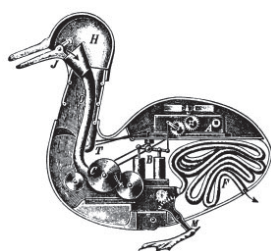


Overview of requirements for biodynamic production in Australian viticulture

Sam Statham

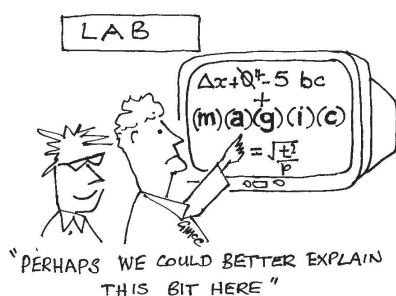
'Rosnay', Canowindra, NSW

It is an honour to be asked to present my perspective to you, as a practitioner of biodynamic farming methods for over a decade on our vineyard and olive grove at Canowindra, NSW. I believe this time frame reflects the effectiveness and the success of the biodynamic method despite its lack of investigation by the scientific community. I must say, I actually have some trepidation in presenting Biodynamics to an audience that may have a 'hard-systems', 'hard-science' perspective on reality. 'Hard science' is what they call 'reductionist' – a philosophy that understands a complex system as just the sum of its parts, and that an account of it can be reduced to accounts of individual constituents. This is why I have started my talk with the famous 'machine duck' picture. How many people think that a duck works like this? Nobody does, of course, but modern 'hard science' will treat a sick duck by focusing on the symptoms, by treating the sick organs, rather than look at the wider cause of sickness in the environment, or the nutrition, or even the happiness of the duck. Hence this picture. Likewise, the 'health' of soil is reduced to physical, chemical and biological properties. The growing of vines has become a science of feeding plants with NPK, and protecting them from sickness with pesticides and fungicides. Weeds are seen as competition for the vines, and their possible role in soil health and fertility is not considered. Diseases are not seen as symptoms of poor soil health. Wine quality is seen as reducible to chemical constituents. It is not possible to analyse Biodynamics using reductionist science.



I believe we need to change our thinking as grapegrowers to make better wine, and there are unlimited avenues for research within a more holistic world view. By 'holistic', we refer to looking at all parts of a system as organs of one organism, in which product quality is a reflection of plant health, which in turn is a reflection of system balance and stability. We start looking to the soil and environment for answers of plant disease, pests, vigour, yield, and weeds, rather than researching quick fixes which may not address true causes. We start to see wine quality as an 'emergent' property – a characteristic of a whole system, with all components of the wine working together to yield a sensory experience that is not evident from studying these components in isolation.

Rudolph Steiner espoused 'intuitive' science, with intuition being validated empirically. He proposed his 'Biodynamic' methods to farmers as an intuitive, holistic paradigm, through which we can see the vineyard as an organism that is part of an even larger



organism – the living earth itself and the multitude of subtle energies that envelop it. We may not see these energies because we can see only a limited waveband, hear particular frequencies, and think in certain ways – but that does not mean they don't exist or it is 'not science'. I know many of you will be uncomfortable with this idea, and we always start to 'lose people' when we talk about biodynamics, who associate it, like I used to, with some sort of cow horn cult. Steiner always said his ideas were not 'The Way', but the catalyst for more ideas, based on a more holistic way of thinking.



'It's all just marketing' is something I hear even from fellow organic farmers. They pull out all sorts of dirt on Steiner, calling him names like Nazi, or using selective arguments which like reductionism, ignore the whole picture that Steiner presented for the benefit of agriculture, and mankind. Others say there is no difference in the product and that we waste our time, and think it's a coincidence that some of the best wines in the world are Biodynamic. Have they actually tried it?

The argument that biodynamic growers are doing it just for marketing is self defeating, because the more we promote what we are doing, and the more other producers do it, the less marketing advantage the original practitioners have. Promoting one's use of biodynamic methods is actually risky and difficult - it requires confidence to go against mainstream reductionist science, and to propose one which aims to make our planet more sustainable.

Growers who decide to get into Biodynamics just for the 'Max Allen Reviews' will still go through a process of paradigm shift – because it works! They will start to see their vines differently and will keep doing it because they have seen it work, and can taste it in the wine. Once you start in biodynamics, doing it yourself, not hiring a contractor to do it, you will not go back. Biodynamics is not 'just marketing' – it's a permanent change both on the farm and in your ways of thinking.

