Converting to Organic Dairy Production

Developed By:
- Massey University
- Organic Dairy Industry

Supported By:
- Fonterra Co-operative Group Ltd
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About This Booklet

Introduction  Welcome to this Converting to Organic Dairy Production booklet. It has been written to help you decide whether to convert to organic dairy production.

This booklet is about profitable farming. Whatever your interest is in organics, your decision needs to be an informed one. We are sure this document will help you do this.

Purpose  Specifically, this booklet will:

- provide a framework of some knowledge and risks associated with conversion issues
- give you confidence to make a decision whether to convert to organic production, and
- refers you to people and resources for further assistance and technical information.

Continued on next page
Special thanks

Massey University thanks all those who helped create this booklet. Without their input it would not be a reality.

Special thanks go to Jacalyn Scott and the following individuals:

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- Ian Brookes
- Hamish Buchanan
- Fred Bucher
- Natalie Butcher
- Peggy Cayton
- Martin Chesterfield
- Louise Coates
- Kym Davey
- Gareth and Susan Evans
- Rodger and Barbara Gillatt
- George Griggs
- Di Handley
- Tim Harvey
- Colin Holmes
- Terry Kelly
- Murry MacDonald
- Graham McCool
- Peter Miers
- Stuart Morley
- Mike Moss
- Mark and Jane Pike
- Margaret Porteous
- Allison Quinn
- Tom Richardson
- Ray and Jenny Ridings
- Paul Robinson
- Russell Simmons
- Alan Thatcher
- Jo Thevenard
- John and Jean Van Kuyk
- Tineke Verkade
- Christine Verheul

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References

As well as gathering information from many individuals, the following references have also been used in the development of this booklet:

Overview

Introduction
What does conversion to organics really mean? What is involved? Is it worthwhile?

This section outlines some background information and underlying issues that must be considered when converting to organic production.

Customer demand
The base for organic farming was first established about 1900 to 1925 by farmers and agricultural researchers as a reaction to declining soil and animal fertility.

More and more people are becoming concerned about the use of artificial herbicides and pesticides and are turning to organic products as a healthy alternative. Internationally, major supermarkets have answered the demand by increasing their offering of organic fresh foods, dairy and groceries.

Continued on next page
### A definition of ‘organic’

British Organic farmers and Organic Growers Association have defined organic agriculture as follows:

> **Organic farming seeks to** create an integrated sustainable agricultural system **relying first and foremost on ecological interactions and biological processes for crop, livestock and human nutrition and protection from pests and diseases.**

### Organic production

Organic production uses positive management systems which reduce or eliminate the need for most agricultural chemicals. A farm’s organic system is tailor-made to its soils and environment.

The system is based on the best sustainable and preventative practices. These focus on managing soils to maximise quality and biological life – increasing availability of nutrients and mineral/trace elements in feed for maximum animal health and optimum production.

### Natural fertilisers and soil conditioners

A major way of achieving organic production is by using natural fertilizers and soil conditioners such as the rock forms of minerals, fish, seaweed, and worm based fertilizers and composts. Chemically treated fertilizers such as urea and super phosphate are not used.

### Preventative animal health care

There is also a very strong focus on preventative health care to avoid the need for the use of conventional animal health products considered unsustainable – such as antibiotics and drenches. Preventative health care treatments widely used on organic farms include apple cider vinegar, garlic, seaweeds and chelated minerals.

*Continued on next page*
In making the decision to go organic, you need to ask yourself the following questions:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons</td>
<td>Why do I want to make the change to organics?</td>
</tr>
<tr>
<td>Financial costs and benefits</td>
<td>How much will converting to organics cost?</td>
</tr>
<tr>
<td></td>
<td>How much will I gain as a result of converting?</td>
</tr>
<tr>
<td>Risks</td>
<td>Can I get a contract to supply organic product?</td>
</tr>
<tr>
<td></td>
<td>What is involved in obtaining organic certification for my farm?</td>
</tr>
<tr>
<td>Information and Resources</td>
<td>What information do I need to know/have?</td>
</tr>
<tr>
<td></td>
<td>Where do I get the information?</td>
</tr>
<tr>
<td></td>
<td>Is information easily available?</td>
</tr>
<tr>
<td></td>
<td>What other resources do I need?</td>
</tr>
<tr>
<td>Management Plan</td>
<td>How am I going to manage the conversion and sustain it for the future?</td>
</tr>
</tbody>
</table>
Fonterra is the largest processor and marketer of organic milk in New Zealand.

There are other small niche organic markets for milk and milk products. Supplies for these markets are usually negotiated with individual farmers who meet the requirements of a specific certifier.

Internationally, market share of organic produce is currently about 2% of world food markets, with an annual growth of 20 to 30%. Current world organic sales is approximately US$28B. This graph shows the growth trends in organic markets.

New Zealand currently has two main markets for organic milk products – the USA and Europe. Each have their own import requirements or standards.

Continued on next page
Marketing and International Standards, Continued

Standards

There are three sets of standards for export organic milk production: on farm certification – see Certification Requirements on page 8 for more information. food safety standards during milk processing, and import requirements.

In order for processors such as Fonterra to export milk products into the world market, it must meet the importer’s requirements. These requirements are managed in New Zealand by the New Zealand Food Safety Authority (NZFSA) with their technical standard. This standard has been used in government-to-government agreements with the US and the EU. The NZFSA through AgriQuality regularly check companies like Fonterra to ensure they comply. This flowchart shows the relationship between all standards.

The NZFSA’s standard is also the primary standard used by Fonterra for exporting product. All new Fonterra supply contracts require farmers to operate in accordance with the New Zealand Food Safety Authority’s Technical Rules of Organic Production AND appendices. See Appendix A – High Level Definition of the FONTERRA Chosen Standard for the Supply of Organic Milk.
Certification Requirements

Introduction
Organic milk processors require organic dairy farmers to be certified by a third party agency to guarantee that food is grown to an acceptable standard. At present two certifiers are recognised by the New Zealand Food Safety Authority, Fonterra and other processors. These are:
- Bio-Gro New Zealand Ltd
- AgriQuality New Zealand Limited

Organic certifiers
Organic standards (such as Bio-Gro, AgriQuality, or the NZFSA’s Technical Rules of Organic Production AND appendices) define in detail what is required of farmers. Certifiers or auditors check the farm against the standards regularly. Consumers trust the integrity of recognised organic trademarks and standards such as Bio-Gro, AgriQuality or IFOAM (International Federation of Organic Agricultural Movements) and will pay a premium for organic product.

Each have their own standard but are very closely aligned. The standards are available free on the internet or can be purchased. Their contacts details are:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio-Gro</td>
<td>Bio-Gro New Zealand Ltd</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 9693</td>
</tr>
<tr>
<td></td>
<td>Marion Square Wellington.</td>
</tr>
<tr>
<td></td>
<td>Phone 04 801 9741</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.bio-gro.co.nz">www.bio-gro.co.nz</a></td>
</tr>
<tr>
<td>Certenz</td>
<td>AgriQuality New Zealand Ltd</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 307</td>
</tr>
<tr>
<td></td>
<td>Pukekohe</td>
</tr>
<tr>
<td></td>
<td>Phone 09 237 1800</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.agriquality.co.nz">www.agriquality.co.nz</a></td>
</tr>
<tr>
<td>NZFSA’s Technical Rules of Organic Production AND appendices</td>
<td>New Zealand Food safety Authority</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 2835</td>
</tr>
<tr>
<td></td>
<td>Wellington</td>
</tr>
<tr>
<td></td>
<td>Phone 04 463 2500</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.nzfsa.govt.nz">www.nzfsa.govt.nz</a></td>
</tr>
</tbody>
</table>

Continued on next page
Certification Requirements, Continued

Deciding on your certifier

In deciding who your certifier will be, you need to consider:
- your potential market and the standard(s) it requires
- the services and support provided by the certifier
- the cost.
Costs and Income

Introduction
The cost of conversion depends on:
- your farm’s current situation, and
- the amount of change in farm practices required.

