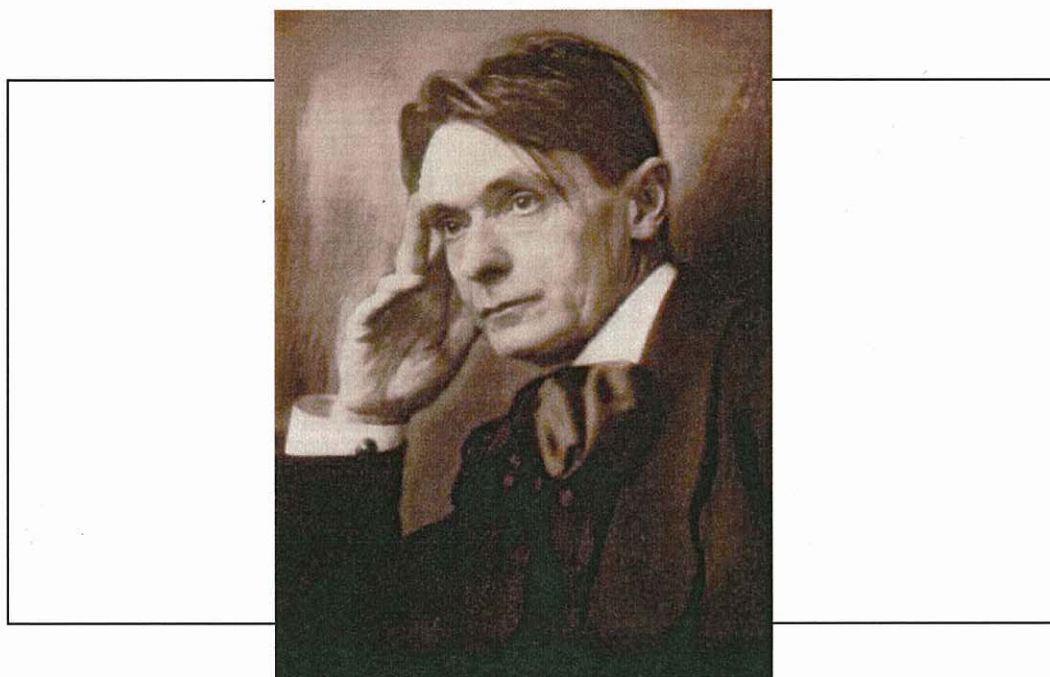

**Biodynamic Agriculture Australia National Conference and Annual
General Meeting Report**



FINAL REPORT to
GRAPE AND WINE RESEARCH & DEVELOPMENT CORPORATION

Project Number: **GWT1012**

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Research Organisation: **university of Adelaide**

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Biodynamic Agriculture Australia Ltd. National Conference and Annual General Meeting

April 8 – 10, 2011
Greenmount Beach Resort
3 Hill St, Coolangatta Queensland

CONFERENCE REPORT

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1 Introduction

1.1 Statement of Objectives:

This conference represented an ideal opportunity to achieve three key objectives.

The first was to add a deeper knowledge base to my Masters Research project by speaking directly with biodynamic grape growers and viticulturalists. I wished to establish what practices were behind the various successes and failures in managing their crops in a year of high fungal disease pressure in most growing regions in South-eastern Australia, and an overall better understanding of the philosophies and subtleties of this unique system.

The second related to the biodynamic management of the Waite campus vineyard blocks, the demonstration and coherent explanation of these management techniques to viticulture and oenology students in their courses 'Viticultural Methods and Procedures' and in particular to all students who work in vineyards as part of 'Viticulture Practice' and Industry Experience. Therefore, co-funding was sought through the GWRDC in addition to the grants already awarded from the University of Adelaide.

