



Canterbury Commercial Organics Group

Newsletter

Issue No 5 : October 1998

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Coming Events

Date

Farm Visits, Seminar & BBQ	4 Dec
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The Newsletter is published quarterly in January, April, July and October. Deadline for submissions is the first day of the month of publication.

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Field Day, Seminar & BBQ

Key information:

Date: Friday 4th December
Time: 2.00pm in to the evening
Who: Len, Kay and Julian Johnson's Market Garden
Ivan and Vanya Maw of Wyenova Organic Farm
George Fietje of the Living Earth Company
Nigel Van Dorsser of Essential Nutrition
Marinus La Rooij – Bio-Gro and Demeter Inspector.
Cost Free.

Heinz Wattie's and CCOG have joined forces to bring you a double bill farm visit, two speakers, a Bio-Gro and Demeter Inspector and a BYO BBQ dinner.

Len, Kay and Julian Johnston have owned their 60 acre Marshes Road property for three years. Len has a background in commercial horticulture and he now plans to scale the cropping area down to 20 acres growing organic intensive market garden crops. Compost is the main source of nutrients for their land and they make large quantities on the property from a range of materials. Len uses a spading machine, that are popular in Europe, to incorporate the compost. The last three years have been a valuable time to learn about organics and experiment with different crops to find out what is best suited to their property and markets. Len and Kay are keen to see farm gate sales expand and want to make this a feature of their business.

Ivan and Vanya Maw purchased their 30ha Broadfield property 13 years ago. Having always managed their home garden organically they decided that the whole farm should be organic as well and began growing certified organic process vegetables and wheat in 1992. Today the whole property is certified to the Bio-Gro Standards. Vanya and Ivan also process a wide range of vegetables grown in their two acre garden and are well known for their range of pickles and chutneys sold at various markets around Christchurch. In addition Vanya has a flock of 180 free range hens and a wide variety of fruit and nut trees on the property, the produce of which is also sold at local markets.

George Fietje, the Research and Development Manager for the Living Earth Company, will be talking about the Envy compost trial on Ivan's process pea crop and the advantages and future potential of compost in organic systems. He has a background in developing growing media products from organic wastes and has experience in composting a wide range of materials.



Nigel Van Dorsser, a soil scientist, who studied at Lincoln University now runs his own consultancy business, Essential Nutrition Ltd. He is particularly interested in the relationships, ratios and interactions of soil nutrients and the effect of these on plant and animal health. He will be speaking on the topic "Managing soil fertility in organic systems"

Marinus La Rooij the local Bio-Gro and Biodynamic certification inspector will also be available to answer questions on the certification agencies, the production standards (rules) and other aspects of certified organics. In addition to this there will be experts from Heinz Wattie's and CCOG available who will be more than happy to answer a wide range of questions on all aspects of organics.

The day will then finish with a social BBQ giving everyone a chance to discuss the day, catch up with the latest news and friends and make some new contacts.

Program: 2.00pm Start at the Johnson's property, Marshes Road, Prebbleton (Springs Road end, next to old railway line). 3.30pm Travel to Wyenova Organic Farm, Waterholes Road (between Hamptons Road and Robinsons Road). 6.00pm Social BYO BBQ at held in the Maw's "silo" paddock, behind yard. Please bring your own meat, bread, salad etc and refreshments. Watties have kindly provided the BBQ and a small amount of refreshments.

Genetic Engineering

Genetic engineering (GE) and its products known as GMOs (genetically modified organisms) are becoming as hot a topic in New Zealand as they are in the USA and Europe. The organic movement world-wide has come down strongly against GE and GMOs and in many countries the organic movements are organising big campaigns against this technology. This is now happening in New Zealand as well. A Soil and Health conference, held in Wellington at the beginning of November, decided that GMOs are the number one issue for the association to address. Despite this there has been a limited amount of material published in magazines and papers aimed at commercial organic farmers, on why the organic movement has so roundly condemned this technology. This article will outline some of the concerns the organic movement has about GE and GMOs. It is not a debate of pros and cons.

