

Over the fence

SPRING NEWSLETTER 2010

Ag Solutions

AUSTRALIA

Helping Australia Grow

“Increasing costs and decreasing soil structure motivated us to make changes”

Third generation farmers, the Venz family share farm a 840ha mixed enterprise of dairy, beef, grain, pasture and silage. Having dramatically improved the structure of their heavy black soil, reduced fertiliser inputs, reduced irrigation requirements, reduced tillage costs and improved cropping results, Rod and Robert Venz are motivated to share their success story.

“Being frustrated with the ever increasing costs for soil cultivation, fuel, fertiliser and irrigation in conjunction with lower returns, the question we asked ourselves was, ‘where, and how can we reduce costs?’ We recall AgSolutions saying many years ago, ‘it all starts in the soil’ so that is where we started.”

Replacement for gypsum and lime

“We kick started the program in 1997 by first using NatraMin as a soil amendment as an alternative to lime or gypsum.

Prior to using NatraMin, we often had to burn the excess stubble and cultivate the puggy black soil up to six times to prepare a seedbed. This soil was like black shiny boot polish to work, but now its physical appearance and colour has changed with improved structure and more organic matter.”



Wet soil responds quicker after compaction by machinery.

Direct drilling is now an option

“Often we can direct drill or with one pass of the Yeomans our soil is right to go. If paddocks are compacted we may do one pass with the offsets prior to the Yeomans.

The puggy black soil is still down there at depth but the improvements on top mean we’re now more efficient and profitable. Worms are now everywhere in our cultivation.”

Fertiliser use halved

“We’re not ‘greenies’ but we’re passionate about being sustainable farmers, understanding nature and recycling nutrients. We still use chemical fertilisers but in smaller amounts and less frequently. We are now farming more country yet our fertiliser use has halved.”

Increased organic carbon

“Our aim was to reduce the amount of tillage and nitrogen inputs because they can both accelerate soil carbon loss. The use of NatraMin has certainly reduced our tillage and a legume crop rotation is reducing our dependency on nitrogen inputs. Organic carbon levels are improving all the time, with soil tests on several paddocks now showing over 3% organic carbon.”

Elders Beaudesert Agronomist, Cameron Cranstoun, has witnessed the improvements in soil structure achieved by Rod and Robert Venz. “I’ve been in the paddock and seen the improvements since using NatraMin. Knowing what the soil is



Rod Venz (right) “The improved soil structure has reduced tillage costs”.

like in this valley is proof that the program has made a dramatic improvement to their cultivation with the soil requiring very little preparation to plant even after wet weather.”

Less irrigation required

The benefits of better soil structure are increased water infiltration and improved root systems resulting in crops hanging on better during dry times. Compared to before the use of NatraMin, the pasture and crops are now very even in colour and growth.

Although irrigation is available, a lot of the flats are now successfully dry-land farmed due to the improvement in soil structure. Visitors can’t believe that most of what is grown has not been irrigated.

During dry times irrigation is used to ensure germination and to keep crops alive, but irrigation is carried out strictly at night time to minimise evaporation. This low requirement for irrigation has resulted in the farm being classed as a ‘low user’ of power.

Only about 30% of 144ha of cultivation receives partial irrigation, the rest is completely dry-land.

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Soil and crop management program

The AgSolutions focus is on the whole program of addressing soil nutrition, structure and biology, providing a soil testing and advisory service to farmers.

All crop and pasture residues are mulched prior to aeration and weed control has been managed through rotational grazing and mulching practices. Moving away from monocropping, the Venz's have now stopped using straight rye because of the high water requirement.

Forages and cereals are being used for their better water use efficiency. Rod and Robert now rotate or companion plant legumes with pasture, forage, winter cereal, summer grain and silage crops.

Rye is drilled into established lucerne, lab lab is planted with forage sorghum and summer grain crops are grown in rotation with legumes. Dunfield peas are planted with wheat and grazed two to three times before allowing the wheat to go to head. Permanent rhodes and lucerne pastures are direct drilled with rye in winter. When the season permits, ebony peas are drilled into dryland tropical pastures.