Some farmers who have already taken a semi-organic approach to their farming will probably find the costs of conversion fairly small. On the other hand, farmers who have a more conventional approach should expect higher conversion costs.

Income
Currently some processors are paying a premium during conversion. Higher premiums with some processors are achievable depending upon the end market, e.g. product meeting the United States Department of Agriculture requirements (which requires a minimum of 3 years to convert to organics).

Fonterra and other processors are investigating the development of contracts that reduce and share the risk over this period. You need to seek up-to-date information on this from your preferred processor or consultant.

Costs
To determine the costs, you need to assess where your farming operation is at with regards to organic certification. You will need to consider:
- changes in soil management and grass production
- feed supply including minerals and supplements, and
- animal management costs and stocking rates.

Continued on next page
The following table provides a brief outline of expected cost differences when converting to organics.

<table>
<thead>
<tr>
<th>Cost Item</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour</td>
<td>Workload would be similar but work activities differ because of the use of different product.</td>
</tr>
<tr>
<td>Animal health</td>
<td>Some farmers report/experience a decrease in animal health costs as animal health practices become preventative.</td>
</tr>
<tr>
<td></td>
<td>Note that administering homeopathic treatments takes more time.</td>
</tr>
<tr>
<td>Breeding expenses</td>
<td>A number of AI companies offer organic semen. However non-organic semen may also be used. Seek approval from your T.P.A.</td>
</tr>
<tr>
<td>Supplemental feed and off farm grazing</td>
<td>Supplement and off farm grazing must meet your organic standard.</td>
</tr>
<tr>
<td>Calf rearing</td>
<td>Feed costs for calves should reduce as current certification requires 12 weeks on milk. However this would be offset by the loss in income from the milk. Meal also needs to be organically certified.</td>
</tr>
<tr>
<td>Fertiliser and lime</td>
<td>Costs will be variable depending on soil type and products used.</td>
</tr>
<tr>
<td>Re-grassing</td>
<td>It is not currently compulsory to use organic seed, however it must be GE free and non-treated.</td>
</tr>
<tr>
<td>Weeds and pests</td>
<td>Practice tends to favour mechanical control with high labour requirement. Extra funding should also be provided for tree planting and maintenance.</td>
</tr>
<tr>
<td>Farm improvements</td>
<td>Processors may require a larger vat to be installed – this will add costs in installation, refrigeration and CIP systems.</td>
</tr>
<tr>
<td>Dairy hygiene</td>
<td>No extra costs as the same cleaning program used on conventional farms can be used.</td>
</tr>
</tbody>
</table>
The Planning Process

Introduction

Like normal farming best practice, planning is essential for the conversion process to be successful. While it is not possible to think of every contingency, having a plan enables you to:

- think about possible risks and prevent them from happening
- manage the conversion process effectively, and
- help to minimise or save costs.

There is a lot of work involved in this early planning stage and you may require professional assistance – see Getting Help on page 21.

Risk factors

Identified risks to the financial performance of the organic dairy unit include:

- Lack of feed and an inability to supplement with conventional feeds. A key strategy adopted by organic farmers is to reduce the stocking rate.
- Access to information, knowledge, resources and strategies about conversion to organic dairying.
- Animal health, mainly mastitis, as it reduces the number of cows in milk and affects total milk production.
- High somatic cell counts create difficulties for some organic producers (and some conventional farms).
- The ability to maintain soil fertility may affect pasture production at certain times of the year.
- Weeds as they affect pasture production.
- The restriction on using artificial nitrogen can limit the number of options in adverse or crisis situations. Therefore careful planning is required and you may have to seek advice.
- There is a range of allowable responses to fix a problem if the organic status of the animals and their products is to be maintained.

To counter these risks, organic producers (indeed any producer) need to be:

- forward looking
- proactive and preventative in management, and
- good planners and managers.

Continued on next page
Animal welfare is of paramount importance. Most good animal management practices on conventional farms apply to organic farms. These include:

- Observe the stock continuously and evaluate their feed requirements and health.
- Inform yourself of the range of treatment options such as homeopathy, herbal, and other approved products and treatments.
- Use professionals for advice, especially for diagnosis.
- No animal must suffer – that means when organic practices do not work, you must not withhold conventional treatment. This may impact on the certification status of the animal.
- Animals need time to adjust to organic products and systems.

When planning your conversion process, you need to:

- Evaluate and determine your stocking rate (i.e. feed supply versus feed demand) – it is best to be slightly under stocked.
- Have a Plan A and Plan B with the aim of having healthy well fed stock.
- Plan your fertiliser regime taking into account feed shortfalls.
- Consider current animal health problems and how you will deal with them as you convert to organics.
- Plan for supplementary feeding to ensure supply of certified organic supplement.
The Planning Process, Continued

<table>
<thead>
<tr>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>The conversion process is a minimum of two years for the NZFSA’s Technical Rules of Organic production and three years for the NZFSA’s Technical Rules of Organic Production AND appendices. How long it will actually take depends on:</td>
</tr>
<tr>
<td>• your farming practices over the last 2 years</td>
</tr>
<tr>
<td>• your approach to making on farm business decisions and implementing them, and</td>
</tr>
<tr>
<td>• how much work you have to do during the conversion.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>This table lists the main steps required for conversion-</td>
</tr>
<tr>
<td>Stage</td>
</tr>
<tr>
<td>-------</td>
</tr>
</tbody>
</table>
| 1 | Attend a:  
• 1 day introduction course, then a  
• 4 day conversion to organics course.  
These courses (run by ODES – see Getting Help on page 21) introduce you to the process of converting to organics, and gives a structure for managing the process. |
| 2 | Read as much relevant material as possible. |
| 3 | Join a specialist organic dairy discussion group (also run by ODES) which usually meet monthly. Visit other farms and obtain as much information you can about organics and the conversion process including:  
• costs and benefits  
• risks  
• managing the conversion process  
• animal health  
• soil and pasture management  
• managing the farm after conversion  
• staff and training issues. |
| 4 | Begin preliminary supply contract negotiations with your milk processor. Find out:  
• expected premiums over the next 5 years  
• their requirements for supply  
• any information, support and resources they have available. |

*Continued on next page*
### The Planning Process, Continued

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Start implementing small changes with the information you have learnt (if you haven’t already).</td>
</tr>
</tbody>
</table>
| 6     | Complete a preliminary management plan outlining in broad detail:  
- the changes you will be making during the conversion process  
- expected costs and income  
- actions to take for expected and unexpected situations, and  
- details on how you will manage the conversion.  

Keep reviewing and updating this document during the process. See Develop a Management Plan on page 17 for more information. |
| 7     | Select an organic certification agency. |
| 8     | Have an adviser visit your farm and make recommendations for conversion. |
| 9     | Look at your whole farm system against the organic certification standard and identify key areas where you are not compliant. Write these into your management plan with time frames and costings. |
| 10    | Start working on the non complying areas and manage the complying areas. |
| 11    | Review your management plan. |
| 12    | Keep talking and visiting other farmers and experts and obtaining information, knowledge and resources. |
| 13    | Arrange the first audit by the certifier. |
| 14    | Carry out any corrective actions as a result of the audit and obtain certificate. |
| 15    | Notify your milk processor and start supplying organic milk. |
Develop a Management Plan
Introduction

The Management Plan is a document that describes the products and practices you will use on the farm after conversion. It forms the basis for your day-to-day management and provides a source of reference for anyone working on your farm who wants to know what to do in a specific situation.

