



Achieving better balance through Biodynamics



Photo by LCC

Project Title

Biological soil processes for
sustainable agriculture

Project Officer

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Supporting Technical Advisors

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Project Duration

December 2010 to June 2013

Stakeholders & Funding

Australian Government,
Caring for our Country and
Leschenault Catchment Council (LCC)

Beneficiaries

Nine farmers, progressive farmers,
the environment and the general public.





Adding biodynamic preparations into compost to create biodynamic compost. Photo by Custom Composts

Why farms are becoming unsustainable

Did you know that agricultural land covers approximately 55% of the total land area in the south west of Western Australia? As such, it is a highly valued asset used not only for local food supplies, but also for food export; sheep, milk, wheat and wines being prime examples.

Two hundred years of clearing land for agriculture, combined with traditional but commonly unsustainable farming practices, including the over use of chemical fertilisers, have taken their toll and contributed to the degradation of soils and pollution of waterways.

In order to help redress the situation Caring for our Country funding was acquired to deal with the issue of sustainable agriculture. "Farms are becoming unsustainable due to soil degradation and much of the West Australian wheatbelt is in poor condition," says Project Officer Beren Spencer. "Additionally, food quality can be compromised, and the health of the surrounding waterways, wetlands, plants and animals has declined along with an increase in pests and weeds."

Nutrients leach through porous soils contaminating groundwater in the catchment, or are carried by surface runoff into waterways and wetlands and eventually into the Leschenault Inlet. "River usage and recreational sports are also impacted and this is another important consideration," says Mr Spencer.

Reducing the carbon footprint

The project team selected Biodynamics as a method of achieving sustainable agriculture. Biodynamics is an advanced form of organic farming – except the focus is not on spreading bulk amounts of organic compost, but rather trying to balance the soils and allow natural processes to prevail.



One of the sites in the biodynamic trial – soon to be a potato crop near Myalup. Photo by LCC

“Over the years, clearing and cultivation of land has reduced average soil carbon levels from around 8% to 0.7%, a negative factor for sustainable agriculture”, explains supporting Technical Advisor Kevin Martin. “But it’s been demonstrated that sustainable soil management can rebuild soil carbon levels turning agriculture from a greenhouse gas liability into a greenhouse gas asset. This in turn results in increased productivity, sustainability and quality, along with lower costs and labour requirements.”

Biodynamics vs traditional farming

In essence, the “Biological Soil Processes for Sustainable Agriculture” project is focusing on comparing Biodynamic principles and practices with traditional agriculture on controlled sites. “We’re assessing and documenting production benefits and the cost advantages of Biodynamic processes and preparation across a range of soil types, farming practices and climate conditions to determine if there are economic advantages to convert from traditional farm practices to Biodynamics,” explains Mr Spencer.

What is Biodynamics?

Biodynamics dates back to the beginning of the 20th Century when traditional European farmers found Biodynamics methods reduced the deterioration in the

health and quality of crops and livestock. Adoption of these methods may reduce the reliance on farm chemicals supporting more sustainable farming practices. Dr Rudolf Steiner, a cultural philosopher, introduced Biodynamic preparations and offered practical steps to reverse the decline they were witnessing. Biodynamic Agriculture was the first ecological farming system to develop an alternative to chemical agriculture and artificial fertilisers. Today it is practised in more than 50 countries around the world.

Mr Spencer explains that the principal components of Biodynamic farming are the regular applications of preparations based on processed cow manure and silica, sprayed at homeopathic dilutions on the soil surface and into the air above. These are supplemented by the occasional spreading of organic composts infused with special plant based extracts as activators in the decomposition process. A variety of other organic materials, such as fish and seaweed teas, weed teas and molasses are also applied at times.

In the past, Biodynamics has been viewed as an expensive method of farming that involves much harder work and results in poorer quality produce. The project team hopes to change this negative perception by testing Biodynamic practices over a period of three years, providing a cost benefit analysis, and conducting field days to foster peer group discussion – farmer to farmer.



Biodynamic contractor and his spray unit. Biodynamic preparation are sprayed in late afternoon and early morning. Photo by Minnipup Natural

Farmer volunteers

Nine farmers volunteered for the project, and agreed to use two sections of land; one as a trial plot for Biodynamics and 'sustainable farming through healthy living soils' in which they use Biodynamic preparations instead of chemical fertilisers, herbicides and pesticides, and a second control plot for traditional agriculture.

The participating properties are:-

1. Market Garden near Myalup
2. Dairy near Dardanup
3. Vineyard at North Boyanup
4. Orchard near Donnybrook
5. Dryland grazing property at Mumballup
6. Dryland grazing property near Mayanup
7. Dryland grazing and cropping property near Mayanup
8. Vineyard near Frankland
9. Dryland Grazing and Cropping property near Wagin

Funding, farming & field days

Caring for our Country funding has been used for a number of activities. These include identifying and enlisting sites and farmers, conducting 'Introduction to Biodynamics workshops', applying biodynamic compost and preparations to the test sites over set periods of time, organising field days and workshops to promote the benefits of biodynamics among farmers and the wider farming community, conducting laboratory work and soil data analysis, producing an overall cost benefit analysis of biodynamic farming processes against traditional farming methods and demonstrating to farmers the advantages of biodynamics as an improved management practice.

Major breakthroughs

Key Caring for our Country targets are being achieved by improved land management practices, which are being implemented across a total of 180 hectares of farmland on nine farms.

"A desirable outcome for the project would be to get all farmers to think of sustainable farming solutions. One participating farmer has already converted his entire orchard over to Biodynamic techniques. Many realise that there is a problem and that sustainable methods need to be found, and in this respect the interaction between farmers and the LCC has been a great result," says Mr Spencer.

Impacts on land and community

The philosophy is that sustainable farming equals a sustainable rural community. "By 2013 we'd like to attract additional funding to extend the study to identify more time-stabilised trends. We'd also like to extend the testing of soils through to product quality, food value and human health," says Mr Spencer.

"It is hoped that the adoption of Biodynamics methods will result in strong plants resistant to diseases and bugs reducing the need for pesticides and herbicides," explains Mr Martin.

Biological soil processes for sustainable agriculture



Soil sampling – using a penetrometers to determine the soil strength in a potato crop near Myalup



An essential piece of biodynamic equipment. Flowforms mix and energies the biodynamic preparation.
Photo by Minnipup Natural



A soil profile at one of the trail sites – a pasture sites near Mayanup



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Photos by LCC



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Introduction to Biodynamics workshop to give a clear understanding to the landholders about the principles and practises of biodynamics. *Photo by LCC*

This case study can be viewed online at
www.swccnrm.org.au



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