We began using Biodynamics as part of a 'shot gun' approach to organic farming in 1997. I was fortunate enough to have worked on several Biodynamic farms in New Zealand when I finished university. Those Kiwis are miles ahead of us in sustainable agriculture. I was also fortunate enough to have studied a more holistic science, in the form of environmental geography, rather than 'ag science'. I was fortunate to have grown up on an extensive grazing property where we worked closely with nature, and to have parents who, in the setting up of their new vineyard and olive farm, were open to my ideas when I came home from New Zealand. We visited many organic farms and vineyards, and believed the best ones were biodynamic. We joined Biodynamic Agriculture Australia, (BAA) which is a collection of amazing individuals with a great diversity of views and backgrounds and not one dominated by one line of thought or by one person. We met pioneers like Arthur Dakin, out at Nyngan; John Priestly, in the

Hunter; Hamish McKay, global; Peter Proctor, from NZ and India; and Cheryl Kemp, the BAA's education officer at Dorrigo.

To prepare this presentation, I spoke to some other members of BAA who are practicing biodynamic vignerons in NSW. Of course, I had trouble getting them to say what the most important practices were, however the best starting point they gave me, is 'Treat the land as you would treat your own child'. With your own child you take great care to provide warmth, cleanliness, protection from disease, and a wholesome, balanced diet. From this perspective, you go back to the basics before you talk about the hocus pocus. You look at your soil, your water, your microclimate. And above all, your soil, including the CEC (Cation Exchange Capacity) balance, as outlined by William A Albrecht. The other presenters have covered this so well I will not go into it, but basically, if this is not sorted, then just using the biodynamic preparations to restore soil health will take a lot longer.

This is what it says in the National Standard: 'Bio-dynamic practitioners seek to understand and work with the life processes as well as enhance their understanding of the mineral processes ... Bio-dynamic farming practices do not rely on water soluble fertiliser inputs, although some organic or natural mineral fertiliser may be required on poor soils especially during the establishment phase.' So, get your soil tests done, and start balancing and building organic matter and soil structure. Stop using water soluble nutrients, as they interfere in the biological ecosystem in the soil. Stop using herbicides and systemic fungicides, as they too will set back the regrowth of the soil life. There should be no need to justify this statement.



One important point that is rarely emphasised enough, though, is the importance of groundcover and grazing animals for healthy soils. Some people believe that organic farming is less sustainable because of the amount of soil cultivation needed to control weeds.

However, at Rosnay we do not cultivate our soil at all, except during the establishment phase. We make use of livestock to speed up the nutrient cycle and increase groundcover, and do it using cell grazing systems, to minimise compaction. We get mobs of 300–1000 sheep at a time on blocks from 5 to 20 acres in size, and they do a great job, building up organic matter and helping us to get a denser growth of



clover and grasses, and better groundcover. We don't even cultivate to sow oats and bulk crops – direct drilling is fine. We aim for a dense surface root mat of ryegrass and clover – in an ideal world – and we ignore the saffrons and other ugly weeds, because we believe they are there for a reason. Weeds feed the soil when they die and break down – worms travel down the taproot channels, microbes feed on the rotting mat roots. Living plants actually feed soil life directly with their exudates, as well. So we do whatever it takes to get 100% ground cover, if possible, and we even foliar spray or spread compost on the winter grasses to get them growing better. You might think that this will mean competition for water, but on our place the winter clovers and rye grass actually die in early summer and form a thick mulch that reduces the vineyard temperature and retains the summer moisture much better than the bare soil approach.

Once the basics are there in the soil management, you can look at the Biodynamic preparations. As this is another point where I 'lose people', I would like to use an analogy now which will help you to understand what they are and why they definitely work.

What do you do when you get sick? You take medicine. You can take antibiotics – but this is like giving your plants a systemic fungicide. It's what is called allelopathic medicine – it treats disease by directly taking out the cause of the disease. There is of course, collateral damage. Antibiotics kill off a lot of non-target bacteria, leaving the door open for your gut to be repopulated by 'bad' bacteria. With painkillers, they just take out the symptoms of the disease, which in the case of a headache, could just be dehydration. You can use herbal or complimentary medicine, which starts with improved nutrition and the use of herbs, teas, tinctures etc instead of anti-biotics or pain killers – but which are still basically quite similar, just using different tools.