Fuel savings

"When fuel was 60c/litre our fuel bill was approximately \$1200 per month. Now with



fuel at \$1.30 a litre, we spend approximately \$1000 per month even though we plough twice the area of land. Due to less passes with soil preparation, we are able to replant quicker which gives us a more continuous feed supply for our cattle."

Words of advice

According to Rod and Robert, the most important resource is the soil. They have seen the frustration of farmers who are battling lower returns coupled with the increasing costs associated with a heavy reliance on high fertiliser inputs. "NatraMin blends are an integral part of our program and we encourage other farmers with soil structural problems to follow 3 simple hints."

1. Make a start – in summary (Remineralise, Mulch, Aerate, Companion plant and Rotate)

2. Don't do your whole farm with NatraMin to begin with so that you can notice the improvements. (combined with practices mentioned above)
3. Don't expect overnight results because the years of soil degradation resulting from the overuse of chemical fertiliser and cultivation takes time to reverse.

When asked what has given Rod and Robert the most reward from the farm, they replied "Without a doubt, the dramatic improvement in soil structure resulting from our system of cropping. NatraMin has been the integral catalyst in our program."

Contact AgSolutions' Field Advisors on 1800 81 57 57 to learn more.

did you know?

How to maximise weight gain when feeding lush green fodder

It is common for stock to have low weight gain, or even lose weight in the first 2-3 weeks of grazing lush fodder. Adequate effective fibre in the diet is essential to slow the rate of rumen digestion. The other critical factor is that 'Rumen Forage Fibre Digesting Microbes' take up to 3-4 weeks to adapt to the change in fodder.

Because these microbes multiply very slowly it is good practice to supply reasonable quality hay or daily access to dry grass at least 1 week prior to grazing lush fodder as well as the next 2-3 weeks to ensure sufficient fibre for cud chewing and a healthy rumen. After this period, the fodder will gradually mature and the level of plant fibre will increase. The fibre-digesting microbe populations should also have fully changed to better ferment the new fodder, assisting stock to perform to their potential. The manure

will always tell you if there is enough fibre in the diet.

With energy and protein in adequate supply, minerals then become the next limiting factor. For example, with lush feed, Phosphorus is required at an increased rate to maximise weight gain.

Magnesium supplements are also vital. Plant uptake of Magnesium is reduced in the cooler months and because Magnesium is the only mineral absorbed in the rumen (and lush fodder passes through the rumen quickly), the rate of absorption may be reduced, leading to a Potassium/Magnesium imbalance which can cause 'staggers' or grass tetany.



To avoid clinical or subclinical mineral deficiencies that limit productivity, it is important to provide broad spectrum minerals for microbial growth and animal performance. Supplying the minerals and trace minerals is a 'cheap insurance' to bridge the mineral gap that may be lacking in pasture.

MegaMin supplements supply Phosphorus, Magnesium and all other macro and micro minerals to optimise productivity.

Contact AgSolutions' Field Advisors on 1800 81 57 57 to learn more.



The impact of fertilising practices

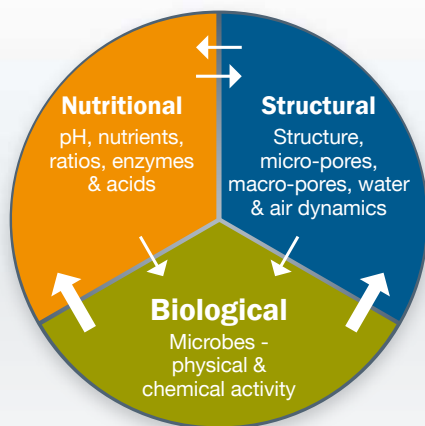
Guy R Webb B.Sc. REM GAIA Consultancy

In a healthy state, the soil is a living, dynamic ecological system that maintains homeostasis (a term used to describe a relatively constant internal environment despite external change). This ability and condition is most conducive for healthy soils, healthy plants and healthy life to flourish. We need to understand the intricacies of our soils and see that nature has already designed an excellent system if we work with it.

