



Canterbury Commercial Organics Group

Newsletter

Issue No 7: April 1999

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<i>Coming Events</i>	<i>Date</i>
Lincoln Workshop	30 Apr
Mid Winter Feast	24 Jul

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Genetic Engineering

Genetic engineering (GE) is a critical organic and environmental issue and a current hot political topic. There is much to be debated and discussed. However, one of the key functions of this newsletter is to provide people in the Canterbury organic industry with contacts and information on commercial organics. I therefore do not want to devote a lot of space to GE but feel that it is of such importance that some room should be devoted to it. Below are two reports that give a feeling for the 'state of play' in GE. Later in the newsletter are a number of information sources on GE for those that wish to be more informed. **Merf**

Wind-Blown Genes Cut Into Organic Profits

Bad news could be blowing in the wind for organic farmers and food companies if their crops are contaminated from the airborne pollen of genetically altered crops. In one case, a USA, Hudson food company recently lost US\$170,000 in sales after its organic corn chips tested positive for genetically engineered corn. The company, Prima Terra, had shipped 80,000 bags of chips to Holland - only to have them fail a random "gene scan" by government inspectors. Under European regulations, the chips could not be sold as organic even though only one bag in the shipment might have been contaminated. Prima Terra destroyed all of the chips rather than ship them back to the United States.

After the incident last December, Prima Terra didn't ship any chips for two months until it was certain it had found the source of the contamination, said company president Charles Walker. The source was pollen from genetically engineered corn that blew into an organic farmer's corn field in Texas. The corn had a patented gene inserted into it that made it artificially resistant to bugs -- something not allowed in organic farming. It might have come from a neighbouring field or it might have come from miles away, as corn pollen travels in the wind. "But either way it was a nightmare for us," Walker said, adding that it cut deep into company corn chip profits for an entire year. **Rick Barrett**

Australia's Largest Export of Conventional GEO Free Canola

Australian trade authorities announced on Jan. 8, the largest shipment of canola (rapeseed) ever exported from Australia. The \$16.5 million dollar shipment is bound for oilseed crushing plants in Europe. According to Graham Lawrence, managing director of the New South Wales Grains Board, "Europe has moved to become a major buyer this year because Australia is the only country to guarantee non-genetic modified canola." Canada has lost \$300-400 million in canola sales to Europe over the last year because government authorities have followed the US model of co-mingling GE and non-GE grains. This year over 50% of Canada's 13.4 million acres of canola are genetically engineered. **Via GE email list.**



Organic Workshop at Lincoln

The Community Information Service of Lincoln University and CCOG are organising a workshop to focus on creating links between educators, researchers and the organic industry and to discuss the development of organics in Canterbury and New Zealand. The workshop will run from 9.00am to 4.30pm on Friday 30th April at Lincoln University. The cost is \$7.00, morning and afternoon tea will be provided.

Morning: Speakers will discuss the future directions for organics in NZ from a range of perspectives including producers, processors, retailers, educators and researchers.

Lunch: Please bring your own lunch or food can be purchased at Lincoln.

Early Afternoon: A series of focus groups to discuss, and prioritise, relevant tools and strategies to achieve organic industry goals.

Late Afternoon: A plenary session to define critical priorities and indicate potential partnerships and mechanisms to develop the tools and strategies identified in the earlier sessions.

If you would like to attend please contact: Jenny-Kaye Potaka, Community Information Service, PO Box 84, Lincoln University, Canterbury, **before Friday 23rd April**. ph 03 325 3628, fax 03 325 3840, email: potakajk@lincoln.ac.nz. Details of the speakers, timetable and a site map will be sent to you.

Field Day Report

Over 60 people attended the last field day on Sunday 21 March when we visited Robin Patchett's orchard, Peter Mony's cropping farm, the Hicks's mixed cropping farm, and heard Graham Burnip, an entomologist from HortResearch, talk about pest management in organic orchard systems.

Robyn

The day started with a taste test of eleven different types of apples that Robin Patchett grows in her orchard that was first Bio-Gro certified in 1989. When she bought the holding it was in apples and nectarines. However, the nectarines did not do well under Bio-Gro rules so they were grubbed and planted with a range of apples and pears, both popular and heritage varieties.