Then you can use homeopathic medicine – which is different to both conventional and herbal medicine – it treats like with like – something like vaccination – but not. I won't bore you with proud parent talk, but as a recent father of two children, I have been amazed by the effectiveness of homeopathy when they had flu recently.

The founder of homeopathy was Dr Samuel Hahnemann (1755–1843), who found that a given substance can cure in a diseased person the symptoms that it produces or causes in a healthy person. The first major step was when he read about a treatment (cinchona bark) used to cure malaria. He took some cinchona bark and observed that, as a healthy person, he developed symptoms that were very similar to malaria symptoms. This led him to consider that a substance may create symptoms that it can also relieve. This concept is called the 'similia principle' or 'like cures like.'



Hahnemann tested single, pure substances on himself and, in more dilute forms, on healthy volunteers. He kept meticulous records of his experiments and participants' responses, and he combined these observations with information from clinical practice, the known uses of herbs and other medicinal substances, and toxicology, eventually treating the sick and developing homeopathic clinical practice.

Hahnemann added two additional elements to homeopathy:

- A concept that became 'potentisation,' which holds that systematically diluting a substance, with vigorous shaking at each step of dilution, makes the remedy more, not less, effective by extracting the vital essence of the substance. If dilution

continues to a point where the substance's molecules are gone, homeopathy holds that the 'memory' of them – that is, the effects they exerted on the surrounding water molecules – may still be therapeutic.

- A concept that treatment should be selected based upon a total picture of an individual and his symptoms, not solely upon symptoms of a disease. Homeopaths evaluate not only a person's physical symptoms but her emotions, mental states, lifestyle, nutrition, and other aspects. In homeopathy, different people with the same symptoms may receive different homeopathic remedies.

Homeopathy was widely practiced in the US during the 19th century, and at the turn of the century there were 20 homeopathic medical colleges and more than 100 homeopathic hospitals. However conflict with the American Medical Association (which is a private corporation) caused a decline in the practise of homeopathy, though it continued to be widely used in Europe, India and South America. In recent years, there has been a resurgence in the practice of homeopathy. In 1990, 2.5 million Americans sought out some form of homeopathic care. By 1999, that number rose to more than 6 million. Retail sales continue to increase at about 25% per year. Almost every pharmacy in Germany and France stocks homeopathic remedies. The most popular medicines in Europe for cold, flu, and hay fever are homeopathic. In Europe, approximately 40% of all physicians use or refer patients to practitioners of homeopathy. It is integrated into the national health care systems of Germany, the United Kingdom, Greece, Israel, India, Pakistan and Mexico.

Now, I to get to my point. Homeopathy is an undisputably successful, mainstream, global form of energy medicine, working by stimulating a response from the body, rather than directly curing disease. No open minded scientist can refute this fact.

Biodynamic farming is very similar to homoeopathy – stimulating biological responses through tiny doses of specific substances. Biodynamics and organic farming are like homoeopathy and herbal medicine. I have deliberately used the homeopathy example to explain what Biodynamics is doing, because there are more simplistic analogies that just don't cover all the bases. For example, the analogy of adding culture to cheese or wine, being the same as adding microbes to soil, does not help us understand other aspects of biodynamics such as pest and disease management.

If you are now ready to have a go at Biodynamics, let me pass on the most important point that my colleagues emphasised to me: 'Don't worry about the 'why', and Just do it'. Don't pay someone to set it all up and do it for you either – do it yourself. Sure, buy some books, visit some farms, go to some conferences or local group meetings, but just start now, on your own farm, and make it your own hands-on job, so that you get a real feel for it. If you apply some of the basic practices that are outlined below, you will be making a start. This is a summary of what they and I believe you need to do. Because I believe in certification, and because I think the Standard is quite a good basis, I have structured it to fit with the baseline requirements if you want to be certified biodynamic – that is – Section 3.22 of the National Standard for Organic and Biodynamic Produce, 2005 (see Appendix).

Preparation 500

This is the basic practice for soil improvement. The National Standard says you have to spray Preparation 500 at least once a year, and most people do it twice or more. Yes, this is the cow dung that has been buried in a cow horn for six months to absorb the earth's life forces. Have I lost you already?