Thirdly, to meet biodynamic grape growers from around the nation and as a networking exercise this would be invaluable in making the biodynamic industry aware of all the related research being undertaken at the Waite campus, of which there are three, which focus on biodynamic and organic viticulture. Additionally this can create a two way flow of communication between practitioners and researchers and the practices that relate to disease management. Dr Cassandra Collins is fully supportive of me attending this conference in her capacity as principal supervisor of my Masters project.

1.2 Biodynamic Agriculture Australia

Biodynamic Agriculture Australia (BAA) is a national company that provides positive biodynamic (bd) options for anyone committed to being responsible for the shared agricultural environment. Its members seek to protect and encourage the bd method of agriculture, horticulture, animal husbandry, forestry and gardening as indicated by the teachings of Rudolph Steiner. To achieve this, the organisation provides bd products, literature and training to its members and provides advice to those seeking certification. The BAA also plays an integral role in assisting NASAA (National Australian Sustainable Agriculture Association) in

training its assessors to certify bd producers. As at the end of 2010 the total membership base of BAA stands at 1222. Approximately 40 members attended the annual general meeting. The weekend conference attendance stood at 150 with most areas of agriculture represented from across the nation. Wine industry attendance was poor as in many regions harvest was still underway.

2 Report

2.1 Annual General Meeting

The annual general meeting was held on the afternoon of Friday the 8th of April followed by plenary sessions for the following two day conference. The outcome of an afternoon of discussions and annual reports revealed the following conclusions. BAA is a highly energetic and positively ambitious organisation which wishes to position it's self as the market leader in the manufacture and distribution of high quality bd preparations and adjuvants. There are several other providers of these products across Australia. BAA identifies the slow uptake of memberships and lack of interest in bd amongst younger agriculturalists as the principal concern for the future of agriculture in Australia. This lack of interest is most likely a response to the sometimes daunting esoteric nature of Steiner's philosophies and teachings of spiritual science. It was at this point that I introduced myself to the group, outlined the basis of my research and the basics of that being undertaken by other students at the Waite Campus. I was received with general interest and enthusiasm, with the odd exception.

It is the organisations opinion that food quality and security and the sustainability of agriculture can only be strengthened by a bd approach to land custody. An approach that must have its basis firmly anchored in a sound adoption of organic practices; eliminating permanently, the use of all synthetic chemicals in any farm system. Over the coming years BAA hopes to improve the uptake of bd practices amongst the emerging generations of agriculturalists. BAA recognises that to do this the appropriate use of practical language is probably necessary.

BAA members are enthusiastic about the future and believe that they have a positive contribution to make to food security around the globe. The purpose therefore of the conference was to bring together bd practitioners to share their experiences and knowledge with others from similar industries in an effort to begin a national dialogue and sharing of

information. The underpinning maxim for the conference was therefore "Ecology takes care of the Economy" (Unger 2011, Pers. Comm.).

2.2 National Conference

The general purpose of this conference was to facilitate group discussion and training in bd which occurred around the presentations made by the key note speaker Dr. Richard Thornton Smith. Thornton Smith is formally Professor of Geography, Soil Science, Environment and Conservation at the University of Leeds, UK. He managed a bd extension project in Sri Lanka and through his commitment to Steiner's spiritual science; Anthroposophy, he is also a Demeter and Organic inspector for BAA UK for whom he is also a board member. Thornton Smith's sessions were allocated to the first half of each day, leaving the afternoons free for workshop and discussion groups. In day one he outlined the fundamental objectives of bd: how energy is harnessed from the soils. Day two was dedicated to providing insight into current human diseases and a bd perspective of how nutrition plays a role in their manifestation. These presentations were based on the teachings of Steiner and Thornton Smith's experiences.