Three basic themes help us to understand how the soil works and should be managed:

1. The soil is the stomach for the plant. If we apply inputs that are likely to upset this digestive system, we compromise the plants ability to absorb nutrition effectively.
2. Soil organisms or soil life are the 'biological machinery' that drive complete plant fertility.
3. The soil is an interrelated system of chemical, physical and biological properties, each expressing influence on the other.

Soil System Dynamics



The **biological component** is a major influence on the **structural** and **nutritional** properties of the soil

A good **management program** addresses all three aspects together

Unfortunately, due to trends that have been established in agriculture and pressures on the industry, there has been more of a focus on producing an end product rather than an emphasis on farming our soils. It appears as though fundamental fertilisation practices and the resulting soil degradation are part of the problem.

Most of the commonly used fertilisers in agriculture are highly soluble and salt-based (N,P,K, Ca, Mg, Zn etc salts). These generally

contain sulphates and nitrates that are very reactive and very leachable in the soil. They react with minor trace elements to form leachable salts. Water percolation can then easily strip these valuable nutrients from the profile and they are often not replaced in most conventional soluble-fertiliser based programs.

These fertilisers are generally acidic, and also strip alkalisating minerals such as calcium and magnesium from the top soil. Some minerals, such as selenium, molybdenum and magnesium can only be taken up by the plant when the soil is near neutral, so even if they are in the soil profile, the plant cannot access them in acid conditions (Hungerford C 2009). Although NPK acid salt fertilisers have delivered big yields, their use comes at a cost to soil health.

What affects nutrient availability?

Applying high levels of soluble salt fertiliser to the soil system also cripples the beneficial living component ...the micro and macro fauna of the soil. These organisms are in essence the 'biological machinery' of the soil that drive soil health and fertility. Fertilisers with a high salt index shut down many biological pathways used by plants to gain nutrition. The key is to employ fertilising techniques that aim to maintain healthy soil chemistry at the same time as enhancing and nurturing the soil organisms. It is the soil organisms that digest, cycle and deliver the correct nutrition at the correct time to the plant.

Mycorrhizal fungi, for example, source phosphorus for the plant in a symbiotic relationship and have also been linked through CSIRO research to the uptake of zinc. Once colonised, the fungus and plant are in constant communication regarding nutritional requirements. Mycorrhizal fungi colonise roots of plants and send out hyphae filaments into the soil profile, accessing between 100 to 1000 times the soil volume than the plant roots alone can access (see insert picture). These important organisms are discouraged or 'switched off' by high levels of available phosphorus applied as acid treated fertiliser – thus impacting the availability and uptake of both phosphorus and zinc in the plant.

In a similar fashion, nitrogen fixing bacteria are 'switched-off' by high levels of free nitrate nitrogen, shutting down the pathway plants use naturally to access nitrogen.



Above; A root system colonised by Mycorrhizal fungus. in a symbiotic relationship, the fungus dissolves nutrients in the soil and ferries them to the plant, in return for plant sugars.

Once the soil is biologically and chemically 'out of balance', we lose all sorts of fertility benefits delivered by healthy soil ecology. Disease organisms often proliferate in these conditions.

So how do we fertilise for maximum nutrition and soil health?

We need to include in our fertility programs fertilisers that contain a wide range of minerals in their analysis, and also enhance microbial activity in the soil. Mineral fertilisers (from basalt or volcanic origin), ocean based fertilisers (kelp and fish) and ancient plant deposits such as peats and Leonardites (humates) are such fertilisers. These materials contain all of the minerals that sustain life, including all the micro nutrients that are often required in very small quantities, but are hugely important to plant metabolic health and nutritional value of that plant.

If there is a need to solve major nutritional deficiencies in certain soils, where possible we need to be applying non-salt forms of the nutrient and allow the soil biology to digest and release the nutrition through natural means. Soft rock phosphate, calcium and magnesium carbonates, and basalts are such inputs. However, where a quick result is an economic imperative and acid treated or soluble salt fertilisers are required (urea, DAP, MAP, super, gypsum), these inputs should always be kept to a minimum and preferably be buffered with a carbon source to render them more soil friendly, and also more efficient to the plant.