You can make '500' yourself, or you can purchase it from

Biodynamic Agriculture Australia or from the regional biodynamic groups – who you should join. We do both. When you have 500 in your hand, you can see that it is an amazing humic concentrate. It's not compost, it's not worm cast, it's pure, dark, sweet smelling, silky humus, full of micro-organisms. The first time I saw some it was a batch of Alex Podolinsky's horn manure on Ron Ward's farm at Cootamundra, and I was amazed by its ability to expand to its original shape when squeezed in your hand. You only have to see some yourself to know that it is a rich biological product.

The first thing that is hard to grasp, is just how little of it you actually need to treat your land. Just as in homeopathy, where a medicine is produced by diluting and 'succussing' or agitating the substance in water, the qualities of the Horn Manure are magnified by dilution and agitation in water. So, through the stirring of the material, you only need about a tennis ball of horn manure, diluted in about 30 litres of water, to spray one hectare! You need to think laterally about this – it's like a homeopathic 'energy medicine', for your soil!

Because you are dealing with very small doses of the base material, avoid contamination of the most minute amount in the storage, dilution and spraying of it. Just think about the 500 as an antenna which can pick up a lot of interference if you're not careful. Don't store it near electricity. Don't spray it with equipment that has had chemicals in it – maybe even a sniff of chemical could affect it. Don't spray it under high pressure – it's a living thing. Don't use water that is frigid and cold, or which is 'dead' water from underground, without warming it and/or oxygenating it first.

The stirring process is very important. Ideally, stir it by hand. This may not be practical for more than 100 litres of water, but we did it for one year. Its probably a good idea anyway, to do it the first time by hand, just to get a feel for it on a small area. Take a 200-litre barrel, or even just a 20-litre bucket, and half fill it. Add the 500 to it and stir it in one direction until the water climbs up the side of the drum to the top, and a deep vortex forms in the middle. Then reverse the motion, creating a bubbly, chaotic turbulence, until it reforms a vortex in the opposite direction. Then reverse it again, and so on for one hour. It's hard work by hand and you may be



wondering what the point is but just do it. The best way to overcome your skeptical mind is to just do it – something I bet your critics have not done. The vortex is a universal pattern and a subject worth researching in itself for agriculture and water treatment.

There are two main ways of stirring mechanically. One is with a stirring machine, which quite simply mimicks the hand stirring using a reversing float switch. Here are some photos. The other way of stirring is with flowforms. Flowforms create and destroy the vortex in a less mechanical way, but in many ways more naturally, imitating the vortices that occur in rivers and streams.

Some traditionalist BD practitioners object to flowforms but I don't think they had a good look at them. You can see, after an hour, the effect of flowforms on the water. The meniscus is somehow silkier, and there has been a huge amount of energizing and oxygenating of the water. The question it comes down to is what flow rate is needed relative to the total volume being stirred. Our system has a flow rate of 250 litres a minute and a reservoir of 600 litres, and it's a standard setup. Talk to a flowform maker if you have more technical questions.



Spraying the 500 is not complicated either. In fact, the simplest way to spray it is to flick it out of a bucket with a broom as you walk along. This, like hand stirring, gives you a hands on feel for what you are doing. Again, it might feel silly when you do it, and it might seem very inexact to just flick the 500 out of a bucket. But later when you put a spray system together and start doing it, the experience will reinforce the fact that this does not have to be an exact application. You really do just have to throw the stuff around for it to have an effect. Even if it doesn't hit every square inch of ground, its homeopathic effect will be felt. The idea is to use a low pressure spray rig, for example a high capacity diaphragm pump or an idling firefighter pump, and use nozzles with big holes, to squirt out large droplets that will hit the ground, not blow away.



There are some rules though, about timing of when you spray the 500. The first is that you try to get it all out onto the ground within one hour, before the energy created in the stirring process wears off (hey don't laugh). Another, perhaps more important rule, is that you spray it at or as close as possible to sunset on a descending moon. The cycle of Descending and Ascending Moon (27.3 days) is a different cycle to waxing and waning moon (29.5 day



cycle). Independent of whether the moon is full or new, its daily path across the sky as seen from the Earth is not always the same. Sometimes it is higher in the sky, sometimes lower. We see the Moon moving in an arc from East to West and when we see these arcs getting higher in the sky every day, the Moon is Ascending. When we see them getting lower every day the Moon is Descending. Rudolf Steiner spoke of the Earth as a living organism with an inhaling-exhaling breathing rhythm, similar to ours. He related the ascending and descending moon periods to the inhaling and exhaling cycle of the Earth.

