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Finding the Balance

Simon Park: Dairy Farmer Wonthaggi

Areas of concern

- Rising cost of inputs
- Soil compaction and general degradation
- Breakdown in cattle health
- Low pregnancy rates
- Concerns over quality of food produced
- Lack of summer feed



Rotational grazing paddocks

Action Taken

- Research into soil mineral balance, soil biology and pasture diversity.
- Spreading of dairy effluent
- Soil testing and analysis
- Pasture analysis
- Spreading of lime
- Foliar spraying of seaweed emulsion



Concrete laneway to dairy

Benefits

- It is too early in the process to analyse benefits as it is the first year of a 3 year trial



Shelter belts and paddocks on Simon's property just outside Wonthaggi



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Simon with his 8 wheel drive , 25,000 litre effluent spreading truck

Simon's family first purchased the property in 1917 and have been farming ever since. Simon believes the changes in farming practices after the second world war that focussed soil management into synthetic fertilisers and supplements added to the top 100mm of soil have grossly over simplified the farming system and lead to a steady decline in the health of his farm. This has manifested in low calving rates , break down in cattle health and a shortened productive life for milking cows. He contrasts the 5 to 7 years milking life on the average conventional dairy farm with those in excess of 20 years on some more biologically managed farms. While he acknowledges the need for a more comprehensive biologically oriented approach he is not an advocate of strictly organic farming. He believes in taking a middle road that takes the best from both a conventional and organic approach. His ultimate criteria of success is the quality of the food he produces. Healthy soil produces mineral rich quality feed that creates healthy animals that produce quality food. Quality food, be it milk, meat or vegetables is not only food that looks and tastes good but is also high in nutritional value. If the minerals and trace elements essential for nutritious food are missing from our soil or are not made available to our plants through the right soil microbes they will be missing from our food and our health will suffer.

Who:	Simon Park
Where:	Wonthaggi
Size:	500 acres
Enterprise:	Dairy: 500 head Friesian herd with 320 milking cows
Soil:	Heavy clay and sandy loam
Rainfall:	900mm
Aspect:	Slightly undulating

Diversity and balance

Simon sees three keys to successful biological farming.

1. Getting the correct balance of soil minerals.
2. Diversity of pasture.
3. Nurturing essential microbes and other life forms in the soil.

If there are deficiencies in the soil Simon will use organic products such as chicken manure and dairy effluent but is not adverse to using some synthetics if he thinks they will do the job. Simon believes that balancing your soil minerals is more than liming for PH and getting a good P.K.N ratio; all essential minerals and trace elements need to be present in the soil in proper proportions to create quality feed and healthy animals.

Having minerals in your soil [either added or existing] is one thing, making them available to your stock is another. This is where plant diversity comes in. Over time ,depending on their weight, minerals distribute themselves throughout the soil profile. Heavier minerals settle deep into the clay layer and the lighter ones settle back up through the sub and top soil. Different plants penetrate the ground to different root depths and accumulate different combinations of minerals.





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Like all animals cows have a sense of what their body needs and will choose what they need from this nutritionally diverse pasture. Minerals in pasture are 100% available to animals as opposed to only 10% in supplements.

Life in the Soil

The health of the life *on* the soil is directly related to the health of the life *in* the soil. Just as plants make minerals available to animals many soil microbes convert minerals into forms available to plants. As Simon says 'cows don't eat dirt', so we need these micro soil engineers to make what's in the dirt available in their feed. The deep penetration of roots mentioned above opens the soil to oxygen and water creating a favourable environment for these aerobic soil microbes, and providing a valuable source of soil carbon and humus for earth worms and other helpful macro-invertebrates. The anaerobic conditions in water logged and/or compacted soil severely impede pasture growth and the anaerobic bacteria that thrives in such conditions can be toxic to both pasture and stock.

3 x Soil Depth



Checking the soil profile

Simon believes the key to getting the most out of your soil is to have plant roots penetrating to 3 critical depths; 150mm, 150 to 450mm and beyond



450mm to several metres deep. In addition to providing access to the minerals mentioned above this allows water to penetrate deep into the ground draining it from the surface in winter and keeping a store deep in the ground for summer. This diversity also provides favourable conditions for the diverse species of useful microbes that succeed each other over the course of time in response to temperature and moisture changes. Having much greater diversity in your pasture [Simon talks of as many as 100 species] means there'll be species that recede and come forth as climatic conditions wax and wane over the seasons and the years, with the ultimate goal of making the property drought proof.

With the help of the West Gippsland CMA Healthy Soils Program and Powlett Project CFCO Grant Simon is currently engaged in a 3 year trial involving 8 plots using 8 different combinations of granular nutrient, foliar spray nutrient, seaweed emulsion and lime as well as 2 control plots. It is too early in the process to draw any conclusions but comprehensive measurements will be made of soil chemistry, soil biology and pasture nutrient.

The Long Term



Applying foliar seaweed spray to pasture

Ultimately Simon believes he can create a diverse, self-sustaining, perennial system, but sees himself at the beginning of a long and complex process that will be unique to his farm but can in principal be applied to any other property or enterprise. Simon has applied seaweed emulsion and dairy effluent to 300 acres of his property using a



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truck he has fitted with a 25,000 litre tank and a spray unit. Subsequent soil tests showed that the effluent alone was providing him with sufficient potassium, phosphate and nitrogen. He sees these activities as small pieces in a large picture that he will continue putting together for the rest of his life. Regular soil testing is one of the keys to Simon's approach, he says you can waste money and create animal health problems by adding unneeded soil supplements. The other keys to his approach are research, trialling and observation. There is a wealth of information available to us today via the internet about farming systems new, old, conventional and alternative, much of it backed by extensive scientific research. This, along with workshops and talking to other to other farmers with successful experience in alternative methods can provide you with a base of knowledge to start viewing your own farm more as a

complex, dynamic, biological system than 6 inches of over worked dirt.



Trial paddock

If through comprehensive research, Simon believes something could work on his farm he will trial it over a 5 year period to allow for climatic variation and the fact that some biological processes take time to establish and need to find their place in a host of variables. If through observation he sees something is working he will incorporate it into his system if it fails he will abandon it and try something else. He will often trial several things in parallel and make comparisons.

In Simon's philosophy there are no 'silver bullets', just an on going process of informed trial and error working towards an ever more self sustaining and resilient system, and a deepening understanding of the complex and unique ecological system that is your farm.



Spray 'fountain' on the back of Simon's effluent truck