The movement's concerns fall into roughly two areas, technological / ecological / scientific and political / social. First the technological side. GE's proponents make a considerable number of positive claims for GMOs. At a theoretical level the possibilities are quite astonishing. Virtually all living things have the 'blueprint' for their construction stored in their DNA or RNA. Therefore with enough knowledge it should be possible to design life forms from scratch, i.e. to sit down and write out a DNA code for a new plant or animal. Nature has essentially done this through the process of evolution by starting with very simple DNA sequences, very slowly adding bits, swapping them around, and constantly testing them over 5 billion years. Humans, however, have nowhere near this level of knowledge. Our current ability is at the level of linking a gene to a particular attribute, e.g. eye colour, removing it from one cell, and putting it into another cell. This may all sound pretty reasonable but there are a number of problems with it.

Firstly, there is not a simple one to one relationship between a gene and an attribute of an organism. Genes will often be responsible for a large number of often unrelated attributes, e.g. to push a cliché, red hair and a quick temper. In addition they do not exist in isolation, genes interact with their neighbouring genes, the cell they are part of and the rest of the organism, through numerous feedback loops. The context / environment in which genes find themselves is as important as the DNA code itself, it is not possible to separate them. Therefore the idea that a gene can be cut out, like a brick from a wall, and put into another wall and only the desired attribute will be transferred is false. It is more like taking a possum (a gene) from Australia (one cell) and sticking it into New Zealand (the recipient cell), with the logic it did one thing in Oz so it will do the same here.

The claimed precision of GE, i.e. the ability to move one attribute from one species to another is refuted by the above. It is also misleading because the techniques used are imprecise. To get the genes into the new cell is an essentially random process. The genes are either literally fired into the cells nucleus by attaching them to very small metal particles such as silver and shooting them from a special 'gun' or using viruses, with the disease causing RNA removed, to inject the new gene. Where a gene ends up in a cell is thus entirely random. To produce one cell that has the gene in the right place, lots of cells have to have the new gene ran-



domly inserted. Then the cells with the genes in the right place have to be speared from the duds. To grow thousands of cells to adulthood to see which ones worked would be prohibitively expensive. Instead genes that code for antibiotic resistance are attached to the gene to be transferred. This means that the cells where the genes have reached their target will be resistant to the antibiotic. The application of the antibiotic to the large mass of cells means that the cells with the new genes survive and the rest die. This also means that the new organism is also antibiotic resistant. This antibiotic resistance can, and is, spread to other organisms especially bacteria that have an ability to pick up foreign DNA. Antibiotic resistant bacteria are an increasing concern particularly to the medical profession.

The new gene also upsets the internal ecological balance of the cell. This can lead to the GMO having novel attributes not found in either parents. Using the possum example used earlier the novel effects are a massive loss of native trees and the spread of TB. Cells also have a range of defence mechanisms to stop foreign genes, such as those from viruses, from working. This means many GMOs do not breed true as the new genes are gagged, or destroyed. Nature on the other hand devotes a lot of resources to avoid swapping genes between species. Even in wind pollinated plants, where pollen is randomly received from many other species - some close relatives, others distant, there are complex mechanisms to stop the fertilisation of one species by another. If there were advantages to swapping DNA with other species, evolution has had plenty of opportunity to facilitate it. The fact that evolution, in the vast majority of cases, has produced organisms that actively prevent such crossing over indicates its effects are detrimental, and should be avoided.

Moving on from the technical to the ecological concerns, which are often more of a concern to the organic movement than the technological issues discussed above. Despite the lack of genetic stability of many GMOs there is a real risk that the more stable ones can transfer their genes to close relatives. For example GMO oil seed rape with genes for resistance to herbicides or potatoes that produce the *Bacillus thuringiensis* toxin could cross with close relatives making super-weeds that are pest and or weedkiller resistant. Unlike chemicals, once a new gene is released into the environment it

is, for all practical purposes, impossible to recall it. Just like possums.