The descending period is related to the activity below the soil surface and can be compared with the cool or cold season of the year. The Earth breathes in and draws growth forces back down below the soil surface. The lower parts of the plant, especially the roots, are activated. This is the time for cultivation, composting, planting, pruning, making cuttings, and spraying 500 or Horn manure. Maybe even racking wine!

Our own spray rig is on the back of a little 4x4 Suzuki ute with a 600 litre tank and a petrol powered Hardy 600 diaphragm pump. Others have 3PL tractor mounted or trailing sprayers. Others have small tanks on 4x4 motorbikes or trailers behind them. Some in NZ even use a horse! We have actually used all of these methods except the horse and had various problems. There is no perfect system. Our vineyard and olive grove are total of 30 hectares, and we spray about 1/3 of it at a time, taking one person a total of about 11 hours to set up and spray the whole place over three evenings. We don't bother trying to do two loads or more in one evening – then it becomes a two-man job. Our biggest issue is that, to spray 600 litres over 10 hectares in one hour, we need to travel at about 15 km an hour through the vineyard. You can't do that safely on a tractor or a motorbike, so we settled on a ute. We have lightweight folding booms that flick back with 'ocky' straps if we hit a tree or power pole, and after four years they have been patched and straightened but they still work fine. The booms give us a width of 6 m between the two nozzles, and the total coverage is a comfortable 4 or 5 rows. On a 4 x 3 metre row pattern we are doing 8.5 km in the 10 hectares, but when you include getting there from the shed, and turning at the ends of the rows, and stopping now and again to check the nozzles (make sure you use a filter sock when loading the tank), you can see why you need to drive at 15 km/h.



Preparation 501

As well as improving your soil, Biodynamics has some tools in the kit for disease management, and the one mostly used is '501', made of silica dust, which amplifies the heat and warmth of sunlight, improves photosynthesis, thickens cell walls, and enhances ripening. The 500 and 501 are like Yin and Yang – opposites but partners. Ten years ago a lot of people said that Australia is a hot country, with



plenty of sunlight, and therefore we don't need to use 501. Its true, in most cases, you don't need it. However, we do use it in two situations: where we believe we have a disease event or as a preventative measure on susceptible varieties, and when we fear we may not ripen our fruit before an extreme late vintage weather event.

Preparation 501 is made from minutely finely ground silica crystals that have been buried under the ground over the summer months – as opposed to the 500 being buried in the winter months. Just bear with me when I say that this is because in the summer the light and warmth forces are stronger, and that the cows horn is like an antenna that channels these forces into the silica. I 'lose' a lot of people when I start telling them about forces, so hang in there and remember the homeopathic comparison. All we are doing is making the base material which is going to be potentised through stirring, in the same way as the horn manure.

Casuarina is a plant that is high in silica, and is the Australian version of Horsetail, since horsetail is a noxious introduced species. So, it's simple logic to make tea or liquid manure of casuarinas leaves, and use it in conjunction with, blended with, or as a homeopathic preparation with 501.

Again, contrary to 500, 501 is sprayed out in the morning, and rather than large droplets and low pressure, we want small droplets and high pressure. The effect is like a cloud floating out across the vines in the early morning light, with the homeopathic silica imparting strength to the rapidly growing spring shoots.



Spring, before flowering, is a key time to give the vines some strength against mildew. I do not have solid proof, just my own gut feeling that 501 protects our vines against mildew. There are two cycles to consider with timing of the spraying of 501 at this time of year.

The first is Moon-Saturn Opposition. This is when the Moon and Saturn are on opposite sides of the Earth and their respective forces are raying into the Earth from opposite directions. This occurs every 27.5 days. The spraying of 501 at this time has been found to strengthen plants to the extent that they can resist plant diseases and certain insect attacks.

The second is the ascending moon period, when there is an outpouring of plant growth activity above the soil surface. Growth forces and saps flow upwards more strongly and fill the plant with vitality. This is also a time to spray 501, even if its just once during moon-Saturn opposition in say November. One word of warning, if you spray 501 during flowering you may reduce your yield by 'burning' some of the flowers. On the other hand, if you look like overcropping, this could be handy.

In later stages, before harvest, we have used 501 with obvious effect. By spraying 501 on our Merlot in 2004 we saw the baume's increase from 11.5 to 15.5 in a week. The fruit was jammy, to say the least, but at least it was ripe! My concern with this is still that sugar ripeness is not flavour ripeness, and sometimes we have to resist the urge to push the ripening process too fast. It is best to avoid the need to do this by not overcropping, keeping a healthy canopy etc.

