of the hardest winters with many days at minus 8°C, coupled with long term drought conditions, my cattle and sheep are looking good. Newborn calves have been in good condition and are stronger than in previous years."

Improved conception levels...

"Conception levels are 95% - an improvement of 5 to 10% over previous years."

The proof is in the look of the stock...

"My program of year round access to Superior Mineral Supplement or Mega Minerals Lick Blocks, with the addition of protein meal when native grasses are of a very poor quality, is paying off for me. The proof is in the look of the stock."

SUPERIOR Mineral Supplement is now available in the convenient form of Mega Minerals Organic Lick Blocks

Suitable for all animals



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