It also provides a documented system so you can demonstrate to your certifier that at any time, even in emergencies, you and your staff are able to make decisions that:

- comply with the requirements of the standard, and
- protect the organic integrity of the property, stock and product.

A management plan must be updated every year to take into account changing practices and new products.

Advantages

You will learn a great deal by working through this process as you will have:

- to think ahead about issues you will have to face
- time to consider your options and make a decision about how you will manage common situations, i.e. type of teat dip, treating downer cows or vaccinations etc., and
- to identify the inputs you can use.

Writing your management plan on a computer means you can alter it easily each year. This minimises the amount of work – rather than changing hard copies and forms.

Continued on next page
Develop a Management Plan, Continued

A Management Plan usually includes the following topics. The final results depends on your own situation and requirements.

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Farm Details</td>
<td>Resources (including land, facilities staff), farm objectives, maps, farm records.</td>
</tr>
<tr>
<td>2</td>
<td>Soil Management</td>
<td>Aims and targets, monitoring strategy, fertiliser policy, involvement of technical experts, drainage, cultivation and spraying.</td>
</tr>
<tr>
<td>3</td>
<td>Feed Management</td>
<td>Grazing off, supplements, minerals, feed budget.</td>
</tr>
<tr>
<td>4</td>
<td>Animal Health Management</td>
<td>Aims, methods and targets. Mastitis management, bloat, facial eczema, metabolic disease, calf health management, internal and external parasite control, vaccinations, metabolic disorders, lame cows, notifiable diseases, mutilations, regular monitoring with blood tests and faecal egg counts, and vet involvement.</td>
</tr>
<tr>
<td>5</td>
<td>Breeding and Fertility</td>
<td>Mating management and target submission rates, non cycling cows, premating heats, vet involvement.</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pasture Management</td>
<td>Pasture renewal and supplement crops, species composition, seeds, weed management.</td>
</tr>
<tr>
<td>7</td>
<td>Stock Management</td>
<td>New stock, production targets and triggers, drying off, number policy, calf rearing policy.</td>
</tr>
<tr>
<td>8</td>
<td>Sustainable Management</td>
<td>Energy conservation and recycling, soil conservation, water, shade and shelter, effluent management.</td>
</tr>
<tr>
<td>9</td>
<td>Cleaning</td>
<td>Cleaning methods, plant washing, chemical storage.</td>
</tr>
<tr>
<td>10</td>
<td>Health and Safety</td>
<td>Responsibilities, hazard management, incident reporting.</td>
</tr>
</tbody>
</table>
Develop a Management Plan, Continued

Key issues

The key issues with developing a management plan include:

- **Writing it** – This involves lots of writing and drafting which is a bug bear for many farmers. Use a good template to help you get started and save a lot of work. If necessary have someone else write and type the drafts.

- **Keeping it up to date** – The management plan is an essential part of the business and should be seen as a ‘live’ document. However in terms of priorities and time, keeping it up to date is often difficult.

- **Using it as an ongoing reference document** – Constantly referring to the document and discussion/review of its contents not only means compliance with the standards but also continuous improvement.

Support and assistance

Talk to other farmers who already have a management plan. See how they have done it and what they found most useful or most difficult to do.

The certifier can provide a template and/or a consultant can help you write it. A consultant may also be able to help you with good ideas and examples or templates for a management plan.

If you are a Fonterra supplier-

See Getting Help on page 21 for more information.
Getting Help

Introduction
Many farmers are now using organic/biological practices and there is now a lot of knowledge and information available from a wide range of sources.

Support networks
Support networks are being developed and are increasingly providing regular discussion groups to meet around the North Island with professional facilitation and access to expert speakers.

These organisations have also supported projects that collate existing animal health practices, research organic dairy practices and provide field days on organic farms.

This table lists the current support networks available.

<table>
<thead>
<tr>
<th>Name</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massey University</td>
<td>Agricultural Services, Massey University, Private Bag 11 222, Palmerston North. Phone 06 350 5176 Email: <a href="mailto:G.D.Evans@massey.ac.nz">G.D.Evans@massey.ac.nz</a></td>
</tr>
<tr>
<td>Organic Dairy Producers Group</td>
<td>Nick Collins - Chairman Phone: 078778646 mob 0275146143 Email: <a href="mailto:nj.jcollins@xtra.co.nz">nj.jcollins@xtra.co.nz</a></td>
</tr>
<tr>
<td>Fonterra</td>
<td>Contact Fonterra Milk Supply Pukete Rd, P O Box 20261, Hamilton. Phone 0800 and ask for the Organic Extension Officer Email: <a href="mailto:Keitha.laming@fonterra.com">Keitha.laming@fonterra.com</a></td>
</tr>
<tr>
<td>AgriQuality</td>
<td>David Brown PO Box 307 Pukekohoe Phone: 09 237 1807 Email: <a href="mailto:brownd@agriquality.co.nz">brownd@agriquality.co.nz</a></td>
</tr>
<tr>
<td>Bio-Gro NZ</td>
<td>Seager Mason Phone: +64 (4) 801 9741 Fax: +64 (4) 801 9742 Email: <a href="mailto:smason@bio-gro.co.nz">smason@bio-gro.co.nz</a></td>
</tr>
</tbody>
</table>
Getting Help, Continued

<table>
<thead>
<tr>
<th>Name</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other networks</td>
<td>These include:</td>
</tr>
<tr>
<td></td>
<td>• other organic farmers</td>
</tr>
<tr>
<td></td>
<td>• your usual farm supplier</td>
</tr>
<tr>
<td></td>
<td>• farming consultants.</td>
</tr>
<tr>
<td></td>
<td>Check any New Zealand organic website for further information – see Web sites on page 25.</td>
</tr>
</tbody>
</table>

**Discussion groups**

The development of discussion groups has increased networking amongst farmers and is encouraging consultant interest.

New farmers should consider joining these networks and discussion groups if they wish to obtain updates on ongoing organic dairy projects, open days, discussion groups and share experience with other farmers.

*Continued on next page*
Getting Help, Continued

Contacts
There are very few dairy/business consultants with established experience in organic production.

However, there are a number of consultants approved by Bio-Gro to give advice on certification. Their details can be obtained from the Bio-Gro head office. Phone 04 801 9741.

AgriQuality also has a consultancy division. Phone 09 237 1807.

You can also contact Gareth Evans, Organic Dairy Extension Service (G.D.Evans@massey.ac.nz or phone 06 350 5176) for on farm extension and farmer support programmes.

Manufacturers
Manufacturers are widely used by farmers as a source of advice. Speak to other organic dairy farmers and get their recommendations, not only on the products but on the reps themselves. A good rep could make an enormous impact on your success as an organic farmer and may become a key member of your management/advisory team. They all have different skills and experiences, so make sure you find one with good experience with many clients. Ask reps to recommend other clients who use the product and talk to them.

Continued on next page
# Web sites

This table lists some websites you may find useful.