Robin noted there can be a considerable difference between a varieties performance under organic and conventional systems. Pest and disease resistance has not been bred into current popular apple varieties whereas heritage varieties were selected for their inherent resistance. For example Royal Gala is very susceptible to black spot and needs to be sprayed with copper based sprays where as Egremont Russet receives no sprays apart from foliar fertiliser. Pears are the worst effected by black spot. This is partially due to the use of the Lincoln canopy training system which produces a humid micro climate under the trees. Robin would not use that training system again and recommends an upright, open training system with good air flow through the trees. Fortunately pest and disease resistance is now an important criteria in apple breeding. A team of apple experts from HortResearch visited Kazakhstan, where it is believed apples originated, to search for new genetic material to include in their breeding program. Black spot is rated as the most problematic disease for organic apples so new resistant cultivars that are popular in the market will be most welcome.

There are 1800 pipfruit trees, 60 walnuts and 20 hazelnuts with the rest of the 30 ha used for sheep and cattle. Robyn makes some compost but with limited manpower and machinery large scale compost use is not possible. Therefore she uses bio-feed and home made foliar feeds with good results.

For pest control Robin uses a range of techniques. A key one is having a diverse range of flowering plants in the orchard including, comfrey, yarrow, goldenrod, tansy, cow parsley, wild carrot, and phacelia. These provide both shelter and food for a wide range of beneficial insects that reduces the levels of orchard pests. In addition codling moth pheromone dispensers are being used and a minimal number of sprays. Graham Burnip said that in a well designed organic system, only codling moth, leaf roller and sometimes scale insects will build up to levels that will cause unacceptable economic loss. Pests that are a problem in chemical systems are just not an issue in organic ones as they are kept under control by beneficial insects.

Graham is working on a range of techniques for integrated pest management and organic systems to control problem pests. Swamping the orchard with the female codling moth's pheromones to disrupt mating, is a tried and tested method. They are now researching a technique called 'lure and kill', where a jelly containing pheromone and a pesticide is put on the trees in small blobs. These attract the males and kill them. This is unlikely to be acceptable to Bio-Gro so they are also looking at 'lure and infect' where the pesticide in the jelly is replaced by



a disease, thus creating a disease epidemic among the moths.

Cultivars can also have an effect on pest levels. For example leaf curler damage is worse on apples where the fruit is in clusters as opposed to fruit being spaced singly along the branches. This is because the leaf roller caterpillars can hide between the fruit, and are thus protected from predators and the elements.

Graham also worked on the Winchmore organic orchard for a number of years and found that it was very valuable for research. He is looking for more organic orchard properties to monitor and do research on. If you are interested please contact Graham on 03 325 6600 or gburnip@hort.cri.nz

Robyn sells her fruit through a three main outlets, Local shops, direct marketing via courier and gate sales. The fruit is graded by hand and rejects are fed to the cattle and sheep which graze the areas that are not under fruit. To contact Robyn phone 03 329 5725.

Peter Mony

Peter Mony owns Brigadoon, a 30ha farm near Dunsandel. His main income comes from his international business consultancy company, and while the farm is partly a lifestyle choice, he runs the cropping as a commercial venture. Due to his long term interest in environmental matters he was keen to farm organically and has been progressively converting the farm to organics after he bought it in 1995. He now grows a number of crops including peas for Heinz Watties, linseed (flax) for Waihi Bush and potatoes. He also rents land to other farmers who want to grow organic crops, such as onions, and squash. Peter says that this is a great arrangement for him, in that it gives him a good income from his land, while allowing experienced farmers with good markets to produce organic produce without needing to tie up capital purchasing land.

Peter previously worked in South Africa as a scientist and irrigation consultant, and had some very useful tips on irrigation. For small producers just starting out on a limited budget he recommends considering small travelling irrigators such as 'Trailco'. These can effectively water 3-4 ha of crops for limited capital investment. He is also unconvinced about the durability of 'lay flat' hoses, often used with travelling irrigators, and noted that polyethylene, either high or medium density (MDPE, HDPE), has a much longer life, and he recommends using this in preference. For larger areas he considers side roll to be the best option. It produces a good even coverage, even in windy conditions, and is simple to move across the field.

