

Organics in Canterbury

Issue No 43: June 2010

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This newsletter is published by the Canterbury Commercial Organics Group, in association with Heinz Wattie's, Canterbury Organics and the Biological Husbandry Unit, Lincoln University. Back issues of the newsletter (and other exciting information!) can be found on our website: www.organics.org.nz/

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Phone: 03 3029202.
Articles, notices, and
advertisements are
welcome.

ANNUAL ORGANIC MIDWINTER LUNCH

(And Canterbury Organics AGM)

The annual mid-winter event will be held on Sunday 25 July, at the BHU, Lincoln University. This year's speaker will be Geoff Mavromatis, horticulture consultant & grower, who will facilitate a workshop on:

'Time management & goal setting for organic growers'

Geoff has been doing these workshop for past 15 years with producers who have all benefitted from his insights. So if you have ever wondered where the day goes, come along – this is for you!

We will also have cider sampling and an organic food display – please bring something to sell or display (if you don't have fresh produce you could bring some processed produce or preserves).

Date: Sunday 25 July

Time: 10.00 morning tea

10.10 Workshop, cider tasting & organic food display

12.30 Organic lunch (gluten free and vegetarian/vegan options available), catered by Lincoln University

1.30 Canterbury Organics AGM (no pressure to stay!)

Cost: \$20 lunch & workshop. \$5 morning tea & workshop only

To book contact Gilda admin@canterburyorganic.org.nz ph 3251344
or Mary mary.ralston@xtra.co.nz ph 03 3029202.

We need to know numbers by Monday 12 July for catering.

Directions: Signs will be out. Enter Lincoln University on Calder Drive (Gate 2) from Ellesmere Junction Rd. Go past Student Union building, turn right, go past tennis & cricket grounds, cross gravel road into BHU & Organic Training College grounds.

**All welcome – we would love a good turnout for Geoff's workshop. Bring your neighbours and friends.
P.S. the food is always good!**



Advertisements contact Mary mary.ralston@xtra.co.nz or ph 03 3029202 to place your ad

Southland Serpentine

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Southland Serpentine Ltd
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Cell 021 061 6655

BioGro 4985

FOR SALE HENS 7 Hamburg hens at point of lay, 1 brown shaver laying, have been on organic food for approx 6 weeks. \$40 but must take the lot. Andrew & Lorraine Miller. Ph: 376 4259 or 027 250 9300.

ORGANIC GARLIC \$25.00 per kilo. I live near Lincoln. My phone is 03 3291007 Anneliese Cundall.

KELP Fresh sustainably harvested NZ Giant kelp. Fully certified organic. Slowly dried and milled. Great for stock health and as a fertiliser/foliar feed. Orders taken any size. As seen on Country Calendar. For more information phone 0800 NZKELP or nzkelp@farmside.co.nz

ORGANIC FERTILISERS

- Guano 11.5% elemental P combines rapid release and controlled sustained release throughout the growing season, neutral pH, ideal for flying on, down the spout or truck spreading.
- Humate powder, highest quality - BioGro Certified (ask about the benefits)
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- Comprehensive soil tests, recommendations and applications based on what your soil really needs, not what sales reps need to sell you.
- Independent and impartial. Apply only what you need and get the best possible result for your money. Organic certificates available.

Canterbury Soils Rob Ballantyne 021 33 18 44 Nick Reedy 0272 052 929

Organic Horticulture Courses ZERO FEES

- Starting 11 October 2010
- Full-time and Part-time options, hands-on training
- NZQA unit standard based qualifications
- National Certificate in Horticulture Levels 2 & 4
- Certificate in Organics Levels 3 & 4
- At the BHU Organic Centre, Lincoln

Contact for Course Info — Phone 03 325 3684

BHU Enrolment Info —
Phone Telford
0800 835 367
Email: college@bhu.co.nz
www.bhu.co.nz

Telford
Hort. Packages

STEAM WEEDERS "Twin VaporJet steam weeders", \$5000 + GST (new \$20k plus), has been on a Case 1220 4WD tractor at Waipara. To discuss call Graeme Allen 021 178 4066, email gsallen@xtra.co.nz
http://www.vaportec.co.nz/main/?page_id=55



The Natural Viable Phosphate Fertiliser

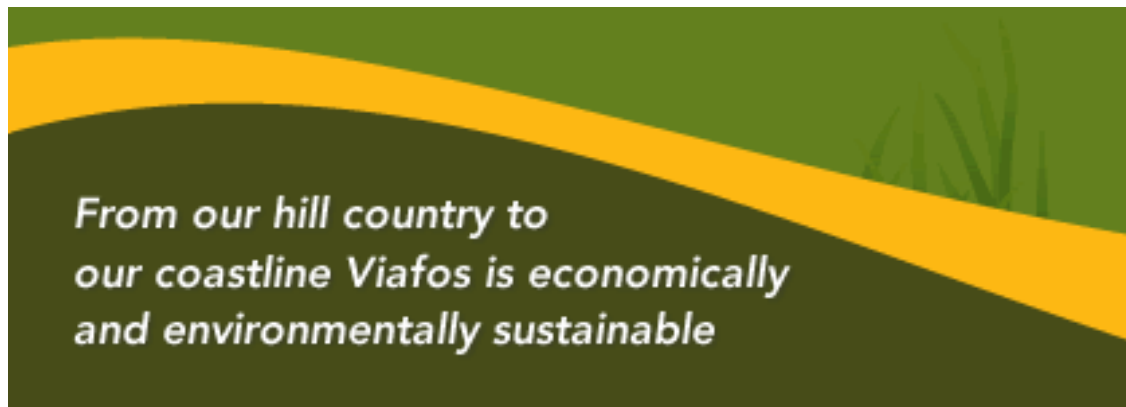
Organic farming is growing at a steady rate with some sectors benefiting very well economically from their devotion. We believe this trend will continue in line with market recognition and end user understanding of the real benefits of what Natural and Organic really means to the health and well-being of our soils, plants, animals and us – the essential end users.