The compost preparations 502-507

I remember this as the great one-liner from Cheryl Kemp, when she was the education advisor in the Association. It's really as simple as that. They are the compost preparations 502-507. What are they?

I don't want to explain – just buy them from the Association, and use them. I have copied a table which is at the end of this as an Appendix, if you want to know about them. They are basically herbs with specific properties and relationships with plant growth cycles and nutrients that Steiner suggested can be used homeopathically to stimulate a balanced breakdown of compost and liquid manures.



The most obvious way to get the compost preparations out into the field, is to make and spread compost. However this is not always practical.

For us, the simplest way to get the preparations out is to use Biodynamic fish emulsion, as its ready made. We really love the stuff, and we use 1000 litres of it per year, which we apply either as a foliar spray to the winter grasses or through fertigation in the spring. Ideally, you can make your own fish fertiliser, liquid manure, stinging nettle brew, or seaweed brew, and put the preparations in it, as an easy way to spread their 'influence' in the vineyard (excuse the terminology, if you are a hard line reductionist).



We also use Biodynamic Manure Concentrate, or Cow Pat Pit, which is a concentrated compost popularised by Maria Thun. You prepare a small batch of compost using cow manure with rock dust and ground egg shells for extra minerals. This batch is treated to all the compost preps and carefully stirred to incorporate air. Then you incubate this compost in a partially buried barrel – hence the name 'Barrel Compost', or just a pit in the ground. The final product is fully cured compost with all the preparations in it.

We simply add this to the 500 at the end of the stirring (the last 15 minutes). Some BD growers use a product called 'prepared 500' – which is a blend of the 500 and the manure concentrate, but I have never used it. Other BD growers simply add manure concentrate to a Compost Tea Brewer, and spray or fertigate it following the standard brewing process, as popularised by Elaine Ingham. If you love gadgets and machinery, get a compost brewer. I am however not convinced by compost tea as a foliar spray, unless highly diluted, as it may also stimulate tender, susceptible growth, as fish fertiliser does.

Tree paste is another way to get the preps out. You need to visualise the vine as an extension of the soil. The bark is no longer living tissue; it is like the ground, surrounding the cambium layer, which is like the roots in the soil. So to have healthy vines, we need to treat the trunks as we would for healthy soil, using a tree paste, containing manure, clay and the Horn Manure preparation, as well as sand and diatomaceous earth. This material is sprayed painted onto the trunk in winter. As well as stimulating the trunk to be healthy, it also smothers some insect pests, and may help control borers.



Remember, if you plan to be a certified as a Biodynamic grower, the National Standard requires any liquid manure, compost or non-mineral nutrients to be brewed or composted using the compost preparations.

Join a local group

Its hard to find the time in our busy lives and its great we have the fallback of the national association to buy the preparations but ... Biodynamics is much better when it becomes a social activity. In fact, Steiner's work was much more about social activity than farming.



We all need to find time to talk with people on the same journey, and to work together to make the preparations with our own hands. We used to do this with a local BD mixed farmer, and just go to his place to stuff and bury cow horns together. There's something special about doing it that makes the whole thing more satisfying.

Don't have a local group? The Association can help you to form one, or, just travel to your nearest one. You might find out all sorts of useful info that is not even touched here today, such as peppering of pests, sequential spraying, or tips for better winemaking.

Lastly, I encourage all of you who are thinking about biodynamics, to think about certification. Sure it costs you hard earned dollars, but the benefit is that we can send a clearer message to our supporters, the consumer. We can also become an active part of the international movement for organic and biodynamic agriculture. Government

and research organisations will start to take notice. And of course, you can use a logo, if you chose to.

I really do hope that I didn't 'lose you' during this presentation, and that you will be open minded to it. I am sure that if you give Biodynamics a go, you will be amazed by the results.