Peter has brought a lot of side roll equipment second hand and reconditioned it. He has found that the best joiners for side rolls are made in NZ by Harrisons as they are very solid and not prone to wear, however he is amazed that they are not more widely advertised. Peter also recommends watering 'little and often', not putting on more than 25-35mm at a time. His experience in South Africa where droughts can last for many years shows that applying more than this wastes water.

Peter has twice trialed organic asparagus but has decided that it was uneconomic due to the difficulty in controlling weeds. The most successful organic asparagus farm Merf has seen used spent mushroom compost as a very thick mulch to keep weeds under control. On the other hand Peter was very enthusiastic about linseed (flax) as a crop. He considers it excellent for soil structure. Also it does not die after harvest, but sprouts back to protect the soil over winter and provide a green manure in the spring. The straw also had valuable properties, having a much longer life as a mulch than pea straw. Peter however, prefers to keep the straw in the paddocks to retain nutrients. He is also pleased with the yields he has been getting of 3 tonnes to the ha.

Californian thistles have also been a problem for Peter, though he is now getting them under control. His strategy includes growing a spring green manure of mustard, then destroying it in December followed by a thorough subsoiling - two passes at right angles to each other. This has resulted in major improvements. The mustard competes vigorously with the thistles then the subsoiling breaks up the roots and the compact soil conditions that thistles like. Peter believes it is essential to tackle the thistles in mid summer, when the root reserves are at their lowest and the plants are actively growing. He also regrets not mulching the thistles and mustard before rotary hoeing them in. He was planning to do so but the contractor said not to bother. The result was that it took several more cultivations to chop the material up and incorporate it successfully.

John, Trish & Kelvin Hicks

The day concluded at John, Trish and Kelvin Hicks's farm Willowmere near Hororata. The Hicks have many years organic farming experience, having previously run an organic goat milk farm in Australia. They have been at Willowmere since 1991, running 800 coopworth sheep, and producing a range of organic crops including, peas, potatoes, beans, silverbeet, and carrots for Heinz-Watties and Only Organics.

Many farmers are concerned about how to manage worms in sheep and Kelvin is firmly of the opinion



that pasture plays a critical role. The traditional ryegrass and white clover is just not good enough for an organic system. It has been five years since they used ryegrass, and they now have a diverse sward which includes chicory, red and white clover and prairie grass. Other factors important for worm control are genetics - some breeds are much more susceptible than others, and ensuring that the sheep are getting all the nutrients they need. Kelvin uses cobalt bullets in the hoggets and says the difference is amazing. Prior to this year's drought Kelvin also ran cattle, as cross grazing is also a very effective worm control tool.

For lice they shear every six months in March and pre lambing, which normally keeps them in check. Kelvin also uses a pyrethrum dip if numbers start to build up. He is also keen to improve the genetics of the flock and is considering crossing some of Tim Gow's white headed marsh into the flock as he believes the correct breeding is a key component of a successful organic flock.

For fly-strike, which has been a problem this year for both organic and conventional farmers, Kelvin trims the area and applies Bettacrop garlic and pyrethrum spray and also plant oils such as eucalyptus. If there is a bad wound he will use lime as a dressing. On the prevention side, ensuring that there are no dags and minimising scouring through good pastures, which also help to reduce dags.

Unfortunately there have been limited organic outlets for the livestock, however, that may be changing in the near future as meat companies are becoming interested. There is a company in Napier - Bio wool's who buy organic fleeces, however, they want wool that is less than 33 micron which is below that produced by Kelvin's Coopworths.

The Hicks have also had great success in controlling Californian thistle. They use a mixture of techniques including frequent mowing starting in late November. Thorough subsoiling followed by a fallow, that is cultivated with broad sweeps each time the thistles appear above ground, thus exhausting their root reserves. Kelvin noted that while it is expensive to control, not controlling it is even more expensive, and by ensuring that small patches are dealt with promptly the long term costs are reasonable.