Viafos Importing Ltd imports natural guano phosphate fertiliser for wholesale supply throughout New Zealand with our Head Office based in Christchurch and located close to Christchurch Airport.

Viafos is a certified organic product (Biogro number 5101) and has a pH of approximately 8 and is suitable for all types of farming, – pasture, viticulture, horticulture and arable, whether for organic or non organic use.

Viafos is derived from naturally occurring guano phosphate found in Indonesia, its origin is avian, meaning it is full of an excellent composition of elements that are essential to our soil structure and ecology, in addition Viafos is low in heavy metal contaminants especially when compared to traditional manufactured, or most RPR fertilisers.

As a natural alternative, Viafos will meet your requirements and expectations of a phosphate fertiliser.



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A positive approach, providing positive benefits.

NOTICES

DVDs on minimum tillage: To borrow contact mary.ralston@xtra.co.nz or ph 03 3029202

Earth Matters is a new magazine for anyone interested in the renewal of AgriCulture. For more info or to subscribe see www.earthmatters.co.nz or email info@earthmatters.co.nz

Saffron The Canterbury Saffron Growers Assn welcomes any inquiries from growers or prospective growers. Pam Donnelly is the Liaison person for the Assn and can find corms, provide information etc. Contact Pam either by email p.r.donnelly@clear.net.nz or ph 313-1507.

Work wanted: My name is Rachel Price, I am 27 years old & a NZ citizen. I have worked as a social worker & am looking for a change of direction. I am interested in organic gardening & sustainability. I enjoy the outdoors & I am currently doing a organic gardening course & would like work experience in organic gardening. Please contact me by email on rachelpricey@gmail.com or cell phone 027 621 8050.

Tomato potato psyllid

The Tomato potato psyllid (TPP) is a relatively new pest in Canterbury and last season was found in many potato crops with devastating results. TPP is thought to transmit liberibacter, which then leads to a disease called zebra chip, which can result in virtually no tubers.

Little is known about the pest here. **Growers – have you seen this pest or had any crop losses that can be attributed to it?** We would welcome your observations and comments. A seminar may be held later this year to discuss organic control options and we would like to hear from anyone who has any experience. Please contact Mary mary.ralston@xtra.co.nz or phone 03.3029202 with comments or observations.

Animal health info sheets

Three Animal Health info sheets are now available from the ODPG website (www.organicpastoral.co.nz):

- Organic management of Mastitis
- Organic management Lameness
- Organic management Bloat

These info sheets are the first of a series of that will be produced as part of the Grow Organic Dairy Project. This project aims to research successful organic management practices that contribute the most to improved organic dairy production, as part of the drive to grow the organic dairy sector. A multi-disciplinary team of organic dairy producers and scientists from Massey University is working together on four key areas: animal health, pasture management, soils and soil fertility and farm management.

The three animal health sheets contain information on successful organic management practices, including background information, prevention measures, and treatment options, as well as farmer experiences. The next information sheet will be on organic weed management.

For more information contact Esther Dijkstra (esther@ecoagrilogic.co.nz). This project is funded through Sustainable Farming Fund and DairyNZ.

Online survey of the Organic Advisory Programme

MAF has commissioned an independent evaluation of the Organic Advisory Programme. OANZ oversaw the programme which ran from late 2006 to 2010.

We want to hear from you if you:

- called the 0800 FUTURE phone line for advice;
- received advice from a Regional Coordinator, Kaiwhakahaere Maori or Organic Linkage Officer, Heather Atkinson;
- attended any of the 'roadshow' meetings held in 2007;
- received a 'Smart Start' consultation;
- attained or initiated organic certification in the last three years; or
- attended a field day, workshop or seminar that was funded by a UDP grant.

The survey only takes a few minutes to complete. To access the survey, just click on the link: <http://www.surveymonkey.com/s/6J7SLGX>. A summary of the results will be made available. Fill in the survey and enter the draw to win a gift basket of organic goodies!