Some references and links

Ross McDonald, Macquariedale wines, www.macquariedale.com.au

Dave and Sue Carpenter, Lark Hill winery, www.larkhillwine.com

Rod Windrim, Krinklewood vineyard, www.krinklewood.com

Cheryl Kemp, Town & Country Farmer 2004 www.biodynamics.net.au/articles/T&C%20Viticulture%20PDF.pdf

Oregon Biodynamic Group, www.oregonbd.org

Biodynamic Association of India, www.biodynamics.in

Biodynamic Farming and Gardening Association of NZ, www.biodynamic.org.nz

Biodynamic Agriculture Australia, http://www.biodynamics.net.au/membership_application.htm#apply

Hunter Biodynamic Group, www.hunterbiodynamic.org.au

Adelaide Hills Biodynamic Group, <http://adelaidehillsbiodynamic.blogspot.com/>

Books to get

The Agriculture Course, by Rudolph Steiner

Grasp the Nettle, by Peter Proctor

Biodynamic Gardening, by John Soper

Biodynamic Calendar, by Brien Keats or Maria Thun

Appendix 1. Summary of the Biodynamic practices.

Preparation Number	Material	Unit Size	Procedure	Effects
500	Horn Manure	1 oz. sufficient for 1 acre	Stir for 1 hour	Promotes roots, stimulates soil, encourages lush growth, aids germination.
501	Horn Silica	1 gram sufficient for 1 acre	Stir for 1 hour	Promotes photosynthesis, flowers and fruits, aids flavor, color, aroma, keeping quality.
-	Horn Clay	5 gm sufficient for 1 acre	Stir for 1 hour	Mediates between growth poles, promotes balance
502 to 507	Compost Preps	1 oz each for 10-15 T compost	Insert into pile, sprinkle diluted valerian over pile	Builds digestive and formative properties of soil when compost is added
-	Pfeiffer Compost Starter	1 oz. sufficient for whole season, add in small amounts	Sprinkle in warmed water, let incubate for 20 minutes	Adds vital forces to compost, enhances digestive ability of soil
BC	Barrel Compost	1 oz sufficient for 1 acre	Stir for 1 hour	Adds vital forces, enhances digestive ability of soil
508	Equisetum	1 oz in 1 quart	Make boiled tea, dilute 1:10, may stir 20 minutes	Prevents fungus, toughens plant tissues

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Appendix 2. Summary of the Biodynamic compost preparations.

Broad Function	Organ in Animal	Secondary Influence -- (Derived From Primary)	Chemical Element	Works With Other Factors	Herb	Animal Sheath
Capture life force from outside, bring species pattern to the seed	Reproduction	Intensification (From Germination), contract rampant etheric growth, resist disease	C	Horn Manure, Water, Moon, Ca	Oak bark	Skull
Digestion - break down food, rebuild with own life force	Intestine	Supporting Organs (From Sap Flow), stabilize N	O	Horn Manure Mercury, Humus, S manages Ca/ K	Chamomile	Intestine
Excretion - remove life by-products, open life force to astral	Kidneys, Bladder	Excretion (From Nutrition), retains Si, corrects weak astral	S	Horn Manure, Venus, S manages Si/K	Yarrow	Bladder
Energize and distribute - harmonize dynamic animal functions	Heart, lungs, circulation and breath	Protein (From Expansion In Space), heart-like rhythm and sensitivity	N	Horn Silica, Mars, Fe, Sand	Nettle	Itself
Regulation - capture self-consciousness bring to physical body	Liver	Fragrance, Essential Oils (From Plastic Forces), draw in Si, transmutation	H	Horn Silica, Jupiter, Clay enlivens soil	Dandelion	Mesentery
Sensitivity - develop animal nature into self consciousness	Skin, nervous system	Seed (From Archetype), brings warmth	P	Horn Silica, Saturn, K	Valerian	Water

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Appendix 3. Excerpt from the National Standard for Organic and Biodynamic Produce, 2005.**3.22 BIO-DYNAMIC PRODUCTION**

In 1924 Rudolf Steiner gave a series of lectures at Koberwitz, which provided indications on how to re-enliven the soil and nature environment. The lectures were in response to requests on how to reverse the problems of loss of vitality in crops – which had become noticeable since the introduction of chemical fertilisers. These lectures and associated discussion led to the development of the Bio-dynamic Method of Agriculture.

Note: The term Bio-dynamic Preparation(s) used in this Section means the natural activators developed according to Steiner's original indications.

