



SORRY. The food wasn't transported this week.

Healthy, nutritious food has been produced.
It's packaged up and ready to eat.
It's even close by.
But what good is that if you can't get your hands on it?

Something like this happens every day on farms throughout New Zealand. Farmers spend hard-earned money on fertiliser that's meant to feed and grow their grass. But a lot of the minerals within the fertiliser isn't making it to the plants – they're close by but *not within reach*.

The problem is transportation.

Before we explore the issue of nutrient transportation, we need to talk about the range of foods that plants need in order to thrive. It's more than you think.

Grass needs 16 nutrients

In spite of the fixation with NPK, grass actually needs a combination of 12-16 nutrients if it's going to add healthy weight to your animals. Among them are *Calcium, Magnesium, Nitrogen, Potassium, Sodium, Phosphate, Sulphur, Zinc, Boron, Copper, Manganese, Iron, and Selenium*.

Some of these minerals directly impact plant growth. Others help plants by feeding the soil microbes that convert nutrients into forms that plants can uptake. Some minerals condition the soil and suppress plant diseases while others promote root development.

It is the combination of these minerals, working together, that causes grass to grow in a nutrient-rich fashion.

But it's not enough for these nutrients to be in the soil, or even around the roots (micro-organisms bring the minerals there). **Something has to transport the food up into the plant.**

Calcium is the Transport Truck

Calcium is known as the King of Minerals. That's because it is the nutrient that transports all the other minerals up the roots and into the engine room of a plant.



Calcium is the mineral truck which is why plants and animals use it *more than any other nutrient* (by weight/volume).

What else does Calcium do?

Apart from transporting nutrient food up into your grass, Calcium performs these other crucial functions:

- Calcium enhances the uptake of many other nutrients, making them available to plants.
- Calcium promotes healthy root, stem and leaf growth.
- Calcium improves the soil environment for micro-organisms
- Calcium flocculates the soil
- Calcium allows Nitrogen fixation to occur on the root nodules of legumes
- Calcium is important for microbes – fungi and bacteria rely on calcium for their reproduction

Can you have too much Calcium?

Applying too much Calcium can create as many problems as not having enough.

Calcium works in partnership with **Magnesium** to determine *soil structure*. Calcium loosens soil by flocculating soil particles together and increasing air space, while Magnesium decreases particle size causing less air space and tighter soils. You need a degree of space to allow for water, air, and nutrient movement and enough compactness to enable these crucial elements to be retained in the soil.

What happens if too much Calcium is applied? The soil structure becomes too loose allowing water to flow through unimpeded which washes vital elements away from plant root systems. It also causes soils to dry out more readily.

It is therefore important to have between 60-70% Calcium and 10-20% Magnesium base saturation to achieve the desired structure, depending on your soil type. Once we have achieved these levels we can be assured to have provided the ideal environment for the soil biology to thrive.

The Calcium - pH Mistake

Many farmers are familiar with Calcium and use it primarily to shift the pH levels of the soil. There are a couple of misunderstandings behind this practice.

The first mistake is thinking that pH alone is a good indicator of *soil health*. When you read the list of 16 key minerals that grass requires, you can see that *soil health* is more complex than pH. Soil and plant (and animal) health is a complex

interconnected system that includes micro-organisms, organic matter, water and air flow, and the right balance of minerals to feed the whole soil food web.

The second mistake is thinking Calcium is the only mineral that lifts pH, where in fact Magnesium, Potassium and Sodium all lift pH more than Calcium, 1.6x, 2x and 4x respectively.

It is therefore important to have these minerals in the correct base saturation percentages to achieve the optimum 6.3 pH.



Golden Bay Dolomite has Organic Calcium

Dolomite is a **59% calcium 39% magnesium carbonate** occurring as a completely natural rock deposit found in New Zealand only at *Mount Burnett, Golden Bay*.



Dolomite's slow magnesium release makes it the perfect fertiliser. As plant root acid secretions in the soil work on dolomite, its rate of breakdown accelerates in demand to plant requirements, releasing both magnesium and calcium in quantities sufficient to meet requirements, something even a mixture of lime and MgO can't do.

What are the advantages?

- Significant reduction in animal metabolic disorders
- Improved mating performance.
- Improved worm and microbial activity.
- Increased nutrient storage and availability.
- Stronger, more vigorous clover and plant growth.
- Continual improvement of soil structures.
- Stronger roots which grow further down into the soil.
- Reduced reliance on nitrogen inputs.
- Reduce or eliminate the need for pasture dusting of MgO.
- Healthier disease- and pest-resistant crops.
- Consistently lower fertiliser input prices.

Call us for a FREE soil consultation

Contact Golden Bay Dolomite on 03 5259843 or email sales@goldenbaydolomite.co.nz

GOLDEN BAY
Dolomite
NZ's Finest Magnesium Fertiliser