On the cropping front a flexible rotation is used, depending on the paddock history, the soil and what crops are required. An average rotation may include three years of cropping, e.g. cereals, peas, and a root crop such as carrots or potatoes, followed by 5-7 years in pasture. Kelvin also uses liquid foliar feeds including a fish based mixture made by Tallys. The Hicks grow all their crops on

contract and speculate very little, despite the apparent high demand for organic crops.

Unlike Robyn and Peter the Hicks have no irrigation system, but rely on the 800mm of rain they get each year which is normally adequate. The drought this and last year was very hard, and Kelvin said that the 50 mm of rain they had a couple of weeks before had turned the place around, and paddocks that were literally white with dead grass are now sporting 5cm or more of green grass. Kelvin is considering getting some more stock in to keep the grass in check!

The day was a great success. The weather was wonderful and all our hosts were very generous, sharing their time, experience and ideas about organic farming and their properties. These were further added to by the many discussions between the attendees. I have been able to report only a fraction of that information here. CCOG would like to thank Robyn, Peter and Kelvin very much, for taking time out on a Sunday to show a big crowd of very inquisitive people, around their properties and so honestly sharing both their problems and successes.

Merf

Fly Strike

We had a small response to the question. Vanya and Ivan Maw feed their sheep some garlic from time to time. They say the sheep love eating the stuff raw! - may need training. Janice Schaper imparted her experience as follows - avoid stress in their lives, put cup of cider vinegar and some garlic in their trough. In the event of infection, remove the maggots, apply linseed oil and dust with dolomite to dry the area and reduce the smell. Robyn Patchett has had success with flow fly nosode from HFS applied in homeopathic drops to the sheep and in the water trough. There is also a mineral homeopathic remedy to put in the trough as a preventative. The Bettacrop flystrike product is good as a preventative spray over the back of the sheep or in a more concentrated form to kill the maggots. To fix another sheep problem - pink eye - HFS have a good product.

Robyn Patchett

Mid Winter Feast

Following on from the great success of our winter feast last year we have booked the Springston South Hall for 24th July. So be there - 6.30pm start. BYO drink and pot luck meal, tea and coffee provided. The committee will report back on the Lin-



coln seminar and arrange speakers on genetic engineering. Springston South Hall is on Days road, off the Springston / Lincoln Road. Phone Robyn 329 5725 for directions.

Robyn Patchett

CCOG Web Site

CCOG now has its own web site! The site contains basic information about CCOG, back issues of the newsletter and subscription forms, some suggested reading for organic farmers and growers and links to relevant organic web sites. It is temporarily hosted at Lincoln University while a permanent home at the Christchurch Environment web server is being organised. Have a look for yourself at <http://www.lincoln.ac.nz/lusa/merf/ccog/default.htm>

Merf

GE Information Sources

Genetic engineering (GE) and its products commonly known as genetically modified organisms (GMO), has become an increasingly hot, scientific, environmental, and political topic in New Zealand. While the level of public awareness here is considerably behind Europe, particularly the UK, it is still ahead of the USA where much of the drive for this technology originated. The information provided by the media is often limited and frequently focuses on dramatic instances such as the pulling up of GE potatoes at Lincoln. Below is a list print media, email subscription lists (free) and www sites that provide a range of information on GE. These all lead to further information if you can handle it!

The Natural Law Party have been raising concerns about GE for a number of years.

listamin@NaturalLaw.org.nz and
<http://www.NaturalLaw.org.nz/genetic>

Genetic engineering, dream or nightmare? the brave new world of bad science and big business (1998) Dr Mae-Wan Ho Biology Department, Open University, U.K.

Genetic Engineering: the Hazards; Vedic Engineering: the Solutions. Dr. John Fagan, Professor of Microbiology.

The Ecologist Journal. Soil and Health Magazine (NZ). Organic Farmer and Living Earth (Soil Association UK) all can be found in the Lincoln University library which the public have reading and referencing but not borrowing rights to.