In addition to these linear effects there are the unpredictable effects. As discussed in issue two of this newsletter, in the weed control article, ecology is very complicated. It has lots of feedback loops and frequently exhibits non-linear behaviour. The example given was the increased use, and effectiveness, of herbicides reduced non crop plants, that reduced the habitat and alternative food for a large number of beneficial insects, that reduced their numbers, that meant that the number of pest exploded, meaning that more pesticides were needed. The solution was to plant beetle banks and nectar bearing flowers to increase the number of beneficials again. The potential for such unpredictable effects in crops such as 'roundup ready' cotton and soya is quite considerable. Another example is of ladybirds, eating aphids feeding on pesticide producing potatoes, laid fewer eggs than other ladybirds and their life-spans were halved. At the same time the continual presence of a pesticide such as *Bacillus thuringiensis* in plants, is likely to lead to resistant pest populations. With the natural predators weakened and the pest immune it is not difficult to see how new pest outbreaks could be just around the corner.

Next are the political and social concerns. It is this area that often receives the largest amount of critical comment from the organic movement. It can be argued as "pure" knowledge an ability to genetically engineer something is not itself a bad thing, it is what is done with that knowledge that is the issue. The organic movement is very concerned by what is being done with this knowledge. The organic movement stands for local ownership and control of food production. This has been the situation for all of the history of agriculture till this century. GE and related technologies are being most actively pursued by a small number of very large multinationals; the big six chemical corporations; Monsanto, Enimont, Du Pont, Sandoz, Zeneca and Ciba Geigy and two seed houses Shell and WR Grace & Cargill. Through legislation such as plant patents, terminator technology (where a plant is bred to produce sterile seeds or abort them) increasingly limited numbers of crop cultivars (by both legislation, such as in the EU, and reducing the number of cultivars they sell), cross linking of products such as crops with herbicides and control over all the inputs required for intensive agriculture, (e.g. fertilisers, seeds, sprays) control of the worlds food supply is



increasingly becoming dependant on a very limited number of corporations. The organic movement is concerned with this concentration of power and have also taken issue with many of these companies past activities, such as the production and promotion of products such as agent orange, DDT, thalidomide etc.

From these top level political and social concerns there are many subsidiary issues. For example the labelling of GE food is viewed as one of public choice and suspicions are aroused when corporations actively oppose it. The movement disagrees that GE is the answer to feeding the worlds poor, and point to previous technologies that made the same claim, such as the green revolution, as cases in point.

All in all the organic movement considers GE to be flawed, that huge gaps exist in our current level of knowledge, both on the internal effects on the organisms, and the effects on farming systems and the environment. They are deeply concerned about the motives behind the proponents of GE and have deep reservations about the impact and irreversibility of this technology.

If you would like to know more about GE and GMOs Greenpeace and Soil and Health publish considerable amounts of material on GE. There is also a lot of information on the internet. If you want to get involved there is a national coalition called Revolt Against Genetic Engineering (RAGE) contact Mary Anne Howard-Clarke Tel: 04 589 1125 / 021 674 966 Fax: 04 568 8709 or Sue Kedgley Tel: 04 384 9123 Fax: 04 384 9124. For the other side try your local Monsanto rep who will be more than happy to tell their side of the story!

Glossary. DNA and RNA = deoxy-ribonucleic acid and ribonucleic acid, are the chemicals that make up chromosomes. A chromosome is the H shaped structures seen when cells divide (of which humans have 46). The genome is the entire genetic material of an organism, i.e. all the chromosomes. A gene is a part of a chromosome that contains the code for a particular attribute of an organism .

Merf, with information provided by Rex Verity

Editorial

Firstly my apologies for the lateness of this issue. At the end of September I suddenly and unexpectedly got a new job, that has required a considerable amount of my time. This, coupled with the voluntary nature of the production of the newsletter, meant it got put on the back burner. I hope you find it worth the wait.

