

How fertiliser helps to create productive soil

Introduction

Our soils are the foundation of our food system. Healthy soils produce healthy crops that in turn nourish people and animals. Well managed and productive soils are directly linked to food quality and quantity.

Soils supply the essential nutrients, water, oxygen and root support that our food-producing plants need to grow and flourish. ***But how do we ensure that our soil is in the best condition possible to enable our food system to prosper? And what role does fertiliser play in achieving this?***

SOIL FACTS

- ❖ There are more living organisms in a handful of soil than there are people on the planet.
- ❖ Soil is what helps puts food on our plates, purifies our water, mitigates against flooding and fights drought.
- ❖ Soil has the potential to play a key role in tackling climate change by capturing or retaining atmospheric carbon.
- ❖ Creating fertile soil can take years. Treading lightly on our whenua protects a living resource for future generations.

What role does fertiliser play in creating productive soil?

Growing pasture or crops takes nutrients from the soil. That's where fertiliser comes in.

Balanced crop nutrition together with good agricultural practices are crucial for maintaining healthy soils. New Zealand's pastoral soil have some of the highest carbon content in the world driven by good fertility, a moderate climate and the cycling of nutrients in the form of organic matter and manure.

Good practice nutrient management ensures maintenance of soil fertility suited for local conditions and is the core of sustainable farming. When animal products are sold or crops are harvested, nutrients are removed from the soil. Without added nutrients, soil fertility will decline.

Applying adequate amounts of nutrients, in the form of organic or mineral fertilisers, maintains or increases crop growth, this returns larger quantities of crop residues to the soil and helps support biological activity and maintain soil carbon. Fertiliser nutrients contribute to the nutrient cycle for soil organisms increasing the microbial activity and worm numbers in the soil. This can be important for maintaining soil organic matter content and soil carbon sequestration. Having good carbon content in soil, helps retain nutrients in the soil contributing to porohita ataahua, (a virtuous circle) sustaining whenua.

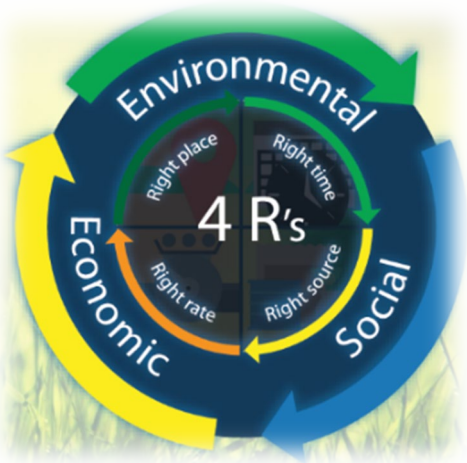
FACT: It is estimated that without fertiliser use, New Zealand's soils would support less than half, and possibly as low as 25%, of the animals grazed or crops grown. Such a drop in agricultural production would have a devastating effect on Aotearoa New Zealand's economy.





How do we care for our environment while supporting good soil conditions through fertiliser use?

Fertilisers support the replenishment of nutrients, making them available for productive plant growth and maintaining soil fertility. Managing this carefully is essential to ensure good yields while minimising any environmental impacts. Good farming practices include creating and maintaining a nutrient budget, regularly testing the soil fertility and following a nutrient management plan.



A nutrient budget helps to determine what is required to maintain soil fertility and use nutrients efficiently. The generation of a nutrient management plan can optimise production while minimising losses to the environment.

Soil testing gives information on the nutrient status and the chemical/physical status of soil. It can be used to inform farm management decisions and to check on outcomes of earlier nutrient management decisions. By testing soil, farmers know which nutrients – and how much – to apply. If too little is added, crops will not produce as expected. If too much is applied or is applied incorrectly, for example, at the wrong time or in the wrong manner, excess nutrients may be lost from fields and pollute streams and groundwater. So, while fertilisers fulfil an essential

service for productive agriculture, farmers must be careful to use the right product and the right amount, at the right rate and right time (the 4R approach).

For more information

Visit our website at www.fertiliser.org.nz or email us at info@fertiliser.org.