Day One

'The Working of Cosmic Energies in Plant Soil'

Bd practitioners believe that the nutritional quality of food has a direct effect on the spirituality of an individual. Food produced using chemical agriculture (the BAA's preferred referral to what is generally termed 'conventional agriculture') is therefore of poor nutritional value as it does not contain the life energy of bd agriculture. Thus Thornton Smith claims that 99% of the global population's nutrition is compromised. He went on to point out that the bd practice of organic farming and the inclusion of the famous preparations 500 through 508 encourage life forces, carried by sunlight, to enter and penetrate the soil. These life forces interact with the soil organic matter thereby improving the cation exchange capacity. Therefore giving rise to the idea that the soil nutrients are also imbued with life energy which further improves soil structure, biota and natural nutrient cycling without the need of fertiliser or pesticide additives. It is claimed that chemical agriculture does not impart these qualities and as a consequence food grown this way lacks life energy and is thus nutritionally compromised.

The idea is that all agricultural enterprises possess an individuality that connects the physical person to the land and the local environment. Farmers are encouraged to take an holistic view

of their farm systems and structure the management of it, such that it becomes a self contained system; exploiting the natural relationship between the soil, plants, animals and humans. As an aid eight specialised preparations (500 series) are used to help stimulate this relationship by introducing 'life-forces' to the environment and sunlight plays an integral role. Thornton Smith went on to claim that the origin of these life-forces is the interaction between the cosmos, sunlight and the breathing rhythms of the earth. Thornton Smith made a point of referring frequently to the ancient Greek concepts of Bios (Life in a physical sense) and Zoë (life in a spiritual sense) and claims that this is the key to understanding the theory behind life forces. In brief his explanation was; Bios is the builder, it organises and nurtures plant production through photosynthesis. It has a direct relationship with the inner planets, Mercury and Venus, the moon and the four elements. Zoë is the architect and has a direct relationship with the outer planets and the 12 astronomical zodiac constellations. Zoë channels the life forces/energies to the earth and informs nature on how to make matter; it is photo-informative.

Thornton Smith then went on to point out that as the various astral bodies align themselves through the calendar year these energies are channelled to the earth past the sun and endowed with light which enhances the life force energy. This energy is absorbed by the earth as it breathes in, in the afternoon, and released back to the cosmos in the morning as the earth breathes out. A specific comprehensive calendar that helps growers to track these complicated planetary and cosmic rhythms is produced yearly and is an essential tool for bd management. At this point the soil plays an integral role in holding the life forces in the silicate clays and humus making them available to plants. As such the life forces also form particular relationships with various earth bound chemical elements, physical elements (earth, wind, fire and water) plants and animals. Such that these can be combined at various times of the year to create the '500 preparations' and form the management cycles of the enterprise. Naturally then, composting and the maintenance of soil organic matter and humus are integral components of all bd systems. (Appendix one lists all the '500 preparations', their role in the system and how this role is manifested.)

Thornton Smith's closing comments for day one centred around the cycling of nutrients and setting the scene for day two, viz "...the elements required for plant growth and health offer themselves in a natural sense to the energies of the plants better than chemically generated elements, therefore providing better health..."

Day Two

'Food Quality, Nutrition and Health – Biodynamic Perspectives'

The content of the presentations of day two should be viewed with a healthy dose of circumspection. Several claims about the human body, its interactions with various foods and chemicals and subsequent health were made by Thornton Smith, who is not a trained physician. Many of the concepts were based not only on Steiner's teachings but on concepts proposed by Ayurvedic and Homeopathic practitioners and their collected theories of how the body interacts with its self, the environment and the cosmos and how its processes can be managed. It is beyond the scope of this report to scrutinise these teachings

However the basic concepts are these

- 1) That today's human health issues are a result of a combination of stress in response to
 - Local environment
 - Peoples increased mobility
 - Poor diet
 - Processed foods
 - Lifestyle and exercise choices
 - Consumer products
 - Processed foods and additives
 - Heavy reliance on conventional medicines
 - Occupational hazards
- 2) Food quality plays a far more important role in human physical and spiritual health than generally recognised.
- 3) The increased consumption of food grown 'organically', 'sustainably or 'biologically" (bd products are included in this definition) continues to increase and has moved beyond the realms of a niche market. However this trend seems to only apply to wealthy nations. Indeed the idea that growers may use these systems as a marketing edge over competitors seems to be decreasing.
- 4) There is an increasing body of evidence as to the better quality and sustainability of organically grown produce.
- 5) Processes do exist to test bd grown food for its life forces. These include Liquid Chromatography and Sensitive Crystallisation.