The NZ based Revolt Against Genetic Engineering (RAGE) <http://www.rage.org.nz/>, PO Box 1109,

Hastings, Phone: (06) 870-0920 Fax: (06) 870-9923
Email: Baedy-Eye@xtra.co.nz

GenetiX snowball, UK A Campaign of Non-violent Civil Responsibility. Their Handbook
<http://www.gn.apc.org/pmhp/gs/handbook.htm>

Dr Robert Mann, Science chairman, Physicians & Scientists For Responsible Genetics, P O Box 28878 Remuera, Auckland 1005. Email list roberta@clear.net.NZ

New Scientist

<http://www.newscientist.com/nsplus/insight/gmworld/gmfood/gmfood.html>

Royal Society of New Zealand

<http://www.rsnz.govt.nz/>

Merf

Trends Between Countries

It is interesting to note how uniform general trends are in consumer buying habits between countries. Using information from Germany, representing the most developed end of the Europeans market, and the UK, which until recently has been relatively undeveloped Angelika Meier-Ploeger and Lawrence Woodward illustrate similarities and country differences in consumer preferences.

Given ready availability at the usual shopping point and no price difference, almost everyone surveyed would be prepared to buy organic food. In a UK survey only 4% said they would not, with 37% being 'strongly in favour'. Of course this circumstance hardly ever occurs and with the general price and opportunity constraints it is hardly surprising to find that most habitual buyers of organic food are from the middle and professional classes - 38% in the UK. They also tend to be active or have a strong interest in environmental, socio-political or consumer causes - around 50% of organic consumers in the UK survey.

The indications are similar in Germany where surveys show that around half of the professional and middle classes have a developed environmental consciousness and over 50% of all German consumers say they would pay more than the average conventional price for organically grown fresh produce.

It is interesting to see which types of food German consumers are willing to pay and above average price for. All the main types of organic foods are rates high: 52% for fruit and vegetables, 34% for animal products, 39% for grain products. In fact over a third of all consumers say they are willing to pay extra for products that are certified organic. It



is notable how willing German consumers are to pay extra so that they can buy close to the source of production: 48% from the farm, 45% from the slaughterhouse / butcher and 33% from the local greengrocer.

However, health is, by a long way, the primary reason German consumers give for buying organic food - around 70% - while environmental concern is given as the primary reason by only between 10 and 30% of people. In the UK, health was cited by 46% of people and 'no chemicals/pesticides' - which can relate to both health and the environment - by 41%.

Taste is rated high in both countries - 40% in the UK and between 13 and 24% in Germany. The strength of feeling behind some of the other reasons given seems to reflect national interests; for example animal welfare was cited as a reason by 26% of UK organic consumers; providing support for farmers was given as a significant reason by some German consumers - 17% in one study.

Vegetables are the most commonly bought type of organic product in both the UK and Germany - around 40% and 65% respectively. Fruit also scores highly in both countries - 54% in Germany and around 20% in the UK. Milk and milk products (other than cheese) are around 30% in both countries.

Otherwise, purchases seem to reflect national tastes and market development; for example nearly 50% of German organic consumers buy organic bread compared with only 15% in the UK; while 20% of UK organic consumers buy organic poultry products and 15% buy red meat, only around 10% of German organic consumers buy meat, although another 7.4% will buy sausage.

Reprinted with permission from *Ecology and Farming*, IFOAM, Ökozentrum Imsbach, D-66636 Tholey-Theley, Germany.

Angelika Meier-Ploeger and Lawrence Woodward

Organic Weed Control Part 5

Cultivation and Seed Bed Preparation Cont.

The previous article discussed primary cultivation decisions based on existing weeds. These were divided up into annual weeds and four 'types' of perennial weeds and noted the techniques required to control them. Having decided on the primary form of cultivation, secondary cultivation(s) are often required to further enhance weed control. As

noted in previous articles, cultivation choices are not just based on weed control, but must also take into account other factors such as soil condition, crop type and planting tillth, some of which may conflict with each other, for example, creating a deep tillth for a root crop will bring dormant weed seeds up to the germination zone.