I also have to note, with a somewhat wry smile, the current lamb ban in the UK, particularly after my polemic in the last issue on the meat industries aversion to embracing organic meat. While Lockwood-Smith is keen to unilaterally reduce our trade barriers, GATT rounds stumble, the MAI falls on its face and there is lots of talk of 'non tariff trade barriers', based on environmental concerns, the UK shut its doors to kiwi lambs because local farmers pressured the UK's big multiple retailers (who control most of the market) into it. So it was not the government that was making trade decisions but big food retailers having been caught in food politics. If, on the other hand, the meat export industry had embraced organics in the same way that Heinz-Watties and Zespri have done then the headlines could have been quite different, "UK stops imports of foreign lamb due to domestic pressure, organic New Zealand lamb is still in high demand at premium prices." Makes you wonder doesn't it?

This issue has a focus on a couple of controversial issues, hemp and GMOs. One has considerable potential for the organic industry the other poses a considerable risk. I hope you find them simulating and interesting.

Finally for the last couple of years we have traditionally had a farm walk at Tim Chamberlain's in Leeston. We decided on a change this year and have teamed up with Watties to bring you a double bill field day and seminar with a social BBQ. This will be our big event for the year and I look forward to seeing you there. I hope you all have a great Christmas and New Year.

Merf



Farmer of the year

Congratulations to Ian and Gita Henderson for coming third in the Lincoln University Farmer of the year awards. The theme for this year was "Premier Supplier" meaning farmers who had moved the focus of their operations away from commodity production to a focus further down the supply chain, adding value beyond the farm gate. Those of you who visited Ian and Gita's farm in May (see the last issue for the write up) will remember their range of value adding ventures reaching far down the supply chain. There is the flour milling operation using zentrofan mills producing very high quality flour, that is sold both direct to customers and a range of organic and health food shops. Ian and Gita have also imported a pure bred line of Dinkle (spelt) wheat and the additional specialist dehuller and gravity separation table. Many people consider dinkle to have a superior taste to modern wheats and people with wheat intolerance's can eat products made of dinkle without problems. In addition the Henderson's produce a range of processed meat products such as biersticks, sausages and salami, sold through a range of outlets.

The organisers described it as one of the most fascinating finals in the history of the competition, with the highest number of entries, and reaching beyond all expectations for the event. Neil Gow the co-ordinating judge said it "produced a showcase of imagination, lateral thinking and entrepreneurial talent". The winners were Neil and Lois Kerr who diversified out of dairying into fresh herb production, and second were John and Brigid Forrest who produce premium wines under the name Forrest estate.

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Hemp - a Crop for the Future?

Kristina and Vibeke are two Danish students on a study exchange at the Christchurch Polytech supervised by Holger Kahl. At home they are studying a masters degree in environmental-engineering at the Technical University of Denmark, and have been researching industrial hemp for two years. This article is based on a presentation they gave.

Industrial hemp production has seen a resurgence in many countries over the last few years. Hemp was widely grown in previous centuries and it is only in this one that governments have changed from promoting the production of hemp to prohibiting it. It is now gaining in popularity again due to a wide range of positive attributes. For example hemp seeds are 30% to 40% oil by weight. The oil is one of the lowest in saturated fats while being the highest in essential fatty acids, and is one of the best sources of Omega- 3 Linolenic Acid and Omega- 6 Linoleic Acid. The fibre and by-products can be used in an enormous range of products from clothes, paper, cardboard, and rope to animal bedding and building materials. It is also a valuable source of protein and a wide range of foods and animal feeds are made with it.

Not only does hemp produce a very large range of products, there are a number of positive environmental aspects to hemp production, that fits very well with the principles of organics. Hemp is a very vigorous crop and suffers from few pests and diseases. It therefore has considerable potential in organic systems as weed control is relatively easy as hemp rapidly swamps weeds. I have seen hemp crops in the UK growing higher than two meters! There are a few weeds that can be problematic such as thistles and bindweed but good husbandry should deal with these. The most troublesome pests are herbivorous mammals, high rabbit numbers can decimate a crop until it grows beyond rabbit grazing height. Slugs and snails can be a problem for young plants. While hemp is tolerant of a wide variety of soils and climate it does suffer from water logging and dislikes very sandy or heavy ground. Even in non-organic systems there is a very limited requirement for agrichemicals. With its potential to replace cotton it has potential to reduce pesticide use and other problems associated with that crop.