It is a very basic notion that we are what we eat, and this all starts with the soil and how we manage it.

References Good Health in the 21st Century, Dr Carole Hungerford, Scribe Publications PtyLtd Carlton Nth VIC.



Around the paddocks

Gary Zerner, Senior Field Advisor

Maximise stock nutrition results

August and September can be the toughest two months of winter in many areas, with the season often not breaking until late September. The recent frosts and lack of moisture means protein often becomes the limiting factor for grazing dry feed.

If there is no visible green grass in the paddock this is a key time to shift to feeding MegaMin 50% Protein Meal blend. Graziers who attended our animal nutrition seminars would have heard that your dry feed is still the cheapest source of energy. The MegaMin protein blends utilise protected protein meals, which means that from one intake, ruminants can graze longer because the protein in MegaMin breaks down slowly, releasing Nitrogen to the rumen microbes for the digestion of mature fodder, providing a safe and longer lasting option than Urea.

What about your heifers?

Many of us have been guilty of neglecting our replacement females whether it's beef, dairy

or sheep. It's easy to do. Dairy farmers often focus on maximising available feed for the milking herd while heifers run in the back paddock. Graziers tend to focus on finishing the steers on the best feed and only think about their heifers just prior to joining. The same applies to ewe lambs.

It has been proven that if we don't look after our young stock in their first two years, not only will we stunt their growth, but they will never milk to their full potential, regardless of how well they are fed after. Differences of up to 2,000 litres more in the first lactation have been found in dairy cattle trials. In beef cattle or ewes, the end result is a reduction in growth and wool production.

What's the answer?

This is a clear case where supplementing will provide a return on investment. Because the cheapest form of energy is the pasture in your paddock, the best option is to supplement a broad spectrum of minerals with a small amount of protected protein

meal to ensure increased intake and better utilisation of available fodder.

Because pasture will never deliver 100% of the mineral requirements for your stock, MegaMin 10% or 50% Protein Meal blends are a 'cheap insurance' to provide minerals and slow rumen degradable true protein for your stock.

Supplementing your cows, steers and weaners is certainly beneficial. From my experience, there is also a great opportunity to ensure that replacement females and dry cows are prepared for the next lactation and the rest of their production years by supplementing with MegaMin products.

I always emphasise two things, firstly supplementing must be cost effective. Secondly, it's about maintaining stock, or in some cases, ensuring they continue to move forward to avoid further losses. It is easy to focus on weight loss or a decline in fertility but don't forget the economic benefits of maximising MILK production for beef and sheep.

If you have any feedback, want a farm visit or soil test or have a success story to share, please call the AgSolutions team on 1800 81 57 57.

MegaMin

Don't miss your last chance to WIN Entries close 31 August

You could WIN one of 6 John Deere Ride on Mowers simply by purchasing MegaMin. See our website for more information and terms and conditions.

Valued at **\$3,490 rrp each**



Roadshow wrap up

As many of you would know, the 2010 Livestock Nutrition Roadshow we ran in towns across Queensland and New South Wales has finished and was a huge success.

Over the past four months we visited 12 townships presenting an informative and educational seminar on the importance of livestock nutrition. Our two key note speakers, Mr Vincent Posada and our very own Gary Zerner were well received everywhere they spoke. We were proud to be given the opportunity to speak directly with over 700 farmers who attended these events and the positive feedback was both overwhelming and humbling.

We would like to thank everyone for their support, including all the stores that invited their customers, our speakers for their energy and commitment, all our staff who diligently worked day and night setting and packing up at each event, our sponsor John Deere, and most importantly you, our customers. Stay tuned for more events like these in the coming year.

FEEDBACK

We understand that our customers are an important part of our company, which is why we always look forward to hearing from you. If you have any feedback, suggestions, questions or personal stories you would like to share with us, please give us a call or send us an email. You might even star in our next publication!



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premium soil and livestock nutrition products