WORKSHOPS & CONFERENCES

Seminar on Forestry and Beating the ETS Waipara, North Canterbury, June 24

Dr Murray McClintock, Carbon Farm Ltd, will explain all aspects of forestry to meet your farm's ETS obligations. Join Farmer First discussion group, Thursday June 24, 9am-12noon, Waipara. Registrations essential, \$30/hd earlybird before June 19th otherwise \$50/hd, smoko and notes included. Contact John King 027 6737 885 or john@succession.co.nz

Foundation for Arable Research's (FAR's) fifth International Conference

Sowing the Seed for a Brighter Future Ashburton 27 to 29 July 2010

Programme: pre-conference cocktail evening on Tuesday 27 July followed by two full days of indoor and in-field presentations. Nick Pyke, FAR's Chief Executive, says this conference will highlight the future potential of NZ arable farming. Sustainable arable production is foremost in producers' minds, as is the incorporation of new technologies and market opportunities. This conference will cover these aspects of arable production, for both grain and seed. FAR Board Chairman, Stuart Wright, will open the conference at 9am on Wednesday 28 July followed by a session which will focus on future technologies for modern farming systems.

Other topics include precision agriculture; the future of irrigation; the impacts, adaptation and vulnerability associated with climate change, pests and pollination, climate change, advances in agronomy and a global outlook will be covered at length.

Further information including a full programme and a registration form can be found at <http://far.org.nz/far-international-conference-2010>

FARMING FOR A CLIMATE OF CHANGE A series of workshops with Dr Christine Jones

Dr. Christine Jones is a ground cover ecologist, who has galvanized awareness of soil carbon in the international climate change debate.

WORKSHOP DATES

23 June	Pukekohe	ph 09 232 8859
25 June	Tauranga	ph 07 571 6147
29 June	Palmerston North	ph 06 874 7897

THE WORKSHOPS COVER THE FOLLOWING TOPICS...

The Big Picture: How the Carbon, Nitrogen and Water cycles are intrinsically linked Carbon: The Master Key for soil health, water, nutrients and productivity How do you build carbon in your farming operation? Nitrogen: Optimise nitrogen by understanding its natural drivers Water: How to make the most of every drop Microbe Management: How do you do this practically?

Workshop entrance \$25 (Includes Morning & Afternoon Tea) Proceeds to Canteen. More information please visit the website: www.earthfood.org.nz or email nicole@integritysoils.co.nz

2 DAY SOILS CONFERENCE

30 June -1 July Cromwell ph 03 445 3714
Please register with nicole@integritysoils.co.nz www.integritysoils.co.nz

NZ Soil Carbon Conference

Sponsorship opportunities are now available for the NZ Soil Carbon Conference 15-17th September. For more information see www.soilcarbonconference.co.nz

Keynote speakers include Professor Tim Flannery, Dr Christine Jones, Dr Caroline Saunders, plus many successful biological farming practitioners. Trade sites are limited, so be in quick!

Organic Horticulture Courses @ BHU – Next intake begins 11 October 2010

The Organic Training College at the BHU, Lincoln, will begin its next course on 11 October 2010. Applications are invited for places in Year 1 and Year 2. The courses can be studied full-time or part-time. **There are no fees for studying horticulture at the Organic Training College!**

The course involves practical hands-on training in horticulture at the BHU organic unit at Lincoln. In Year 1, students study many aspects of organic horticulture, including sowing, planting and harvesting of organic crops; composting and fertilisers; vermiculture (worms); soils; weed and pest management; beekeeping; permaculture and marketing. Students have their own small plot to grow organic crops, and in Year 2, students have a larger, semi-commercial plot and the option of joining the Stepping Stone programme which entails working with a local organic grower as a mentor and selling certified organic produce to local shops and markets.

For more information on the course phone the Organic Training College on 03.325.3684, 0800 835 367, email college@bhu.co.nz or see the website www.bhu.co.nz/college.html. For enrolment enquiries phone the Telford Rural Polytechnic on 0800.835.367.

Organic Futures Update – Supplying Certified Organic Stock What have we achieved to date?

Since October Organic Futures have coordinated the supply of 525 cattle to CMP. Recently Neville and Maurice met with the CMP team, Graham Parker General Manager, Miles O'Donnell, Julian Waghorn and Grant Robertson. Miles O'Donnell, the overall procurement manager for all beef and lamb made the comment to us "You are the only group to deliver **to spec on time.**" A big pat on the back for all those who have supplied to date. Our specifications are 240kg to 375kg heifers and steers P's and T's. We have supplied an average of 75 per month so far. June, July, Aug, Sept - these months numbers may be tight so please support us to make organics work for the future.

Julian Waghorn, national sales and marketing manager gave us some very positive feed back on the quality of beef so far. However he did say its very hard to market the benefits of Organic Beef and needs some ideas, a point of difference or a story about the Organic Futures group of suppliers. We have another meeting with him early June so any ideas you have may help to strengthen our case for an increased premium. At this point our organic beef is being sold through West Meats and through Harmony meats all within NZ. Our premium is 15c/kg above schedule but we need to strengthen this.

Grant Robertson is our contact person for space and also liaises with the CMP rep's so if you have finished cattle and are not already supplying please give Neville or Maurice a call a month before you want to send them and we will get your CMP rep to call you.

Store Stock If you have certified organic store cattle to sell please contact Organic Futures.

We have a genuine herd of beef cattle for sale, contact Organic Futures.

We need more people to take calves next year - lots of calves coming on.