The difference between primary and secondary cultivation is often fuzzy. In this article primary cultivations refer to initial 'land breaking' cultivations such as sub soiling and ploughing, and also surface working during a fallow or bastard fallow to control perennials or high levels of annual weeds. Secondary cultivation refers to cultivations designed to produce a seed bed and further control annual weeds once a primary tillth of sufficient depth and fineness is created and perennial weeds have been controlled.

Secondary Cultivation

One of the key aims of secondary cultivations for weed control is to keep the depth of cultivation within the germinating depth of the weeds. For most small seeds this rarely exceeds 5cm. Cultivation below this depth will bring up new viable seeds and should be avoided. Typical equipment includes rollers, harrows, light spring tine equipment and some PTO powered equipment. The aim is to encourage as many seeds as possible to germinate prior to the crop germinating, i.e. grow the weeds first and then grow the crop.

Stale and False Seed Beds

Approaches to weed control by secondary cultivation divide into two techniques, false seed beds and stale seed beds. Both begin with a cultivation designed to produce a firm, fine tillth with good capillary rise that maximises seed germination. The false seed bed technique involves a second cultivation, to kill the weeds when they have emerged but when they are still at an early stage of development, normally between zero to three true leaves. This second cultivation is often the same as the one that created the initial seed bed and ideally makes another seedbed all in one pass. A stale seed bed involves killing the weeds that emerge without cultivating the soil, normally using a 'flame weeder'.

There are two variations of the stale seed bed technique. The traditional one involves creating the seed bed, then after a period of about a week the crop is drilled. This period is lengthened in slow germinating conditions or for fast germinating crops. The weeds have a head start over the crop and thus emerge first. They are then killed as close to crop emergence as possible. In the second variant, the stale seed bed is set up and one or more flushes of weeds are produced and killed before



drilling commences. Weed germination is primarily encouraged by irrigation on one or more occasions.

In both stale and false seed beds it is essential that optimum germination conditions exist. A key factor is soil moisture, if the soil is dry irrigation should be used, otherwise weeds will remain dormant and will germinate in the crop when it rains or irrigation is eventually used. Although it may appear a waste of money to irrigate bare land, the increased level of weed control gives a very good return on expenditure. This pre-drilling irrigation in dry conditions will also assist the germination and emergence of the crop, particularly small seeded horticultural crops that are shallow drilled and can be trapped by soil caps created by post drilling irrigation on silty soils.

Another critical factor for optimum results with the stale seed bed technique is a smooth even seed bed. Both flame weeders and organic approved herbicides are less effective where the seed bed surface is rough or cloddy as the soil lumps 'shadow' emerging seedlings protecting them. Drilling often disturbs what was a smooth seed bed and a light smooth roll post drilling is recommended.

To ensure a timely weed kill, when using stale seed beds, several small areas of crop should be encouraged to germinate early to give clear warning when to flame weed. This is often done using a sheet of glass raised slightly off the soil by a couple of centimetres. If it is in direct contact it can over heat the soil and kill the seeds or emerging seedlings, frost cloth (aka crop covers), or a cloche. All need to be put in place immediately after drilling, and several should be used, in different locations in the field, in case some areas germinate faster than others. An alternative is to sow at a slightly higher rate and wait till the first crop seedlings emerge and then kill both them and the weeds allowing the rest of the crop to emerge. This method is more risky as the time between realising that flaming is required and it being too late to flame is shorter. It is not advised for quick germinating crops. In all cases the drilled crop should be checked at least daily for signs of emergence.

The key to which technique to use depends on the amount of weed seed in the germination zone, its propensity to innate dormancy and the type and value of the crop. Stale seed beds are generally more expensive due to the use of flame weeders, or other techniques for killing weeds such as fatty acid herbicides (banned by Bio-Gro), so these are generally reserved for high value crops. High levels of weed seed, seeds that have innate dormancy, slow germinating crops or uncompetitive crops will benefit from one or more false seed beds followed by a stale seed bed. Where there are fewer weeds,

lower value and or more competitive crops, a false seed bed alone should be sufficient.