Due to its rapid growth it produces enormous amounts of bio-mass. For example over the same period of time hemp can produce more than three times the bio-mass of a pine plantation. Hemp makes better quality paper than trees. With hemp derived processed products such as soaps and bio-diesel hemp products can be substituted for a large number of items derived from fossil fuels. This is somewhat ironic as much of the push for the criminalisation of hemp came from petrochemical companies who's products, such as synthetic fibres, were competing directly with hemp products.



The main issue holding back the expansion of production is hemp's relationship with marijuana. While hemp and marijuana are the same species, *Cannabis Sativa*, hemp has a very low level (<0.3%) of the drug tetra-hydro-cannabinol (THC) compared to 5-10% in marijuana. Very large amounts of hemp would therefore have to be consumed to gain any psychoactive effect, so it is of no value to people interested in marijuana. Increasing numbers of legislators are now prepared to distinguish between the two and are allowing hemp production, though often under tight control. For example hemp crops, have been subsidised in the European Community since 1988, in 1993 England began to produce hemp for fibre and in 1994, Canada harvested its first crop of industrial hemp in 50 years.

Denmark is just starting producing hemp, and Kristina and Vibeke have been researching the development of the German and Austrian hemp industry to identify what aspects are important for developing the Danish hemp industry. First is a European Community subsidy of NZ\$1,000 per hectare. There are conditions attached to this subsidy. Fields must be at least 0.3 ha (to stop back garden production) and they must be harvested. Despite this there is no requirement enter into a sale contract with processors, unlike flax where sale contracts are compulsory as farmers were cultivating flax and ploughing it in just to receive the subsidy. The right cultivars are also important. There are currently 18 varieties of hemp allowed in Europe of French, Spanish, German and Italian origins. Cultivars need to be suited to the local climate, with many cultivars performing poorly in the cooler climates such as the UK. Cultivars also vary in the quality of the fibres and seeds produced. Growers in the UK, Germany, Austria & Denmark need a government license to grow hemp, and there are often extensive checks made on the growers back-ground.

An established domestic market for hemp products is another ingredient that facilitates domestic hemp production. Hemp products are positively viewed by a number of affluent consumers in Europe, often due to perceptions of hemp and its products being environmentally sound, exclusive, associated with the illegal marijuana, and trendy. Many hemp products therefore have a price premium, and their hemp origins are actively promoted for example the chain of shops "Hemp House" or washing liquid "Sativa". The use of imported raw and processed

materials (mostly from China and Asia) to supply these valuable markets brings considerable pressure to increase domestic production. However this connection is not always clear cut. For example companies producing building materials, horse bedding, etc. make no mention of hemp as the raw material indicating that the buyers of such products could be put off because of the links to marijuana.

Consumer research shows that most of the people purchasing hemp products are young or those with allergies. Middle aged people are sceptical due to the marijuana connection but interested because of its environmentally friendly image. Older people are interested because they remember it from their childhood.

The development of hemp production and processing in Europe has not been without difficulty however. For example in Germany there was an initial lack of specialist harvesting and processing equipment, forcing the development of new machinery. On the up side the flax processing industry was in a down turn and much of the technology used for processing flax can also be used for processing hemp. Some flax processing factories therefore converted entirely to hemp processing. Demand soon outstripped supply and new dedicated hemp processing plants were built, contracting farmers to grow hemp for them.

The result is that today, in Europe, research and development on hemp and its products is carried out by universities, private companies and public scientists. There is a national hemp association in Germany which meets every year with a conference every second year. Production and demand are booming.

Currently the production of hemp is still illegal in New Zealand. However there is increasing pressure on the government to look at decriminalising hemp production due to the rapid removal of restrictions in many other countries. Recently an application for a trial crop of hemp, with FAR funding was put to the Minister of Agriculture, but it unfortunately disappeared into the beehive never to be heard of again. In the meantime the South African Government has put NZ\$25 million into hemp research. New Zealand could be about to miss the boat, again.