Organic Futures have to date placed 645 store cattle, 200 calves and 5000 lambs, 1000 breeding ewes and some breeding cows. We strongly believe that for any processor to be successful at marketing our organic beef and lamb these store stock must stay in the organic system. To date Organic Futures has not asked anything for its services in placing these store stock but we are at present working on some ideas. Maybe a small finders fee to be charged to the purchaser and a small commission to the seller. Your comments would be appreciated.

We have interest from suppliers to coordinate the supply of organic lamb. We are still working on this so watch this space. Not much interest from farmers to supply wool so this is on the back burner for now.

Much to report on our trip to Queensland, to keep it brief, Neville, Maurice and Andrew Nicolson met with the directors of OBE beef and visited two of their farms. Also met with Biological Farmers of Australia, visited Nutritech Solutions, also a large grain growing and processing business in Toowoomba, fat cattle sale at Roma and managed some social time with some of the locals. A very productive trip cementing

some good links with OBE Beef and Lamb, some of the directors of this group intend a visit in July so watch this space.

Phone Neville 03 2469539 or 027 2294540 and Maurice 03 6892252 or Email Maurice.H@xtra.co.nz

Field day report: ODPG field day Mt Cass, October 09

Key points

- A very large North Canterbury property running 14,500 stock units bought by three partner families
- The whole property (2800 ha) is currently being converted to certified organic
- Most challenging aspects of conversion are (in order of priority) weeds (gorse, hawthorn, nasella, thistles), flystrike, intestinal worms, and the complexity of the organic certification rules.

A good turn-out and a sunny day helped make the Organic Dairy and Pastoral Group (ODPG) field day at Mt Cass a great success. The day was supported by Canterbury Meat Packers (CMP), Summit Quinphos, Wholesale Seeds, and the Foundation for Arable Research.

Mt Cass is a 2800 ha property near Waipara in North Canterbury. 1300 ha is owned by Organic Farm Holdings Ltd which is a partnership between Leeston organic farmers Tim Chamberlain and Rose Donaghy, Andrew and Sara Heard who live on the property and oversee daily management, and Mark and Kate Houghton-Brown, who farmed organically in the UK before emigrating to New Zealand. A further 1300 ha is leased or available in grazing licences. There are 3.5 full-time staff and a casual shepherd, and 14,500 stock units.

The property came about after Trans Waste Canterbury bought a 3300 ha property for the Kate Valley landfill site. They retained 1000 ha for the landfill, the surrounding hills which are to be planted in trees and a 400 ha QEII nature reserve, and sold the remainder to Organic Farm Holdings Ltd. They have begun the conversion process to certified organic and were C1 status in March 2009. Soils, rainfall and aspect vary markedly over the property. Rainfall varies from 625 to 1000 mm/annum and there are frequent summer droughts.

The farm tour The only way to see such a large property was by 4WD. The first stop was to see a new lucerne-based, mixed species pasture on a silt loam over clay soil with 600mm rainfall and reasonably good water-holding capacity. Lucerne, with its strong taproot, will be able to make the most of the moisture. Pasture renewal policy is to cultivate and sow a short-rotation Italian ryegrass in autumn, then rape in spring, then a new permanent pasture in the following autumn. The mix is 5kg/ha lucerne (variety Torlesse), 2 kg chicory, 2 kg plantain, 2 kg prairie grass, 3 kg tall fescue, 1 kg cocksfoot (variety – Vision), and 4 kg of red and white clovers. It is hoped this pasture will last 5-10 years, and needs heavy grazing in autumn to prevent the cocksfoot from becoming too dominant. Autumn sowing is preferable as there is less annual weed pressure than in spring-sown pastures. Soil tests will be done every two years or so and herbage tests will be done on the lucerne, and fertiliser applied accordingly to ensure the lucerne persists as long as possible. Sulphur is likely to be the limiting mineral.

Tim termed this a “high octane” finishing mix with species able to handle the dry conditions. However this mix is fairly winter dormant and is not tolerant of winter trampling, and using this mix means they are losing winter production which traditionally has come from ryegrass. The paddock on the opposite side of the valley was a ryegrass/sub-clover mix which has done very well and it will be interesting to see the comparison between the two.

Biodiversity Dr David Norton from the University of Canterbury spoke about the natural biodiversity values found in this area. Pollen records show the whole area was forested pre-human arrival, with species such as totara and matai. About 750 years ago there was extensive burning and deforestation by Maori, continuing with European agricultural expansion, which also involved introducing new species, many of which became weeds or pests (rabbits, gorse, etc.). Native forest remnants remain on south-facing aspects and regenerating scrub is found in pockets, especially around limestone boulders and ridges. There is a 400 ha restoration project in Tiromoana Bush which is regenerating kanuka forest. Gorse is to be left to act as a nurse crop to natives which will hopefully eventually shade it out. The Mt

Cass ridge, which is a proposed site for a wind farm, has high biodiversity values and many endemic plants are found amongst the limestone. The company applying to establish the wind farm has offered to offset negative impacts by investing in biodiversity management at the site, particularly control of feral deer and possums, and replanting of natives.