Blind Harrowing

Blind harrowing is a hybrid between the two systems. A stale seed bed is created and the crop drilled. Then a few days before emergence a harrow or similar device, is used to cultivate the soil surface to kill the weeds. This is only practical for deeper drilled and robust crops such as cereals that can survive being driven over during the emergence period. I have seen it used on more delicate crops such as beans, but this killed all the germinating plants under the tractor wheelings. A wide implement is required to minimise the amount of wheelings in the field, and maximise the area covered for the time taken. Frequently with blind harrowing seeding rates are increased slightly, e.g. 5-10% to make up for any losses from the harrowing. Seed rates are also increased in crops suitable for blind harrowing to compensate for losses from post emergence weed control techniques such as tine weeders (finger weeders).

For stale seed beds and blind harrowing seeds are often drilled at the deepest depth that they successfully germinate from, to maximise the amount of time between weed and crop emergence, and in the case of blind harrowing or post emergence weeding with tine weeders to ensure the crop seed is out of reach of the weeding equipment.

Minimisation of Cultivations and Bare Land

In all cases the length of time that the ground is not cropped and the number of cultivation passes must be minimised. This is because the soil will be losing humus and nutrients when it is left unprotected, and each additional cultivation accelerates this process. Each pass also increases the amount of compaction from tractor wheels and equipment. The lightest tractor required for the job, with the minimum ballast should be used. Low pressure tyres will also reduce compaction damage and thus improve crop growth. Particular care should be taken in spring or late summer / autumn when there is water draining from the soil as nutrients mobilised by cultivations have increased potential to be lost from the soil through leaching.

Light and Germination

Night time cultivation is an area that has attracted quite a bit of attention over the last decade or so. The principals behind it are well understood. Some seeds, for example poppy, need light to germinate. This behaviour can be used to reduce such weeds in the crop. A number of experiments were done, mainly in Europe, comparing cultivating at night and the day, or using machines that were shrouded to



make them light proof. There are two complimentary techniques. For false or stale seed beds cultivation should be done to maximise the amount of light hitting the soil during cultivations. This will encourage the weeds to germinate so they can then be killed. Final, non-stale seed bed, cultivations should be done at night or with shrouded equipment to minimise weed emergence. Some species are very sensitive to light and even moon light or tractor lights can trigger germination. Results have been mixed. Some experiments and farmers have reported significant improvements in weed control where others have found little or no effect. This is because there are number of variables associated with this technique and weed emergence as a whole. For example the proportion of weeds that are effected by light, the level of darkness in the cultivation zone, the general conditions for weed emergence, and innate dormancy will all effect the result. It may well be worth experimenting with on your own farm to see if it has any potential for you. The next article will look at sowing and planting issues.

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Famous Medical Expert Opposes GE Food

With his permission, Physicians & Scientists For Responsible Genetics (PSRG) announces a statement which was volunteered by one of our nation's most accomplished medical researchers, Professor R B Elliott.

Re GE foods I have decided on my personal stance. I do NOT want to eat such foods - I see no health or economic advantage in doing so, and a whole raft of putative health and environmental disadvantages. Any 'advantage' in GE foods as far as I can see is to one or more of the grower of the crop the GE source company the Roundup manufacturer etc. I cannot imagine for a moment that GE food will even be cheaper for me - or anyone. If Burger King can guarantee that their product contains no GE components - then I will eat their stuff rather than McDonalds etc. I have discussed this with my staff - who agree that the risk /benefit ratio is infinitely high as however small the personal risk, there is no personal benefit. R B Elliott

From Dr Robert Mann Science Chairman, PSRG

Classifieds

Advertising Rates. 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.

Work Required. 23 year old Lincoln University agricultural student requires work on an organic farm from May to September. References available. Phone Raymond at 03 312 2558.

Bio-Gro Pears and Apples - gala, braeburn, granies etc. good quality available now. \$24 / 15kg delivered by courier. Ph (03)-329 5725 email robbie123@xtra.co.nz

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Canterbury Commercial Organics Group - Newsletter

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New Zealand

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