- 6) That Ayurvedic and Homeopathic teachings should also be considered when trying to understand how life forces affect the body.
- 7) That in order for life forces to be present in food, humans should be consuming food only processed from
 - Fresh, seasonal and locally grown organic produce at least, but preferably bd foods
 - Raw and whole foods
 - Gently/slowly cooked food
 - High water quality
 - Positive thoughts

2.3 Discussion and Interest Groups

The following is a combination of the several workshops that yielded information of interest to this Masters project.

Advice given during the topics covered in discussion was of a general nature and based on experience and observations of experienced practitioners. Bd preparations used in conjunction with bd foliar sprays are suitable for use in all fruit crops. The general advice was given that frequency and timing of spray applications was a function of climate conditions, canopy size and history of disease pressure, trial and error and close monitoring and observation of current disease presence. The group was made aware that of all fruit crops, grapevines respond the most positively and immediately to bd inputs. It was claimed that by using some of the following inputs, disease pressure was easily controlled this season in most soft fruit crops. It was also claimed that when these inputs are used in vineyards that disease control is nearly always successful and that there is always a corresponding increase in grape quality. No evidence was produced to support this claim other than anecdotal. However I was referred to research conducted by Ehrenfried Pfeiffer for scientific evidence.

Control of fungal diseases with alternatives to copper and sulphur in bd systems

The key is to strengthen plant cell walls against pathogenic attack. Two elements are essential to this Ca and Si. Several tools are available.

- Preparation 500 Horn Manure: helps in Ca cycling and subsequent plant uptake. It is applied to the soil in droplet form twice in spring and twice in autumn in the afternoons.

- Preparation 501 Horn Silica (silica dioxide): enhances the light forces into the roots and to aid photosynthesis and strengthens the plant cuticle. It is sprayed every 28 days from bud burst till fruit set when the moon is opposite Saturn; always at dawn.
- Preparation 508 Equisetum/Casuarina Tea: Corrects the excess of lunar forces which can lead to the weakening of plant cell walls. Sprayed as a foliar application each morning at dawn for four days prior to 501. 508 can also be sprayed post infection as an eradicant.

Many other substances can be included in this spray program and are allowable inputs in bd systems and have met with considerable success as preventative sprays

- Phosphorous acid at half the label rate with 501(not suitable for export markets)
- Molasses and Hydrogen peroxide
- 501, 508, Molasses, Lime and Boron mixed in various combinations and concentrations with bd seaweed and/or compost teas
- Bd soil activator: 500 Horn manure and Winter Horn Clay and manure concentrate with all preparations 501 to 508 sprayed to the soil weekly over summer

No modes of action were suggested other than anecdotal suggestions.

Use of Australian plants and animals for '500 Preparations' instead of European based preparations.

It is possible that there may be alternatives to the traditional European preparations. Apparently what is important is that the alternative is not chosen purely on appearance or perceived similarities. There must be the same relationship between the plant or animal, the part of it which is used and the astral body and mineral element that affects its efficacy. For example Casuarina is a suitable alternative to *Equisetum* spp, which is seen as a noxious weed in Australia. Buck kangaroo bladders could be used instead of the buck deer in Australia; Steiner indicates this is his Agriculture course, due to the similar sensitivity the two animals' exhibit. False dandelion (*Hypochaeris radicata*) although not native seems to work well for preparation 506. Southern and Northern

Silky Oak (*Grevillea robusta*), and (*Cardwellia sublimis*) respectively seems to work well for preparation 505. Research is continuing.