David recommends using native plants in farm plantings to restore some native biodiversity which also helps native birds such as kereru (wood pigeon) and bellbirds which need a nectar source in spring. However other non-natives (willows, tree lucerne) can also provide valuable food for these species. David recommends using photo points to record changes on properties: taking a photo from exactly the same spot at the same time of year every year or so. The spot needs to be marked with a Waratah or other permanent fixture. He is also a fan of covenants; for example through the QEII Trust which helps landowners with the costs of fencing and surveying patches of native vegetation remnants on their farms. The covenants are registered on the title of the property so the native bush is protected in perpetuity. Several other funding sources are also available such as the ECan Environment Enhancement Fund and the Biodiversity Fund, and the Banks Peninsula Conservation Trust which can also facilitate the covenanting of patches of native vegetation.

Stock and certification Lamb Supreme and Corriedale sheep came with the property, and Romney and Wiltshires have been brought in. Ewe numbers are now 5500, 1700, 600 and 350 respectively.

The “Lamb Supreme” is the trade name of a cross between Texel, Poll Dorset, Wiltshire, and Romney breeds. The Romney ewes are reasonably worm resistant but are susceptible to flystrike and footrot. Flies are more of a problem on the wetter, more coastal paddocks. Corriedale ewes are to be sold; under previous management they were given drench capsules and are not hardy enough for an organic regime. To prevent and control flystrike, ewes are dipped with Extinosad and shorn to minimise external parasite impact. For internal parasite management, lambs can be given one drench and cattle and crops are used to create “clean” feed.

Lambs are contracted to CMP on a spring contract. In two years time, Mt Cass will be providing an extra 10,000 organic lambs to the market. The property will be fully certified with EU certification in March 2010. They are also planning to attain USDA certification to keep their options open.

As well as the 8500 ewes and 200 hoggets, there are 70 cows, 70 rising 2 yr-old steers and heifers, and 200 heifer calves and 200 bulls, on the property. 270 Boer and cross goats are farmed for weed control.

Asked about converting such a large property to certified organic, Andrew said that the most challenging aspects are, in order of priority:

- Weeds (gorse, hawthorn, nasella, thistles)
- Flystrike
- Intestinal worms, and
- The complexity of the organic certification rules.

Dr David Scobie from AgResearch discussed his easy-care sheep research. Financial analysis has shown that having bare bellies and backsides would have saved \$2.60 per sheep this year. When lambs are docked they should be left with a 3 inch (7.5 cm) tail so they can lift it out of the way when defaecating – if shorter than this it can't be lifted so is likely to get coated with manure and susceptible to flystrike. Tails docked too short are also associated with nerve damage and intestinal prolapse, again leading to susceptibility to flystrike. Commercial breeders of easy-care sheep have rams for sale and Dr Scobie can be contacted for more information (scobie@agresearch.co.nz).

Dr Scobie is now beginning research into wool-less sheep which the Mt Cass team is interested in, particularly because the coastal block, with its scrub, has a fly problem. They see “no point” in dagging and already have Wiltshire-cross ewes which naturally shed their wool.

Coastal area The coastal area comprises about 160 ha. It has good soils, few hard frosts and so has potential for vegetable growing except for a lack of water, and more difficult access. Traditionally ryegrass/clover has been grown here but it is often dry by Christmas time.

To renew pastures, long-term mixed-species pastures have been established after rape and under wheat. Tim thinks this a very valuable rotation as it gives a wheat grain crop, new pasture, and up to two crop grazings over winter plus straw to feed out the following year. Older lucerne paddocks have been oversown with a diploid ryegrass and closed up for hay and silage.

Weeds and pests Historically the property has been home to several major weed and pest species. About \$30,000/year is spent on *Nasella tussock* control and 2500 rabbits have been shot in the last 18 months. Thistles are a problem and goats have been introduced to help control these and woody weeds. The budget for gorse control is based on what was spent previously on chemical management – a mix of root-raking, fencing off, and grubbing is undertaken. Some gorse gullies are going to be fenced and goats added for control. Hawthorn is also a serious weed species.

ODPG Field day: Matt and Ian Henderson's property, Scargill, N. Canterbury

Key points

- Matt and Ian Henderson farm, Milmore Downs, in North Canterbury is one of the earliest farms to be organically certified with Demeter and Biogro.
- The 300 ha farm is a mixed cropping farm, producing lambs, cattle, and a range of crops which are milled on the property and sold through mail order and to organic shops.
- The Hendersons aim for diversity and ecological sustainability.
- A speciality crop is spelt wheat (or dinkel).
- Biodynamic principles are a crucial part of the system and give a structure and focus to their farming system. The farm is seen as a balanced organism. An 8-year rotation (4 years crop, 4 years pasture) is followed. The pasture phase and stock restores fertility and structure to support the cropping phase.
- Stress to animals is kept to a minimum which improves health and provides resistance to parasites.
- Many trees have been planted for shade and shelter and there were hardly any weeds!

