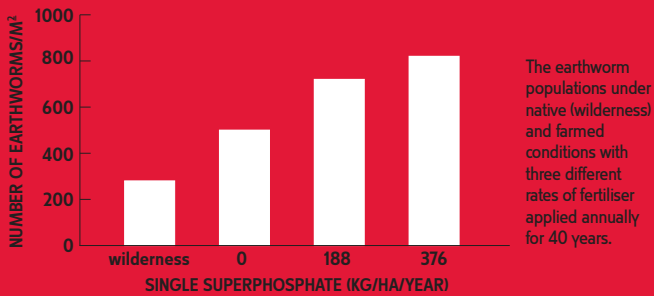


does single superphosphate harm soil life?

A common belief is that using single superphosphate harms the biological component of soil, such as bacteria, fungi and earthworms. Scientific studies have shown this is not the case.

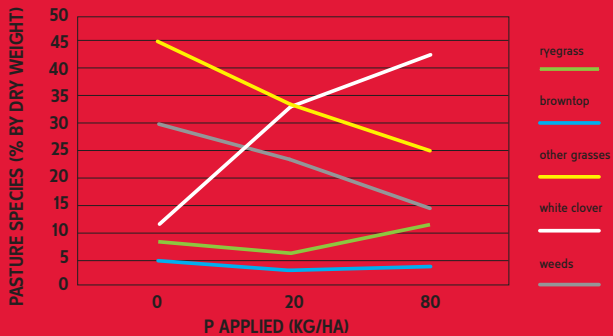
In New Zealand, AgResearch has conducted experiments at Whatawhata, where P was applied as single superphosphate to trial plots grazed by sheep. They found that the soil microbiological profile was not affected by the addition of single superphosphate. Other researchers have shown that worm populations can actually be enhanced by the use of phosphate fertilisers. Increasing soil fertility causes greater plant production, which leads to higher levels of organic matter in the soil. This provides a food source for worms, and so numbers increase.



single superphosphate and clover

Clover is an important component of New Zealand pastures. In order to grow well, it requires higher levels of P than ryegrass. In moist summer conditions, adding P fertiliser can enhance clover growth. In one 1990s study in the Hawke's Bay, white clover content was shown to increase over three years in both low Olsen P (9) and high Olsen P (28) conditions where P had been applied as single superphosphate.

In a trial at Te Kuiti, single superphosphate was applied to land that had received no P fertiliser for seven years. After two years, clover content in the treated areas had risen significantly, while levels of weeds and other grasses had decreased, as shown in the graph below.



Trusted phosphate, true performance

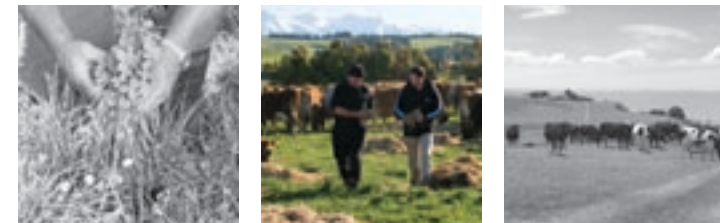
superten contains phosphorus (P) and sulphur (S), the two most essential nutrients needed to achieve optimum production on New Zealand soils.



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the facts about superten

superten is a single superphosphate, which contains 90% phosphorus (P). It provides a simple and effective way to deliver essential P to the land.

Made in New Zealand from high-quality raw materials sourced overseas, **superten** is suitable for the majority of farm types throughout the country. It can be used for capital fertiliser applications, as a maintenance fertiliser, for crop establishment and for horticultural purposes.

Along with P, **superten** supplies sulphur (S) and calcium (Ca), and can be blended with potassium (K) and trace elements to meet farm-specific needs.

on-farm benefits

The P in **superten** is present mainly as water-soluble phosphate, with over 80 percent of the P being in this form. Water-soluble phosphate is immediately available for plant uptake, so **superten** is ideal to use when you need to rapidly boost soil P levels, or when you want to be certain that plants have ready access to sufficient P to support their requirements.

superten also supplies S in the readily plant-available sulphate form. This is particularly valuable when **superten** is applied in spring, since the S will be available through the main growing season. **superten** may also be applied in autumn, but this should only be done in areas where winter rainfall is low and drainage is minimal, otherwise there is a risk of sulphate S being lost through leaching.

Another benefit of using **superten** is that it helps add Ca to the soil. Although Ca deficiency in New Zealand soils is virtually unknown, adding Ca in **superten** helps to offset losses that occur through leaching.

superten contains 1.7 percent residual acid, and is not suitable for drilling down the spout with seed. This residual acid gives **superten** a very slight negative liming value, but it only takes 0.8 kg lime to neutralise the soil acidity resulting from the application of 1 kg P applied as **superten**. An application of 400 kg **superten**/ha would need only 31 kg lime/ha to neutralise the resulting increase in soil acidity.

storage and spreading

superten is compatible with a wide range of other products, including potash and trace elements. It should not be mixed with nitrogen products such as urea and DAP, as there is a risk of the mix becoming wet and lumpy, which will lead to spreading difficulties and may cause crop striping.

Mixes with Calmag or lime should be approached with caution, as heat generation and reversion may occur, which could cause spreading difficulties. This will not affect the amount of P available, but will result in it being released more slowly once applied to the land.

superten is suitable for groundspread or aerial application.

To maintain product quality, **superten** should be stored in cool, dry conditions.

specifications

Bulk density	1.1 - 1.2 kg/l
Particle size range	1-4 mm - at least 60 percent <0.5 mm - <5 percent
Crushing strength	2 kg
Moisture level	7 percent
Fluorine content	<270 g/kg P
Cadmium content	<280 mg/kg P

superten is Fertmark registered. **superten** 5K, **superten** 7K, **superten** 15K and **superten** 25K are blends made from Fertmark-registered products.

product range	N	P	K	S	Mg	Ca
superten	-	9.0	-	10.5	-	22
superten 5K (10% potash superten)	-	8.1	5.0	9.5	-	20
superten 7K (15% potash superten)	-	7.7	7.5	8.9	-	19
superten 10 (20% potash superten)	-	7.2	10.0	8.4	-	18
superten 15K (30% potash superten)	-	6.3	15.0	7.4	-	15
superten 25K (50% potash superten)	-	4.5	25.0	5.3	-	11

application guidelines	use	rate (kg/ha)
superten	Maintenance sheep and beef	200-250
	Maintenance dairy	350-450
superten 5K	Cropping	150-300
superten 7K	Dairy, autumn, intensive drystock	375-500
superten 10K	Dairy, spring	375-500
superten 15K	Dairy, spring	375-500
superten 25K	Hay, silage	200-400

The **superten** range of products has been designed specifically for customers looking for reliable performance and value for money.



The P in **superten** is mainly water-soluble phosphate, which is immediately available for plant uptake.



superten supplies P, S and Ca, all essential for healthy soil, plants and animals.



With a commitment to sustainable farming practices, Ballance sponsors the BFEA to ensure future generations benefit from today's resources.



all you need
to grow