<table>
<thead>
<tr>
<th>Name</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriquality</td>
<td><a href="http://www.agriquality.co.nz">www.agriquality.co.nz</a></td>
</tr>
<tr>
<td>Bio Dynamic Farming and Gardening Association in NZ</td>
<td><a href="http://www.biodynamic.org.nz">www.biodynamic.org.nz</a></td>
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<tr>
<td>Bio-Gro</td>
<td><a href="http://www.bio-gro.co.nz">www.bio-gro.co.nz</a></td>
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<tr>
<td>Dexcel</td>
<td><a href="http://www.dexcel.co.nz">www.dexcel.co.nz</a></td>
</tr>
<tr>
<td>Homeopathic Farm Support</td>
<td><a href="http://www.farmsupport.co.nz">www.farmsupport.co.nz</a></td>
</tr>
<tr>
<td>New Zealand Food Safety Authority (NZFSA)</td>
<td><a href="http://www.nzfsa.govt.nz/organics">www.nzfsa.govt.nz/organics</a></td>
</tr>
<tr>
<td>Organic consultants</td>
<td><a href="http://www.organicconsultants.co.nz">www.organicconsultants.co.nz</a></td>
</tr>
<tr>
<td>Simillimum Homeopathic Pharmacy</td>
<td><a href="http://www.arnica.co.nz">www.arnica.co.nz</a></td>
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<tr>
<td>Fencepost</td>
<td><a href="http://www.fencepost.co.nz">www.fencepost.co.nz</a></td>
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<tr>
<td>IFOAM-International Federation of Organic Agricultural Movements</td>
<td><a href="http://www.ifoam.org">www.ifoam.org</a></td>
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<tr>
<td>OPENZ - Organic Products Exporters of New Zealand Inc.</td>
<td><a href="http://www.organicsnewzealand.org.nz">www.organicsnewzealand.org.nz</a></td>
</tr>
</tbody>
</table>
Introduction

The key to successful organic dairying is positive organic/biological management strategies to reduce or eliminate the need for most chemicals. These strategies may reduce production (in the conventional sense), but will produce a higher value certified organic product.

In the conversion process, you will need to consider the following factors to obtain certification:

- Soil
- Pasture
- Animals
- Feed Management Strategies
- Sustainability

These are described more fully in the following modules.
Use this page for notes
Introduction

- “Getting the soil right” is one of the keys to successfully converting to organic supply. The main focus is on the maintenance and building of soil humus levels with good biological activity.

Planning issues

When planning conversion, prevention of soil damage must be a key strategic consideration. You need to identify any at risk paddocks, for example:

- low lying paddocks
- areas with poorly drained soils, and
- paddocks needing moling, subsoiling or aerating.

These paddocks should get preferential protection during wet periods.

If these make up most of the farm and will be grazed during high risk periods, then you need to carefully consider investing in a stand off area or feed pad.
Some strategies to improve soils

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long term soil fertility and biology of soils</td>
<td>• Natural nitrogen sources (e.g. biological activity, clovers, etc).</td>
</tr>
<tr>
<td></td>
<td>• Effluent management (use as nitrogen source/food for the soil biology).</td>
</tr>
<tr>
<td></td>
<td>• Range of solid fertilisers.</td>
</tr>
<tr>
<td></td>
<td>• Practices for improving biological activity and balanced nutrients.</td>
</tr>
<tr>
<td>Physical health of soil</td>
<td>• Biological soil indicators.</td>
</tr>
<tr>
<td></td>
<td>• Soil management in winter.</td>
</tr>
<tr>
<td></td>
<td>• Environmental sustainability, e.g. waterways.</td>
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<tr>
<td></td>
<td>• Best farm practices should maintain soil quality.</td>
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</tbody>
</table>
# Soil Conversion Process

**Process**

This table lists a process of events many farmers have used to adopt an organic soil management program.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Key Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nourish the soil microorganisms.</td>
<td>Feeding the soil feeds the pasture and the cows. This means ensuring adequate warmth, moisture, oxygen, food and freedom from poisons or chemicals.</td>
</tr>
<tr>
<td>2</td>
<td>Increase the variety of plant species and plant trees.</td>
<td>This not only helps the cows but also the soil. Over sow with a variety of herb species that have tap roots to source more minerals from the soil. Trees not only provide shelter, but are also a feed source for cows, provide organic matter (leaves), and attract bees and birds.</td>
</tr>
<tr>
<td>3</td>
<td>Choose fertilisers that are soil friendly.</td>
<td>Consult with your certifying agency to check on allowable products. These may include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Shed effluent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Approved liquid fertilisers – mainly fish and seaweed products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Approved rock phosphates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lime</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Elemental sulphur</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Feldspar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vermicast and biophos type products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Microbe enriched phosphate rock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Glauconite (a potassium source for which NZ deposits are currently being evaluated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Potassium chloride and approved forms of trace elements are restricted fertilisers that can be used in the short term where soil test values are low (particularly during conversion). Use these in consultation with your certifying agency.</td>
</tr>
</tbody>
</table>

*Continued on next page*
### Soil Conversion Process, Continued

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Key Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Eliminate pesticide and herbicide use.</td>
<td>As needed, move from blanket spraying to band spraying and finally spot spraying before stopping altogether. Crop rotation and mechanical control are other options. There are organic herbicides available which are readily adopted by organic producers.</td>
</tr>
</tbody>
</table>
Sustainable Soils

Introduction

Like conventional farms, all soil management practices on organic dairy farms should aim to minimize structural damage, compaction and pugging if maximum grass production and quality is to be achieved.

However this is even more important on a farm where soil biology is relied upon to deliver soil nutrients to the plants rather than soluble, plant available forms of nutrients being applied in artificial fertilisers.

Do not overgraze

This is normal farming practice. Watch the cows when grazing. When they have had a good feed and are starting to walk the paddocks, get them off. There is only very limited feed left and they will be doing more harm than good. The soil will not be delivering many nutrients to the regrowth if it gets pulverized.

Pugging

Again, this is normal farming practice. The quickest way to repair pugged paddocks is to feed the soil life and build up it’s micro populations again by using vermicasts, composts, liquids, fish fertilisers, seaweeds and/or compost teas etc.

Plan

Put in place a planned programme for any necessary moling, drainage, subsoiling and aeration work. Identify the key changes and investments needed well before the busy spring period.
Fertilisers

**Introduction**

In a biological system, the aim is to achieve a healthy soil which will maximise the health and production of your pasture and consequently animals. A key decision in the first years will be the choice of a new fertilizer regime based on approved or certified products.

This requires good soil tests and good advice on exactly what your soil needs.

**Biological Fertilisers**

There are a wide range of biological type fertilizers and soil conditioners available on the market. These products are generally not identified by nutrient analysis such as NPK as they are designed more for feeding the soil biology.

*Continued on next page*
Fertilisers, Continued

**Rock minerals**

A range of sources of phosphate, lime, sulphur, potassium and other minerals are permitted for use on organic farms.

Ask your normal fertiliser supplier for available products. There are also other suppliers specialising in providing organic fertilisers. Check with your certifier for a full list of approved suppliers.

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**Seaweed and fish fertilisers**

Any product from the sea contains the full range of natural elements. Liquid seaweed or fish solution provides a balanced fertiliser with trace elements and food such as complex carbohydrates, proteins and amino acids.

Seaweed provides additional benefits than fish solutions. It contains more natural elements and plant stimulants which encourage root development and fungal resistance. They also supply food for the micro organisms in the soil.

Application rates vary for each product but in general, seaweed is applied at 6 to 10 litres/hectare and fish at 1 to 3 litres/hectare up to 3 times a year.

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**Vermicast/compost**

Vermicast/compost is the material left behind after decomposition of living material by a range of organisms. The material is fine and peat-like with high porosity, aeration, drainage and water holding ability. It contains microbes and biologically active substances which improve soil structure and plant nutrition.

Vermicast/compost can be blended with rock minerals and other products by the supplier.

Application rates vary for each product and depend on soil requirements.
**Effluent**

**Introduction**

The return of effluent to the land is encouraged in all organic operations.

**Benefits**

Effluent returns valuable fertility and organic matter to the soil. It improves soil water retention, aeration, draining and friability, through the activity of microbial and earthworm activity which use the effluent as a food source.

**Effluent treatment and application**

A general rule is to apply treated effluent at no more than 150 kg nitrogen/year/ hectare (Organic Pastoral Resource Guide, page 146).

Run off and leaching should be avoided, e.g. do not spray during high rainfall times or on very wet paddocks.

The soil pH needs to monitored and corrected with lime if it drops below 6.5. Potassium levels also needs to be monitored – especially during spring.