Introduction Matt and Ian Henderson's farm, Milmore Downs, is one of the oldest-certified organic properties in New Zealand. Demeter certification began in 1983 and Biogro in 1986. The property consists of a hill block of 140 ha, and the home block of 160 ha. Ian took over the farm from his father in 1979, and began implementing the organic and Biodynamic practices he had learnt in Europe. The farm had supported 2300 ewes, a little barley was grown and dry cattle were traded. Ian stopped drenching and the farm struggled for some years, then picked up. A market emerged for grain and stock health improved. Despite the good market for wheat, Ian grew a diverse range of crops and brought in cattle.

Hill block One the day of the field day, the hill block was beautifully green and the pasture was in good condition but is usually brown at this time of year. The pasture on this block is original, sown in the 1960s; lime has been applied since then but not fertiliser inputs. This block is Biogro certified only, not Demeter, because the Biodynamic preparations are not used on this area, due to the difficulty of spreading them on the hilly land. The ewes and lambs are run on the hill block as well as cattle once they are yearlings. Most cattle are sold as 2 year olds. On the flats ryecorn is being grown, which is a risky crop due to the potential for late frosts in this valley. Before cattle were introduced barley grass was a problem where the sheep camped, but running cattle as well as sheep has improved this. The ratio of sheep to cattle is important – it is ideal to have 1:1 stock units of sheep to cattle, that is, about 6 ewes to one adult cattle.

Sheep The Hendersons used to have Corriedale sheep, a breed useful for their wool as well as lambs for meat, but found the lambs didn't fatten well, so have begun using a Poll Dorset ram across all ewes. This is the first season they have had progeny from the crossbred ewes, and notice a better lambing percentage as well as faster growing lambs. The only problem they are finding with the Poll Dorset cross is a tendency for weak feet. They run 500 ewes and would like to build up to 700. They used to pre-lamb shear in May but last year shored in February because flystrike was a problem. Replacement ewes are only kept from twins. Lambing rate is now 120%, which they would like to improve on. The ewes and lambs looked in good condition.

Cattle There is no Biodynamic market for beef so the cattle are sold as Biogro certified, and the Hendersons concentrate their Biodynamic preparations on the home block and on the flats where cereals are grown. Pastures are prepared for the young stock by running older stock on the land first. Older animals are not as susceptible to internal parasites, and the internal parasites that affect cattle do not affect the sheep, so if the cattle follow the sheep, the re-growth is clean for the sheep next time round. They are likely to have eaten the eggs of the parasites that affect the sheep, but suffer no detrimental effect themselves.

Another major principle of the Henderson's approach to parasite control is to keep stress to the animals to a minimum. This includes having a low stocking rate, top nutrition (good quality pasture is essential to minimising parasite infestation), good shade and shelter from the elements, and quiet handling. Cattle are susceptible to late winter lice and want to rub to get rid of their coats and the lice. Peanut oil along the back may be useful against lice.

Despite good care there will be still some tail-end stock prone to parasites. These individuals may be genetically weaker and should be culled. Organic remedies (e.g. cider vinegar) are often suggested but results from trials done at Milmore Downs by Ian and Jon Manhire using various organic remedies found that the only effective one was oil from the plant *Chenopodium anthelminticum* (American Wormseed) which is known for its antihelmintic properties.

Home block A dam to hold water for irrigation was built by Ian's father, providing great "crop insurance" and adds flexibility to dryland farming. It holds 125 acre/feet of water and when full covers nearly 4 ha. There can be a lot of loss from evaporation and seepage but can irrigate 50 ha of the 160 ha – to provide pasture for fattening lambs, establish new pasture or increase yields from grain.

Rotation The Hendersons follow a 8 year rotation – 4 years of cropping followed by 4 years of pasture grazed by sheep and cattle. Most profitability comes from the cropping phase – the stock/pasture phase provides restoration of soil structure and fertility. This restorative phase means the whole system is ecologically sustainable – the cropping regime can be begun again after four years of pasture, without any long-term detriment to the soil.

Pasture Herbal leys (mixed species pastures) are used in preference to the traditional ryegrass/white clover. The pasture mix (30 kg/ha of seed) includes chicory, plantain, red and white clovers (three varieties are included at 2 kg/ha each), lucerne (variety Torlesse), grazing brome, tall fescue, and cocksfoot. This is sown in January after the ryecorn has been harvested and is often irrigated to get good establishment. The seed bed needs to be quite fine. After harvest of the last crop the straw is baled for feeding out to cattle in winter (also sometimes in summer if dry) stubble is disced, then the soil roto-tilled and rolled before drilling. After establishment, the pasture is lightly grazed once in the winter, then again in the spring.

Ian credits the low incidence of Californian thistles to the presence of chicory. Some varieties persist better than others and their tap roots can penetrate the hard pan and reduce the anaerobic conditions favoured by the thistle. In 4-year old pasture worm casings and roots are found at the full depth of the spade, at least 30 cm. The Biodynamic preparations help to promote this deep rooting as well as the choice of plant species.

Crops To return a paddock to cropping from pasture, the soil is shallow-ploughed (12 cm) in autumn to bury grass seeds, then top worked. On the irrigated land, the first crop is spelt wheat, which is harvested in January. Tick beans and oats for a winter green crop are then drilled, and eaten by sheep during the winter. Oats (for grain) are sown in spring, followed by an oats and lupin green feed crop. The third grain crop is barley (or sometimes lentils), followed by a winter green feed crop of oats and a legume, then ryecorn as the final crop in the rotation. On the dryland, lucerne is grown, then barley, lentils and rye.