Other discussion groups offered included; Composting, Understanding the Astro-calendar, Advanced Preparation Making, Bd Beef Cattle, Bd for Tropical farming, Beginners seminars, Establishing bd Gardens for Schools and Homes and Managing the Certification Processes.

3 Conclusion

It was disappointing that not more wine industry bd practitioners were present, despite assurances to the contrary. Such are the vagaries of the industry, however to be able to enter in to general discussions about the nature of bd agriculture with experienced growers and novices of other crops was an affirming experience. The brief outlines of the conference above do not take into account the lively and healthy debate and candour that existed in each group. BAA should be congratulated on such proactive approach in seeking to bring such positive bd practitioners together from such diverse agricultural backgrounds and Australian environments. The range of interest and discussion groups and experienced people to facilitate them was impressive. The members and board of BAA place great store in the teachings of Steiner. They are truly motivated by the idea that bd provides not only a viable but critical alternative to the concerns they identify in 'chemical agriculture'. They are also determined that bd agriculture can and will be taken seriously by growers and consumers alike.

4 Appendices

Appendix 1: biodynamic preparations 500-508

Cow Horn Manure 500	Is made from cow manure, which is filled into cow horns and buried in the soil over winter. It brings in the earthly forces and helps the soil develop humus and structure. It also attracts earthworms and soil micro-organisms.
Horn Silica 501	Is made from ground quartz crystals, brings in the silica activity. It is buried in the horns over summer. Only a tiny amount is used to take the light forces into the roots and to aid photosynthesis.
Yarrow <i>Achillea millefolium</i> 502	Yarrow flowers placed in a stags bladder. Stimulates the potassium, silica and selenium activating bacteria and helps combine sulphur with other substances. Remedies weaknesses in flowering and fruiting and strengthens the plant against insect attack
Chamomile <i>Chamomilla officinalis</i> 503	Chamomile flowers placed in the small intestines of cow. Helps retain nitrogen, calcium and sulphur. Also stimulates manganese and boron, as well as azotobacter activity- the best bacteria for making nitrogen in the soil.
Stinging Nettle <i>Urtica dioica</i> 504	Nettle is buried without an animal sheath. Conveys intelligence to the soil, helps proper decomposition, aids chlorophyll formation and stimulates iron, potassium, calcium, magnesium and sulphur bacteria activity in the soil.
Oak Bark <i>Quercus robur</i> 505	Oak bark placed in a cow skull and in water over winter. Helps restore balance when water activity is working too strongly, such as after lots of rain or at full moon. It also helps protect against fungal disease. Helps calcium and phosphorus work into the earth in a living form.
Dandelion <i>Taraxacum officinale</i> 506	Dandelion placed in a cow's mesentery. Stimulates the potassium/silica bacteria and fungi in the soil to enable it to work more effectively. Silica makes the plant more inwardly sensitive. Can help increase flowering and filling of fruit out to tips. Also stimulates the magnesium, boron and selenium soil activity.
Valerian <i>Valeriana officinalis</i> 507	A Tincture made of valerian flowers. Stimulates the phosphorus process and mobilises the phosphorus activating bacteria in the soil, as well as selenium and magnesium. Prevents the flowering process becoming excessive. Forms a warmth blanket around the compost heap. If sprayed onto blossoms in spring can provide protection against late frost.
Equisetum/Casuarina <i>Equisetum arvense</i> 508	As Equisetum is seen as a noxious weed in Australia, we have found Casuarina to be a good substitute. Fresh Casuarina Preparation works with the water balance in the atmosphere as a fresh tea and is used to prevent and stop fungal growth, sooty mould and tightens plants against becoming soft and open to mildew infection. Fermented Casuarina tea works in the soil to stimulate the growth of beneficial fungi and large hyphae and is applied with the afternoon soil sprays. All Casuarina seems to be effective, especially the Casuarina equisetifolia from eastern Australia.