**Follow the best practice and legal requirements of your local and regional councils.**
Drainage

Introduction

Soil needs water to stay alive. Water is also required by plants to carry nutrients from the soil.

On the other hand too much water not only harms the plants living on it, but also drowns the microbes and animals living in the soil by reducing the amount of available oxygen.

Strategies

Like conventional farms, drainage on an organic farm aims to reduce soil moisture levels in winter but avoid over drying during summer months.

Drainage strategies to implement on an organic farm include:

- minimise pugging as much as possible by establishing shelter belts, not overstocking and not overgrazing.
- keep drains clear of overgrowth by using mechanical methods or planting native species
- establish wetlands as water soaks during wet periods.
Introduction

The role of pasture is to provide a full and balanced diet for the animals with a complete range of minerals, proteins, sugars and fibre. A good pasture not only enables good growth and production rates of stock, but also builds soil fertility.
The key objectives for an organic pasture are:

- Provide high intakes of high quality feed to ensure cows have the body condition and feed supply needed for good milk production and low stress.

- Maintain pasture cover between 1500-2600 kg DM/ha through adjusting total cow intake and the proportion of supplement in the diet. This maintains high cow intake, maximum pasture growth rates and the percentage of white clover.

- Develop pastures with 20-30% legume for effective nitrogen fixation rates and high feed quality.

- Maintain a range of grass, legume and herb species in the pasture so the pasture has biodiversity and stability as well as high feed quality.

- Avoid overgrazing or pugging damage as this kills herb and legume species, and opens the pasture to weed invasion.

Continued on next page
Pasture, Continued

Pasture mixtures

Perennial ryegrass, white clover, red clover, chicory and plantain provide a basic biodiverse, or herbal ley pasture. Other species can be added to this mixture depending on local requirements and conditions. Consider the following points when establishing biodiverse pastures:

- Sow certified seed and remember to ask the seed merchant for untreated seed.
- Keep perennial ryegrass sowing rate low (e.g. 12kg/ha) to reduce competition against the slower establishing species.
- Conventional cultivation followed by six weeks of fallow, further cultivation of weeds that have grown, and sowing with a roller drill gives both good weed control and pasture establishment.
- Herbal and legume species are slow to establish and greatly slowed by cold (<10° C) soil. Sow as early as possible in autumn, preferably early Feb/late March, or sow in spring.
- Remember chicory, plantain and red clover produce and persist best under 28 to 42 day grazing rotations with no grazing in winter especially when the surface soil is soft and wet.
Seed Supply

Sources

There are some sources of grass and herb seed mixtures available from seed merchants (e.g. Wrightson’s Seeds, Agriseeds, etc). Another source of seed mixtures is hay from organic pastures – ensure this is herbal ley.

Most farmers make up their own mixture and buy in specific species with advice from seed merchants to obtain the type of sward they require.

When buying seed, you need to show that you have complied with all the certification requirements, i.e. you need a declaration relating to their GE free status or lack of chemical treatment. If you are unsure ask your certifier what is permitted before buying it.
Weed Management

Problems Caused by Weeds

Before attempting to control weeds in dairy pastures, it helps to understand what problems they are causing. Research at Massey University has shown that some “weed” species are probably quite useful in that they provide good quality feed with high mineral contents, often in patches where ryegrass and clover aren’t growing. Chicory and narrow-leaved plantain are species previously considered as “weeds” but now planted intentionally. A weed is a plant growing where it is not wanted. As these species are now “wanted”, they are no longer considered as weeds. But several other weed species can be considered useful in this way, such as dandelion, catsear, broad-leaved plantain and Yorkshire fog.

However, other weeds do cause problems, such as:

- Reducing the grazing of pasture plants around the weeds, eg thistles and ragwort are avoided by cows, so grasses and clovers beside these plants don’t get eaten either.
- Reducing the establishment of useful pasture plants during the establishment phase due to competition by fast-establishing annual weeds
- Reducing the quality of milk due to taint problems, especially with twin cress (Fig 1)
- Causing animal health problems due to toxins within the leaves, such as in ragwort, hemlock and buttercups
- Legal obligations due to weeds being listed as noxious (“Plant Pests”) by the local Regional Council, eg ragwort, hemlock
- Looking untidy and thus are embarrassing near the main road (often a major motivation for some farmers) or lowering land values if bad

Why Weeds Are Present

Most agricultural soil has large numbers of dormant weed seeds present, commonly numbering about 25,000 for every square metre of ground. They usually stay dormant if the soil is covered by vegetation, but as soon as soil is bare, seedlings start establishing, especially under warm, moist conditions. If conditions aren’t suitable for establishment, they can remain dormant in the soil for several decades.
Once weeds establish, it depends on conditions within a paddock as to whether they thrive and dominate, or become just a minor component of the sward. Species not liked by cows get left uneaten and become larger, such as buttercups, docks, ragwort and thistles. If soil is poorly drained, weeds such as buttercups and rushes dominate. If soil fertility is low, species tolerant of low soil fertility thrive, such as dandelion and plantain. If soil gets too pugged over winter, ragwort gets established in the bare soil. If pasture dries out too much over summer and becomes over-grazed, Scotch thistle and nodding thistle get established in autumn.

**Weed Control Options**

Even though herbicides can’t be used, there are a number of control options available.

1. **Keep pastures dense over summer**: If pastures are dense 12 months of the year, new weeds can’t establish. Many thistle problems come from over-grazing during dry times of the year. Make sure the farm isn’t over-stocked for dry times of the year. Grow pasture species than can tolerate dry conditions. Use irrigation if this is possible. Look at having supplementary crops to increase the amount of feed available, thus reducing pressure on pastures.

2. **Keep pastures dense in winter**: If there is too much pugging damage over winter, weeds such as ragwort can establish. Perennial ryegrass is a good pasture species to grow as it tolerates pugging better than many alternatives. Ensure that drainage of pastures is good. Look at having feeding pads so that stock can be kept off pastures for part of the day during wet times of the year.

3. **Renovate low density pastures**: If pastures have low plant numbers, weeds can establish easily. If replacing poor pastures, generally it is best to plough the paddock and prepare a good seedbed to ensure rapid establishment of sown species is possible. Low input over-sowing techniques favoured by farmers nowadays often require herbicides to work well. If a paddock has many perennial weed problems, it may be best to crop the paddock for a season to help disrupt the perennials as much as possible. Select pasture species that will grow aggressively under the conditions in that paddock, and remember that many “alternative” pasture species establish poorly so need careful early grazing to ensure success. Make sure that timing of sowing is good with respect to soil moisture and temperature. Fertilisers help get pasture established quickly and densely.
(4) **Use good grazing strategies:** It is important not to graze pastures too hard as this may lead to bare soil being exposed and new weeds establishing. However, paddocks should be grazed reasonably hard to stop weeds such as docks becoming too dominant within paddocks.

(5) **Mowing Californian thistle:** Californian thistle can be weakened by mowing it whenever it reaches the early flower-bud stage (Fig 2), preventing it from dominating pastures. At this stage, it has used up some root reserves to establish above-ground shoots, and is about to start replenishing these root reserves. If it is consistently prevented from replacing root reserves by mowing at this stage, the weed can be severely affected. Mowing could occur after grazing, or before cows enter a paddock so that they can eat mown material. Note that although many people believe mowing in the rain rots the root system, there is little or no evidence that this is true.

(6) **Mowing flowering weeds:** Mowing can also be used to reduce seed production from species such as ragwort and Scotch thistle if they are mown once stem elongation has begun but before they have formed viable seeds. Generally these species will regrow again, but will produce less seeds than if they were allowed to set seed without any disturbance.