Pastures on the lighter soils (Glasnevin/weka) are left for 7+ years – the added time under pasture is reflected in increased fertility to the subsequent grain crop.

Spelt, or dinkel, is one of the Henderson's main crops. It is an old variety of wheat – a covered grain, meaning that the seed needs to be hulled before milling. Many people who are sensitive to gluten find

that they can eat this variety of wheat but in any case it has superior baking qualities. Return is about \$5000/tonne. They grow about 15 tonne/year. Seed is kept for planting the following year, and they are careful to minimise contamination by rouging unwanted plants from the crops.

Biodynamics One of the over-arching principles of Biodynamics is that the farm is a individual, or an organism, and for the benefit of the whole system, you do things not necessarily for an economic return but for the benefit of the organism. For instance, cattle are valuable for parasite control in sheep and for their manure on the paddock and in Biodynamic preparations.

Long-term research at a research institute in Switzerland comparing conventional, organic and Biodynamic plots show the highest number and variety of organisms in the Biodynamic plots, although yields were similar to the organic plots.

For Demeter certification, preparations need to be sprayed on the paddocks every year. Preparation 500 is a soil spray and is prepared by burying cow manure in a cow's horn for six months. In the spring it is dug up and the now-decomposed manure is put into water with the aim of spreading it at the rate of 1.5 oz (about 35 grams) per acre – not enough to be supplying any significant nutrients in a material sense. It does however have an appreciable affect on the life/vitality of the system. The carrier is warm water (30-35°C) stirred for an hour in one direction till a vortex is reached, then in the other direction. This method incorporates a lot of oxygen. Ideally it is done by hand but because of the big volumes required, they use a mechanical stirring machines.

Preparation 501 is a plant preparation based on silica. A quartz crystal is ground to a fine powder, also buried in the ground in a horn, then later put through the same stirring process. It is sprayed on to the crops at a rate of 1g/acre to increase their photosynthetic capacity ensuring higher dry matter. This is particularly important in the early spring, in the late summer for autumn saved pasture, but also for hay and grain quality. The Hendersons use the Biodynamic planting calendar when possible, but often have to plant when the weather is suitable.

Marketing crops Grain is milled on the farm and sold through mail order, or to organic shops such as Piko Wholefoods. Zentrofan mills are used to mill the grains – the resulting flour is very fine and more digestible, and hasn't been heated up as can happen in conventional two stone mills. The mill is made of a cylinder of basalt inside which a stream of air moves carrying the grain and abrading it to flour. The milling process is like "rubbing chalk on the concrete to produce chalk dust". All grains are sold as flour, kibbled grain, or rolled to flakes.

Seminar report: New thoughts on pasture species, soil fertility & the use of compost teas

David Musgrave spoke at a seminar organised by CCOG at the BHU last October. He had recently been to central NSW with a group of biological farmers to visit farmers there. He came away with some new impressions about the role of pasture species, soil fertility, and the use of compost teas.

Introduction David has been a fan of mixed species pastures, rather than ryegrass/white clover pastures, for over 20 years. He has found that ryegrass pasture production to be lower than mixed species pastures, they can induce animal health problems due to endophytes, they are intolerant of drought, have low mineral content, can be easily invaded by weeds and are susceptible to grass grub.

Percentage survival of various grass species in a 350 mm rainfall year

Ryegrass	18	Cocksfoot	87	Phalaris	93
Tall fescue	85	Timothy	78	Prairie	68

The Albrecht system The soil scientist Albrecht developed a system of soil testing and interpretation that went beyond reliance on N, P and K (nitrogen, phosphorus and potassium). He maintained that it was crucial to try to have a soil with a pore space of 50%, and a base saturation of 80%. Bases are the cations calcium and magnesium. He also determined that it was important to pay a lot of attention to the levels of trace elements (e.g., cobalt, boron, copper, zinc, molybdenum, chlorine, iron).

In the last 10 years, central NSW farmers have received about half the long-term average rainfall. Some of them however are continuing to produce great pastures based on phalaris and sub-clover. These are long-term pastures in the centre of the Australian wheat belt. Wheat is planted in late March. (In New Zealand, winter wheat is planted in May, although trials have shown that if planted earlier (in April) it can be grazed at the end of winter with only a 5% reduction in yield, with the advantage that it will be a weed-free crop.) One farmer David visited in central NSW had planted early and had \$700/ha worth of winter grazing from the wheat, as well as the value of the grain.

Phalaris cannot manage too much heat but thrives where barley grass does – in fertile soils, and doesn't mind trampling. It is good on high sodium soils but will be out-competed by lucerne. A pure sward of phalaris can be toxic, but is fine in a mixed pasture.

One farm David visited had pastures based entirely on native species which are summer active/winter dormant. Wheat was being direct drilled directly into the dormant grass. However wheat crops were not looking good and returns would be low. Another property they visited was also a low-input property that used activated compost teas. Animals did not look especially healthy and crops would probably only yield .5 t/ha. David was not convinced that putting in biologically active compost without attention to minerals (i.e. food for the microorganisms) was a good strategy.