Merf, based on info from Kristina and Vibeke



NZ Organic Email List

Simon Musgrave, of Waihi Bush near Geraldine, has started a moderated email list on organic and related topics. His aims are to encourage networks of people interested in spreading news items and requests for help and information around as many people as cheaply as possible.

The system works by sending Simon an email at waihibush@clear.net.NZ asking to be put on the list. You can then send emails for the list to the same address. Simon acts as a gatekeeper / moderator to keep junk, spam and irrelevant topics off the list. He then sends them out to all the people on the list. This also means that the list recipients are kept confidential so other people cannot get hold of their addresses. Replies to emails sent out can either be posted back to the whole list, if it is of general interest or sent to the originator of the email if it is a specific request, for example, where to buy a product. If you are interested or would like to know more please feel free to give Simon an email.

Merf

Soil & Health Bus Trip Report

First stop was beside Willowby School near Ashburton where Sheryl Stivens and many helpers have converted an old shingle pit into a garden with pond and island for the nesting geese and ducks. This has become a valuable learning resource. Community involvement has involved periodic detention workers, task force green and Ashburton Wastebusters.

Geoff and Ira Wilson farm 146 ha near Methven. They have a traditional mixed cropping farm with three years of cropping followed by four years of pasture. They have 600 sheep, 26 beef cows and crops include wheat and buckwheat. Geoff makes most of the biodynamic preparations on the property and is registered with Bio-Gro and Demeter. Geoff has found with more processing he has more control over marketing and continuity of income. He sells flour, semolina, wheat germ, bran, buckwheat flour, groats and kibbles. Ira sells organic bread as well. Much of the produce goes to Auckland. Some via courier to individuals.

The third section of the trip was to Richard Lloyd's glass studio in Darfield. He uses mostly recycled glass from Christchurch, making artworks from coasters to award winning pieces and commissioned wall hangings. He designed and built his own kilns that heat the glass up to 600°C. At this temperature the glass will drop into moulds. He adds oxides for different colouring effect and has developed a method of producing woven glass - very effective. Richard has also been involved with the glass recycling industry in Christchurch for years, investigating other uses such as sand blasting, glass cement, and melting down for casting. He sees a need to give companies an incentive to recycle and if they don't they should be charged more for disposal of their waste.

Robyn Patchett

Only Organics Tour Report

Almeric Cheng was an excellent host and guide for the tour round the Only Organics factory. We started with a briefing on the history of the company, the factory and its dual role as manufacturer of baby food and related products and a milk processor for Cyclops. Almeric's aim is to produce a consistently high quality product with good continuity of supply, at a competitive price. This in turn needs a continuous supply of quality organic vegetables, so advance contracts are negotiated with growers up to eighteen months ahead. Production began at the factory in 1994, and twenty different lines are now produced including combinations of fruits, meat, grains, and vegetables. Markets include Australia, Japan and Korea and a wide range of outlets throughout New Zealand including health food shops and supermarkets.

The tour of the factory looked at both the milk and vegetable processing areas. The milk is pasteurised and then the cream is separated off to make sour cream. The milk is then used for the yoghurt that is made in a batch process. The baby food process involved both hand and machine preparation of the vegetables, that are steam cooked and packed into glass jars. A lot of thought was put into the choice of container and its design. It was decided that as it was a premium product that it should be sold in a premium container i.e. glass rather than cans. The lid is specially imported from Europe and is completely tamper proof, unlike



some other baby food containers. After bottling the jars are sterilised in huge pressure cookers at over 120°C. They are then tested to ensure seal is intact and then labelled. With the current expansion in demand Almeric is looking to increase production and is looking to increased automation to help achieve this. The tour was a fascinating chance to see what happens to growers produces once it has left the farm and the work involved to turn it into a finished product. CCOG would like to thank Almeric for giving his time so freely to show us round.

Merf with information provided by Robyn Patchett

Classifieds

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Advertising rates are one New Zealand dollar a line (eight words a line) up to a quarter page, and then twenty five New Zealand dollars per quarter page. All enquires to Merf.

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