(7) **Chipping and pulling:** If plant densities of Scotch thistle, variegated thistle and nodding thistle are low enough, it might be feasible to chip them to kill them prior to flowering, ensuring the cut is below the crown of the plant which contains dormant buds capable of regrowing. Ragwort plants can be pulled from the ground when flowering, at which time root fragments left behind are less likely to regrow. However, ragwort seeds will continue to mature after the plant is pulled from the soil so flowers need to be removed from the paddock.

(8) **Sheep:** Although most dairy farms are not fenced adequately for sheep grazing, some organic dairy farmers use sheep from nearby organic properties to graze ragwort at certain times of the year in bad paddocks. Sheep are less affected by the alkaloids in ragwort, and some sheep will actively seek out ragwort plants to eat.

(9) **Biological Control:** For some weed species such as ragwort, nodding thistle, Californian thistle and gorse, biological control organisms are available which will attack these weeds. They seldom wipe the weeds out from a paddock, but may help make the weeds less aggressive. Agents can often be obtained from local Regional Councils.

(10) **Avoiding Twin Cress:** Twin cress is only a problem if eaten by lactating cows, and generally only grows in newly established pastures. Milk taint problems can be avoided if new pastures with twin cress are grazed by any animals on the farm that aren’t being milked.
Fig 1: Twin cress can cause milk taint, so learn to recognise it.
Fig 2: Mowing Californian thistle each time it reaches this growth stage can greatly weaken it.
Module 3 – Animals

Animal Health

Introduction
Successful organic farmers report that as their soil balance and feed quality improves, animal health problems greatly improves or even disappear. This also happens on conventional farms.

Preventative health
Successful animal health management in organic dairy herds is based on planned prevention rather than treatment of symptoms. It is easier to avoid a problem in the first place rather than wait until a problem arises and then treat it.

This often means regular monitoring eg: trace elements, condition scoring and faecal egg counts in young stock.

A preventative approach requires farmers to maximise the health of animals in order to encourage high natural resistance to disease. This is achieved by supplying adequate quantities of feed at all times and ensuring this feed contains sufficient and balanced nutrients (including trace elements). At all times stress is minimised to maximise natural resistance.

Minimise stress
Animal stress on organic farms is minimised by:
- setting appropriate stocking levels
- providing high feeding regimes, and
- providing adequate space, shade and shelter.
- Gentle handling

Continued on next page
Animal Health, Continued

Use of conventional health treatments

Animal welfare on organic farms is uppermost. The standards clearly state that unhealthy animals must be treated if necessary with conventional animal health treatments even if this results in the loss of the animals organic status temporarily or permanently. USDA standards allow the use of some conventional remedies under certain circumstances. Eg: invermectin but antibiotics are banned.

Parasitic worms

For prevention and treatment of parasitic worms, the main focus is on:
- having a mixed or diverse pasture diet which includes high tannin species
- having clean pastures, and
- selecting breeding stock which are resistant
- the use of homeopathic and herbal treatments.

Calves can be rotated in front of the cows but will probably be shifted to a run-off by December.

The critical period is the first autumn for young stock. They need plenty of space and high quality leafy feed. If in doubt have faecal samples checked for worm eggs. Limit the use of electric fencing during this time.

Lice

Lice are a symptom of stress. Again, healthy animals are the best prevention. There are a range of commercial treatments, e.g. dusting sulphur and vegetable oils. Rub poles can be effective in providing relief for the animal.

Bloat

Herbal ley pastures will reduce the incidence of bloat by providing sufficient fibre in the diet. Non use of synthetic fertilisers usually reduces the likelihood of bloat. Various treatments are available such as fish, vegetable and mineral oils – check with your certifier. Bloat oils as understood by conventional farmers are not allowed.
Vaccines

Vaccines are allowed where there is proven need, e.g. leptospirosis vaccine for OSH requirements. Many farms have a history of Blackleg so the use of 5:1 is common. Check the GE status of vaccines with your certifier.
Mastitis

Introduction
Mastitis is a major issue in many herds and this does not change when converting to organics. The approach to mastitis on most organic farms is:
- aim for maximum health of all cows at all times, and
- cull or on-sell to a conventional farmer cows that have a continued high cell count and repeat mastitis. This requires starting the season with extra cows to allow for the culling.

Prevention
A key strategy is to ensure:
- a low stress environment
- efficient teat spraying
- a high standard of teat condition
- an adequate fibre content feed is available during times of peak likelihood of mastitis, i.e. calving and early season
- milking machines are serviced regularly, and
- staff have been trained on milking management.

A low stressed and well fed animal will have greater resistance to infection.

At drying off, visually check all udders regularly and separate any problem cows. Herbal and homeopathic treatments can be used on selected cows. Good management in autumn will help reduce problems in the spring.

Routine use of approved teat spray is allowed but check on the type of spray with your certifier. Homeopathic treatment and herbal and cider vinegar drenches can also be used as a preventative measure during peak times and as a lead up to drying off.

Continued on next page
Mastitis, Continued

Investigate
Each time mastitis is suspected in a cow, you must look at the whole picture and ask the following questions:

- What is the problem? (If necessary get a vet).
- Test the milk to identify the bacteria – this determines how you approach and treat the animal.
- What has caused the infection?
- What treatment shall be used to help the cow and prevent it from happening again?

Treatments
Some cows with mastitis cure themselves, just like many other infections. This is most likely if overall health is good, there is adequate shelter and a nutrient rich diet of varied species.

Many organic dairy farmers are having success with herbal and homeopathic treatments. The following treatments are also usually used for cows with mastitis:

- Strip out the infected teat quarter fully and regularly until clear milk or serum is seen. Always disinfect teats after stripping.
- If the quarter is not painful put one or two calves on the cow to help clear the mastitis.
- Give the cow homeopathic products to treat the systems.
- Active manuka honey (10+) can be given as an intramammary treatment.

Certification requirements
- Remember to check with your certifier if you are not sure about any treatments!
Homeopathy

Introduction

Homeopathy is the treatment with a substance (usually highly diluted in water or alcohol) which, if given undiluted to a healthy animal would produce similar symptoms to the unhealthy animal. Treating ‘like’ with ‘like’ in this way triggers the animal’s defense system and it gets better.

Homeopathy uses energy based treatments rather than chemical based medicines so there are no problems with residues.
Treatment of the whole animal

Unlike much conventional medicine there is rarely a single homeopathic treatment for one illness. Instead, observation is used to carefully identify the symptoms in order to choose the correct treatment. For example, a cow with mastitis would normally be treated with antibiotics.

Using a homeopathic approach, symptoms such as hot red quarter, description of the milk, lameness, irritability, lethargy, off her food, etc., help identify the choice of treatments. The whole well-being, attitude and psychological state of the cow are treated using homeopathic treatments.

Continued on next page
Homeopathy, Continued

Learning to use homeopathy

The success of homeopathy depends on the skills of the person choosing the correct treatment. Results generally improve as more is learnt about diagnosis and determining symptoms.

Obtain guidance

While you are learning, obtain guidance from suppliers and homeopathic vets. They can develop a programme of homeopathic preventative treatments for each season and help you with a sick animal.

A good New Zealand publication is Homoeopathic Handbook for Dairy Farming by Tineke Verkade. Homoeopathic Farm Support Ltd, PO Box 9025, Hamilton. Phone 07 858 4233, or email hfs@xtra.co.nz.
Introduction

Good shelter for animals is necessary on any farm. Cows need protection from inclement weather and the hot sun to reduce stress and help with good health.

Permeable shelterbelts

On an organic farm, trees in the form of a permeable shelterbelt provide a large sheltered area for cows. Permeable means the trees allow air to flow through them but at a slower rate.

A shelterbelt also prevents soil erosion and can provide supplementary feed if appropriate fodder species are selected, e.g. poplar and willow.

Helpful hints

Use species that grow well in your area – use a mixture of fast growing and slow growing species. Also consider interplanting between the trees with flax. Some natives eg: Mahoe also make good emergency fodder.

