

## Ralph & Diane Harper

190ha sheep and beef - Crownthorpe  
20 years of dicalcic use  
No.8S (80% Dicalcic Sulphur / 20% Cropfine lime) 0:3.6:0:8 @ 400kg/ha

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**'When I took over management of this property in the late seventies, my father had been applying 3cwt of superphosphate each year, with the odd application of lime, even though we're on limestone country. While this practice used to grow a lot of grass, I believed we could do better because the sheep were often covered in dags through the spring and the animal health wasn't where I would've liked it to be. It was around this time that I became interested in using dicalcic, having become more aware of the positive comments from farmers in the area using it, and being able to apply lime and phosphate at the same time made good sense to me.'**



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 paddocks even though it’s all old pasture.’

Ralph Harper



After several years of dicalcic use it was becoming more apparent that the liming effect was growing better grass and unlocking more nutrients from the previous superphosphate applications. There may be twice as much phosphate in superphosphate compared to dicalcic, but the lime and insoluble nature of dicalcic is the big difference. Thanks to its neutral pH, it encourages the soil biology which is very important to my farming operation. There are always earthworms under the cow pats, so they’re working to ensure the grass makes better use of the nutrients it does get.

I don’t apply any nitrogenous fertiliser, because I don’t feel I need to, yet the soil tests show plenty of naturally occurring nitrogen is available. Nitrogen applications may grow more grass, but I prefer to grow better grass, and experience has shown that the stock maintain condition and health longer into drier periods and recover quicker when grass does grow. It’s about looking at what the grass system here does, and the dicalcic blends are very complementary in keeping old pastures healthy.

Having good soil condition is hugely important. It’s not until you have farmed this country through adverse seasons, particularly with the extended dry periods, that you appreciate how much easier it is to farm with good soil health. Our livelihood depends on the grass produced from the soil, so over the years quicker recovery after dry periods became most important, and the dicalcic and lime helps make this possible. I’ve found the improved soil structure and earthworm population allows the moisture to be better absorbed. The country now holds on through droughts and recovers quicker because of it. Even with this last very wet winter and cold spring, there was a mass of clover through many of the paddocks even though it’s all old pasture. There is still quite a lot of roughage in some of the particularly older paddocks, which doesn’t necessarily mean it’s not palatable, it just means the sheep are maintaining on the good pasture and the cows haven’t been pushed hard enough at this stage, that they feel the need to chew all the roughage off. I can maintain stock a lot longer without having to downsize the paddocks, and that means less stress on the stock, the soil, and the farmer.

**Continued over ►**

► I'm aware some farmers drench lambs every several weeks, yet the majority of my early lambs received no drench, and were in good condition with minimal dags. I prefer to see the stock fed, and now find I use a lot less drench. As a consequence, the drench bill has come down over the years. I do purchase drench to be used at weaning time, but this year I only drenched 250 out of a 1,000. The objective of this country is getting the lambs away earlier not later to take advantage of the premiums. We killed lambs last spring between 15.7kg - 16.6kg off old pasture with no drench at all for the early lambs.

I'm aware that on other properties in the area calves are injected for copper deficiency but I don't have that problem here, neither are they drenched as weaners. I sell the steers in March, usually between 280-300kg.



I've had a very good relationship with Hatuma, and Bill Nicholson has been excellent to deal with over the years. He's only a phone call away when I need to discuss my fertiliser requirements. Hatuma were also able to assist us with relocating our dog trial club which we greatly appreciated at the time.

We farm rolling hill country and applying the extra lime with the dicalcic has been very cost-effective. I've often found I've been able to maintain the dicalcic even through the poorer years.

I believe as the environment becomes a more topical issue, and farmers begin to be more aware of sustainable practices, dicalcic fertiliser and lime applications are going to feature a lot more in farmers' thinking. The phosphate

is changed into a different form which prevents it from leaching or becoming water-borne, which greatly reduces the risk to water quality, and is also hugely important in maintaining animal health.

It didn't take many years to see the changes. The dicalcic has greatly improved pasture quality, and we certainly don't get the stock health issues we used to have to deal with. I have been more than pleased with the conditioning and growth rates of the stock, and now believe animal health to be a very good indicator of nutrient requirements. Even the much older pastures have more palatable with a lot more clover reappearing through them. The dicalcic and lime applications have brought the whole farm into balance and greatly improved the animal health and growth rates.'

## Soil Report

Ralph Harper, Crownthorpe, 190ha

No.8S (80% Dicalcic Sulphur / 20% Cropfine lime) 0:3.6:0:8 @ 400kg/ha

With no rain for the first eighteen months of taking over the farm in the late 1970s, an 800mm average annual rainfall and exposed to the drying nor'west winds, Ralph Harper knows all about farming summer-dry country. The property stands out like a green postage stamp, with steady continuous growth. The pastures are old, with many of them not ploughed since the 1960s, but the key to their productivity is the very high proportion of clover and excellent soil physical properties.

The Visual Soil Assessment scores a perfect 38 for soil indicators and 37.5 out of 38 for plant indicators. The Matapiro silt loam soil type on the Harper property has been modified to give a relatively deep (28+cm) topsoil, with a good worm population of 26 per 20cm cube, mixing the soil to at least 45 cm. There is a strongly-developed polyhedral structure. This

provides good aeration for the roots and soil temperature regulation. It also allows for efficient moisture penetration, with very little runoff, and for improved moisture retention.

The soil is very friable, allowing a dense and deep (75+ cm) root mass to develop. There is approximately 135mm available water in the rooting zone of this soil (56mm in the topsoil with an estimated 20% available water capacity, and 80mm in the subsoil rooting zone with an estimated 17% available water capacity). The deep rooting system gives full access both to available water and to a wide range of nutrients.

The most outstanding visual feature of the Harper farm is the neat, closely-grazed pastures with very high proportion of clover, both white and sub. The lime and dicalcic phosphate regime Ralph Harper has been using for 20 years favours clover growth, root nodulation and rhizobium bacterial populations. The

clover utilises the natural nitrogen cycle, obtaining nitrogen from the atmosphere through the rhizobium bacteria that live in the root nodules. There is a symbiotic relationship between the clover plant, supplying the bacteria with carbohydrates through photosynthesis, and the bacteria supplying the clover plant with nitrogen. Soil tests show a high level of available nitrogen, at 241kg/ha.

Colonization of the roots by mycorrhizal fungi also benefits the nutrient status of the pastures, as these fungi feed phosphorus and other essential nutrients to the plants. Trace elements in this soil are all in the medium to high range, and in good balance. This improves the palatability and nutritional content of the pasture – hence the even grazing and the excellent animal health record on this property.



Worm mixing to 45cm



Well developed soil structure



High clover content in pastures