The final property they visited was using “sleepy teas” and both stock and crop health was good. Elaine Ingham is well known for her activated compost tea, made in aerobic conditions where it is likely that only one or two organisms survive and multiply. Sleepy tea is made in a completely different way: no nutrients are added to the compost extract and it is quite stable, meaning it can be applied when conditions are favourable. On this farm, they had been trying to balance the soil using the Albrecht system but were having trouble with the light sandy soils. They made huge amounts of compost and applied this at the rate of 1 t/ha and applied sleepy tea twice/year, once straight after harvest and another application later. There was now 15 cm of great friable soil high in organic matter and crops looked great, with a yield potential of 5-7 t/ha.

Making the sleepy tea was quite simple – a RottsbLOWER (positive displacement fan) bubbled air through a 400 litre tank that had a 10 micron mesh bag containing 20 litres of compost immersed in it. Compost was made using feedlot manure and straw, and could be custom-made by adding any minerals that were required, as determined by the Albrecht system.

Conclusion Choice of pasture species, attention to soil fertility and cation balance, and application of biologically active material such as compost and compost teas, was shown to be important.

Contact David for more information: 03.6922.889 or david@fwf.co.nz

Climate change David has been trained by Al Gore (of Inconvenient Truth fame) on the science of climate change and to give presentations on the reality of climate change and what we can do as individuals to mitigate this potential disaster.

The world is extremely vulnerable to the effects of even a small increase in temperature:

- 85% of the world's glaciers are in retreat. The glaciers of the tropics will feel the greatest impact: there will be a huge loss of species in the tropical forests with even a 2 deg rise in temperature. 80% of water for the city of La Paz (Bolivia) comes from mountain glaciers. All major rivers in the Himalayas are glacial-fed – providing water for 40% of the world's population.
 - There will be an increase in intensity and frequency of El Nino events.
 - California relies on its winter snow-pack for its water reservoirs.
 - Effects of bushfires such as in Australia and Indonesia are severe – when rainforest in Indonesia is cut down for palm oil production, the peat based soils also burn, making Indonesia the highest emitter of CO₂ – entirely due to bad management.
 - Disruption of weather patterns – Australia and sub-Saharan Africa are the most vulnerable as rain doesn't come down from the tropics in the same pattern.
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- In 2007, the Arctic ice completely disappeared over the North Pole. Even if extent of ice is greater in 2008/09, it won't compensate for the loss of ice mass.
- If the Western Antarctic Ice Sheet were to collapse it would add 3 metres to sea level rise. Melting of Greenland ice sheets would add another 3 m. Population displaced would be 400 million.
- Taro crops in Java ruined by influx of salt water.
- Villages of Inuits in Alaska have already been displaced due to tundra melting.
- Hurricane intensity and duration increasing as oceans heat up.
- Species already going extinct – e.g., white lemurid possum from Australia – cannot migrate
- There has been an almost linear increase in catastrophes since temperatures began rising in the 1970s – e.g., 1 in 500 year floods happening in consecutive years.

SO – there is a moral duty to other people and species to reduce the risk of climate change.

- Australia is the no. 1 in greenhouse gas emissions per capita, New Zealand 5th.
- If we are to keep to a 450 ppm level of CO₂ (a temperature rise of 2°) we need to commit to a 20% reduction in CO₂ emissions. David believes we should commit to 40% to account for those countries who traditionally have had very low emissions, e.g., India.
- In New Zealand, 48% of emissions come from agriculture and 43% from energy.
- Organic farming systems could be part of the solution not part of the problem. For every kg of soluble nitrogen applied, 5 kg of CO₂ is emitted.
- Coastal Canterbury is already drier by 20%.
- 42% of NZers believe we should be world leaders, as we were with nuclear-free.

Feedback loops

Three major positive feedback loops may occur if climate change proceeds:

1. the Amazon forest is so large that it generates its own weather – if cut down the Earth will become drier, even more forest will be lost, inducing further drought, etc.
2. Gulf Stream – heat is taken from the tropics to Europe by a warm current known as the Gulf Stream. Climate change could disrupt this current, meaning more heat will stay in the tropics and Europe and UK will cool down significantly.
3. frozen methane – as the tundra melts frozen methane (klathrates) melt and emit methane.

Political change

- There are encouraging signs that there is political will to reduce greenhouse gas emissions. Businesses are also moving to reduce emissions. China is now the biggest producer of organic food in the world and will stop building new coal fired powered stations next year. China is producing huge numbers of wind turbines and is preparing for a low-carbon economy.
- Denmark produces 20% of its energy from wind.
- Enhanced geothermal systems can be viable – e.g., hot rocks in Australia.
- 4 million new “green” jobs could be available in the US – building turbines etc.
- Electric cars – great potential.
- Changes in architecture.

What can I do as an individual?

- Make an inventory of your carbon footprint (get help from websites such as <http://www.carbonzero.co.nz/>).
- Commit to a reduction in your emissions.
- Give yourself a reward if you succeed e.g., a holiday (but make it a low-C holiday!).
- Get political – contact your local MP and government ministers and demand a 40% reduction in New Zealand's emissions.

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