Speak to a local nursery for advice on suitable species. If you are planting tall trees, whether for timber production or not, they must be looked after. Contact your local NZ Farm Forestry Association branch for advice.
Calf Rearing

Introduction

Calf rearing on organic farms is much the same as good conventional farms that provide a well balanced diet, plenty of clean water, and a stress free, clean and sheltered environment.

However a key difference is that calves are fed milk until three months old. This reduces the volume of milk for production and needs to be factored into the costs of conversion.

Feed milk

Under an organic system calves are required to feed on milk until three months of age. After three weeks the quantity of milk is reduced to encourage the calves to start eating grass, hay/straw, meal, etc. After six to eight weeks the volume of milk is considered as a protein supplement rather than a complete feed – so quantities are gradually reduced until natural weaning at three months.

Minimise stress

Best practice on all farms is to minimise stress at all times. This means a consistent quality feed with no sudden changes. Calf sheds must be absolutely up to scratch.

Treating sick calves

As with normal farm practices, sick calves should be isolated from others to avoid cross contamination and to ensure individual attention.

The best treatment for any scouring calf is fluids with electrolytes. Home made recipes are not always the best-check with your Veterinarian and certifier and ensure you have some on hand before calving starts.

Homeopathic treatments are used as well as herbal treatments such as Echinacea. Yoghurt can be useful during recovery.

Cleaning

All good conventional cleaning practices are followed but you need to check with your certifying agency if you want to use a sanitiser or spray disinfectant – there are only a few brands that are permitted.
Stock Replacement

Introduction

The aim of a stock replacement policy should be to grow healthy, well grown animals that:
- are well adapted to an organic environment
- are in-calf, and
- have a high production potential.

Certifying requirements

Depending on your certifier, only 10% of animals (from non organic sources) can be brought in each year, and each animal has a time lag of 12 months before being granted organic status.

Some standards require that once the herd is fully converted, replacement animals must be reared organically from the last third of gestation, i.e. three months prior to birth.

Replacement

As with standard farming policy, replacement animals need to come from farms with farming and environmental conditions as close as possible to yours.

Continued on next page
Stock Replacement, Continued

Animal breeding

On the organic farm, animals bred and reared on the farm tend to be more adapted. The key is selecting the best animals for breeding to met your organic breeding objectives which may differ from your present objectives.

Natural mating or artificial insemination are both permitted. Conventional semen straws are allowed but the use of organic semen is preferred. You will need to advise your semen supplier of your organic status.
Module 4 – Feed Management Strategies

Feed Planning

Introduction
As with any farming practice, feed planning is essential when converting to organics. You will not have the same options to buy in supplement if you get your feed budgets wrong, especially when you are used to relying on conventional nitrogen applications to top up your spring feed supply.

However, the change to organic management and the application of fish and vermicast fertilisers will probably mean an increased clover content and better uptake of nitrogen. The resulting sward will be more lush and nutrient rich.

Strategies
The key strategies involved in completing a feed budget include:

- Estimate the stock levels you will have through the year. Include young cows and other dry stock.
- Plan the feed in monthly blocks until the spring pasture balance date (which may be later with no nitrogen applications) and make sure there is enough feed to get you through a bad year.
- Identify when the tight feed spots will be. Spring feed availability is a common problem on newly converting farms.
- Work out your spring feed budget in the autumn before drying off. This way you can decide on the drying off cover to aim for.
- Use existing models of cost benefit analysis to purchase supplementary feed.
- Allow for wastage in the calculations because a cow does not eat all available feed. Supplement wastage can often be considerably higher than this, especially when fed on paddocks.
- Keep good records of grass growth over the winter months and use this in subsequent years.

Continued on next page
Stocking rates and calving dates

Stocking rates are determined by your chosen conversion/farm policy. This will be based on where your farm is currently in relation to the organic/biological system and the approach you take to move to full organic status.

Using your knowledge of average pasture growth rates and feed budgeting skills, calculate the stocking rate that is best matched to the pasture growth rate. This effectively utilises pasture and minimises the use of costly supplementary feeds.

By shifting the calving date of the herd, you have the ability to change the timing of peak feed demand. When combined with stocking rate changes, you can best match animal demand with pasture growth rates.

Feed pad

If your soils are prone to flooding and pugging you may want to seriously consider establishing a feed pad to protect your soils.

Soils seriously damaged by low lying water and pugging can take many years to re-establish.
Cropping

Introduction

Cropping is a viable option on organic farms to:
- increase the fertility and biological activity of the soil, and
- provide high quality supplementary feed.

Types of crops

It is good practice on organic farms to grow mixed crops as opposed to mono crops to provide the diversity of dietary needs.

You need to look at your farm’s environment and climatic conditions when selecting a crop. For example, several organic farmers in the Waikato currently grow turnips with chicory, plantain and red clover.

This table lists the types of crops that can be grown on organic farms (Organic Pastoral Resource Guide, page 125).

<table>
<thead>
<tr>
<th>Crop</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
<td>Used as a green feed or made into silage. Needs supplemental fertiliser for best yields.</td>
</tr>
<tr>
<td>Maize silage</td>
<td>Need a certificate indicating GM and coating status. Requires planning and needs nitrogen.</td>
</tr>
<tr>
<td>Sunflower</td>
<td>Used as a green feed or made into silage. Can be grown and harvested with maize or sorghum.</td>
</tr>
<tr>
<td>Millet</td>
<td>Used as a green feed or made into silage. Grows on less fertile soil.</td>
</tr>
<tr>
<td>Oats</td>
<td>A good winter and spring feed. Used as a green feed or made into silage.</td>
</tr>
<tr>
<td>Lucerne</td>
<td>Drought tolerant. Is a legume so is a good nitrogen fixer. Used as a green feed or made into silage.</td>
</tr>
<tr>
<td>Turnips</td>
<td>A green feed crop. Needs good cobalt levels. Plan as a crop rotation.</td>
</tr>
</tbody>
</table>

*Continued on next page*
Cropping, Continued

**Strategies**

Organic crops need the same management decisions as conventional crops although some different techniques may be used in areas such as:

- crop choice
- cultivation, and
- nutrient supply.

As with normal farming best practice, you need to:

- Plan a strategy for cropping – look at what you need, why you are cropping, advantages and disadvantages.
- Research how you are going to:
  - prepare the land
  - select the crop you will use
  - maintain fertility
  - return the land back to pasture, and
  - manage pests and disease.
Supplements

Introduction
Pasture sward is often the best and cheapest provider of nutritional feed for animals. However, varied growth rates result in the need to use supplementary feeds to maintain high levels of feed intake and milk production.

You may need to rely on supplements more during and after conversion for the first few years until the pasture sward and soil are well developed – this depends on your conversion plan/attitude.

Requirements
Supplementary feed must be:
- of suitable quality to meet animal requirements
- made on the organic farm, or
- purchased from other certified organic farms, unless there is an emergency situation.

This photo shows some organic plantain and mixture balage.

Different certification standards have different allowances for non organic supplementary feed, including conventional bought in feed and supplements such as molasses – check with your certifier. No synthetic additives, antibiotics, etc. can be added to the supplementary feed. Mineral licks are allowed where there is a proven need.

Continued on next page
Supplements, Continued

**Supplementary feed made on-farm**

As with normal farming best practice, supplementing with on-farm made hay or balage may be necessary to ensure a balanced diet is maintained year round. The amount of supplement you produce depends on the feed requirements, stocking rate and climate.

Supplements contain different levels of fibre and sugars and therefore have slightly different balances of nutrients as they grow at different times of the year to when they are fed out. This needs to be considered when feeding supplements. For example, feeding supplement made in the summer (higher fibre) when spring grass is very lush will help keep nutrient levels in balance.