General Principles

i. Land management needs to reflect an understanding of the fundamental principles presented in the Agriculture Course; the series of lectures given by Rudolf Steiner to scientists and farmers at Koberwitz, in 1924.

ii. Bio-dynamic practitioners seek to understand and work with the life processes as well as enhance their understanding of the mineral processes used in conventional agriculture. Healthy soil and a healthy atmosphere are a prime basis for healthy plants, animals and people.

iii. Bio-dynamic farming practices do not rely on water soluble fertiliser inputs, although some organic or natural mineral fertiliser may be required on poor soils especially during the establishment phase. While noticeable changes may occur within a year, development of a sustainable soil structure and nutrient cycles may take several years.

iv. The Bio-dynamic Preparations are not fertilisers themselves but greatly assist the fertilising process. As the name suggests, these Preparations are designed to work directly with the dynamic biological processes and cycles which are the basis of soil fertility. As activators of life processes they only need to be used in very small amounts.

v. The Bio-dynamic Preparations activate soil and plants, develop soil structure and enhance the nutrient cycles. Farming practices need to support this process.

vi. The Bio-dynamic Preparations (numbered 500 to 507) are used in conjunction with established agricultural practices such as composting, sheet composting, manuring, crop and pasture rotations, tree planting, the integrated use of livestock and so on.

vii. Preparation 500, and "prepared" 500 (500 with Compost Preparations 502 to 507 added) specifically enlivens the soil, increasing the microflora, root exudation and availability of nutrients and trace elements via humus and not through soil water. 500 promotes root growth, especially the fine root hairs. It develops humus formation, soil structure and water holding capacity.

viii. Preparation 501 enhances the light assimilation of the plant, leading to better fruit and seed development with improved flavour, aroma, colour and nutritional quality.

ix. Compost Preparations (502 to 507) help the dynamic cycles of the macro and micro-nutrients, via biological processes in the soil and plants and stimulate availability of specific elements.

x. In accordance with the research evidence of Lily Kolisko on the often dangerous effect of minutest substances (even less than a molecule), materials used for the storage of the Bio-dynamic Preparations, stirring machines, spray tanks etc., need to be carefully considered.

xi. Weeds and pests are useful indicators of imbalances in soil and plants; and the aim in the Bio-dynamic method is to use such indicators in a positive way. Many so-called weeds under Bio-dynamic Management become useful herbage.

xii. Pest and disease control is managed by developing the farm as a total organism. However, Bio-dynamic practitioners may make use of specific products for weed and pest control, which they make from the weeds and pests themselves.

xiii. It is encouraged not to dehorn cattle which belong to breeds that are naturally horned. Keeping horned cattle may require different strategies in animal handling, so as not to cause stress nor inflict injury to the animal.

xiv. Fodder produced on the farm itself forms the basis of animal nutrition. Complete self-sufficiency in fodder is the principle aim.

Standards

3.22.1 For products to carry a label or reference to Bio-dynamic production, products must be produced on a certified Bio-dynamic production unit.

3.22.2 For a production unit to be certified Bio-dynamic, in addition to the other requirements of this Standard:

a. 500 and compost preparations must be applied to the whole production area at least once per year.

b. Application of 501 occurs when plants require additional intake of light.

c. Bio-dynamic Compost Preparations 502 -507 are to be used to direct all fermentation processes in liquid manures and composts.

d. Any off-farm inputs, including manures, must go through a Biodynamic composting process. Exceptions are: rock and mineral dusts and mulching materials permitted by this Standard.

e. Bio-dynamic Preparations are to be stored in a suitable storage container away from fumes, electricity, contamination sources:

i. 500 and compost preparations are to be stored away from heat and light, in a container using at least 8 centimetres of dry peat for insulation. The storage vessel or peat must not contaminate the preparations.

ii. 501 must be stored in a glass that has access to early morning sunlight.

f. Bio-dynamic Preparations 500 and 501 are to be stirred for one hour.

g. Stirring of Bio-dynamic Preparations shall be organised to achieve an energetic vortex, followed by an immediate reverse action – causing a "bubbling" chaos and reverse vortex – then subsequent reverse chaos and vortex etc for the full hour (Steiner, Pfeiffer).

h. Stirring and spraying equipment must be non-contaminating, clean and dedicated to the purpose of the Bio-dynamic preparations.

3.22.3 Wild harvest cannot be certified Bio-dynamic unless the Bio-dynamic Preparations, as per this standard, have been applied to the areas to be harvested.

3.22.4 Animals are to be born and raised on a Certified Bio-dynamic farm as part of an indigenous herd. Animals brought onto the farm from non Bio-dynamic sources can never be sold as Bio-dynamic.

3.22.5 Certified Bio-dynamic feed must be fed to Bio-dynamic livestock.