**Conventional feed**

You are not permitted to use conventional feed. However an exemption may be granted from your certifier if your farm experiences severe environmental conditions (such as a flood or drought) and no certified alternative feed is available. Approval for an exemption must be given before you begin feeding conventional feed.

If approval is given, then good records need to be kept that show no more than 10% of the total annual diet was fed from non-organic sources and the 25% of the daily diet was not exceeded.

**Additives**

Most conventional magnesium supplementation is allowed for organic cows, i.e. magnesium chloride, magnesium oxide (causmag), magnesium sulphate (epsom salts), etc.

There are other trace elements and vitamins that are allowed to be added under various standards. It is important to seek professional advice to ensure best practice.

However you need to ask your certifying auditor for approval before use. Again, if it is in your management plan you can get it approved ahead of time.

*Continued on next page*
Chelated mineral supplements

Chelated minerals are mineral compounds such as copper sulphate and magnesium chloride coated in some compound such as a protein. By coating the minerals they are more easily digested and absorbed by the cow.

The most widely used chelates on organic farms are certified fish proteinated chelates (minerals coated in a fish protein). There are a variety of chelates on the market but only a few are certified organic – check carefully before use.

Chelates are administered by regular doses in the water trough or by drenching. Some farmers use fertiliser applications of mixes with seaweed, fish and liquid vermicast. These are applied prior to grazing and provide the cows with a ready supply of easily absorbed minerals with every mouthful of pasture.

As with standard farming practice, implement a monitoring programme to assess results. Seek expert advice if necessary – see your product supplier or your vet.
Off Farm Grazing

Introduction
A common problem for newly converting farms is having extra cows carried over winter and not having enough certified winter grazing for them. In some areas regardless of planning, there will not be any certified grazing available.

Farmers during conversion can use land at the same or higher certification status as their cows. However certified farmers can only use certified land.

Convert your existing grazier
Your existing grazier may consider converting some of their land as certified grazing and supplements as this may command a premium.

Off farm grazing
If grazing off is required, use homeopathic treatments on the returning cows to reduce stress on heavily pregnant cows. You will need to obtain a signed note from the transport company driver that the truck and trailer has been cleaned out before picking up your animals.

Your animals must not be:
- offloaded onto uncertified land at any stage, nor
- fed uncertified feed during transit unless you:
- know this feed does not contain any prohibited products, and
- allow for this supplement as part of your 10% annual allowance.
Module 5 – Sustainability

Introduction

Sustainability for dairy farms (organic and conventional) is the ability of the farm to sustain production for the future without any harmful effects to the land, water, air, animals or people living on the land or the local economy.

Many people go a step further and suggest the farm should be left in a better condition than which they started from.

Sustainability involves:
- maintaining soil fertility
- nutrient recycling
- using renewable resources, and
- ensuring economic viability.

It is important to think about what happens after conversion to ensure your farm continues to be profitable.
Appendix A – High Level Definition of the FONterra Chosen Standard for the Supply of Organic Milk

Friday 7th May 2004

The Standard
Fonterra has only one standard – “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices”. This means for milk to be compliant to Fonterra’s chosen standard the milk must comply with both “The New Zealand Food Safety Authority’s Rules of Organic Production” and “The New Zealand Food Safety Authority’s Rules of Organic Production including appendices”.

Fonterra has a target that all organic milk processed will be meeting “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices” by 1 June 2006.

Conversion Conditions
All new contracts (not renewals) must agree to farm according to “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices” from commencement of conversion.

Milk Premium Payments
All Suppliers under current organic contract will receive:
(i) The standard premium (currently 16%) for milk certified compliant with “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices” by a New Zealand Food Safety Authority recognised auditor.
   • (The increase to 16% is an interim measure (to 31st May 2005) to allow market development activity. Any extension beyond this date is subject to Fonterra Board approval and requires determination of the cost proportion of the organic milk premiums.)
   • Once farmers commit to supplying milk compliant with “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices” then this standard must be maintained.
(ii) The base premium (currently 10%) upon meeting the NZFSA Technical Rules of Organic Production as certified by a New Zealand Food Safety Authority recognised auditor.
(iii) No organic premium payments for years one and two of conversion.
   • (There is a proposal, subject to Fonterra Board Approval, to fund the costs during conversion. This requires determination of the cost proportion of the organic milk premiums.)

Recognised Third Party Agencies (TPAs)
TPAs must be recognised by NZFSA. Currently only AgriQuality and BioGro are recognised.
Key Points of Fonterra’s chosen standard:

**Definition:** Organic = Meeting the requirements of the NZFSA Technical Rules of Organic Production AND appendices and certified as such by a NZFSA recognised TPA.

**LAND / PASTURE**
- Must be managed organically for at least 3 years.  
  The pasture may be managed according to the NZFSA Technical Rules of Organic Production for the first 2 years but for the last 12 months the pasture must be managed in accordance with the NZFSA Technical Rules of Organic Production AND appendices.

**FEED**
- For the 12 months prior to conversion of the whole herd:
  - The animals must be fed a minimum of 80% organic feed for the first 9 months and 100% organic feed for the last 3 months.
  - Supplements and feed additives may be non organic (e.g. molasses) provided they are fed in accordance with the definitions (see below **).  
  **Note:** Where non-organic molasses is administered via drenching, this may only occur to provide an energy boost to sick cows.  Routine daily drenching is not allowed.
- Once the whole herd is converted:
  - 100% organic feed (including hay and silage).  Exemption: If the farm experiences severe environmental conditions, e.g. flooding / drought, the farm can apply to the NZFSA through their TPA for a temporary exemption.  Approval must be granted before non organic feed can be fed.
  - Supplements and feed additives may be non organic (e.g. molasses) provided they are fed in accordance with the definitions (see below **).  
  **Note:** Where non-organic molasses is administered via drenching, this may only occur to provide an energy boost to sick cows.  Routine daily drenching is not allowed.

**LIVESTOCK**
- Animals for Milk Production
  - Prior to conversion to “The New Zealand Food Safety Authority’s Rules of Organic Production AND appendices”, all animals must be under continuous organic management for at least 12 months.
  - Once the farm is converted:
    - All the animals must be under continuous organic management from the last THIRD of their gestation (i.e. 3 months prior to their birth).  
    - The animals can never be managed on a non organic operation.
Any new cow brought into the herd must be under continuous organic management for at least 12 months prior.

- Breeder Stock
  - Maybe brought from a non organic operation onto an organic operation at any time: Provided that if the livestock is gestating and the offspring are to be raised as organic livestock, the breeder stock must be brought onto the farm no later than the last third of gestation.

- Other Animals
  - Must be managed organically from the last THIRD of their gestation (i.e. 3 months prior to their birth) if they are to be sold as organic at the time of slaughter.

- Vaccinations
  - Vaccinations are allowed. Fonterra requires this to be in accordance with the NZFSA Technical Rules of Organic Production excluding appendices to allow continued access to the EU markets.

**ANTIBIOTICS**

- Prior to conversion to the NZFSA Technical Rules of Organic Production AND appendices, the animals must NOT have received antibiotic treatment for a period of at least 12 months.
- If the animal does require an antibiotic treatment the animal will loose its organic status. This can be regained provided the animal undergoes continuous organic management for 1 year.

**Definitions**

**Feed Supplement** – A combination of feed nutrients added to livestock feed to improve the nutrient balance or performance of the total ration and intended to be:
(1) Diluted with other feeds when fed to livestock;
(2) Offered free choice with other parts of the ration if separately available; or
(3) Further diluted and mixed to produce a complete feed.

**Note:** Hay and silage are considered as ‘feed’ by definition and not supplements.

**Feed Additive** – A substance added to feed in micro quantities to fulfil a specific nutritional need, i.e. essential nutrients in the form of amino acids, vitamins and minerals.

END
Use this page for notes