

Research and Development

# Final Project Report

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1A Page Street, London SW1P 4PQ

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Project title

Organic Livestock: Animal Health, Welfare and Husbandry Assessment of existing knowledge and production of an advisory resource compendium

MAFF project code

OF0162

Contractor organisation and location

The University of Reading  
Whiteknights House, Reading  
RG6 6AG

Total MAFF project costs

£ 95,634.00

Project start date

01/10/98

Project end date

31/03/00

## Executive summary (maximum 2 sides A4)

1. A compendium of animal health and welfare information relevant to organic livestock production has been produced by the Organic Livestock Research Group (OLRG), Veterinary Epidemiology and Economics Research Unit (VEERU), Department of Agriculture, the University of Reading. The compendium is supported by full scientific abstracts taken from the CAB International information database.
2. The objective of the project was to:
  - Create a database and archive of information on animal health, welfare and husbandry relevant to livestock production under organic standards;
  - Assess the database and its relevance to organic livestock production;
  - Develop a series of compendia of advisory resource materials on CD-ROM and in printed format, in consultation with relevant sector bodies, the veterinary profession and organic livestock producers.
3. The compendium has been produced in a CD ROM format and is internet accessible (<http://www.organic-vet.reading.ac.uk/>). The compendium has been reviewed by specialist veterinarians, advisors and farmers. For copyright purposes, the internet accessible version has been produced without scientific abstracts
4. The aim of the compendia is to serve as a resource material for advisors, inspectors and veterinarians who work with organic or converting farmers in the UK. It is also envisaged that the compendia could be used as a training tool for advisors and veterinarians learning about the issues related to general and specific animal health and welfare aspects of organic livestock production. In addition, the material will provide a useful resource material for the sector bodies and policymakers in the development of organic livestock production standards and regulations.

5. Each compendium is divided into four sub-compendia: Cattle, Sheep, Pigs and Poultry. Each is further divided into two sections. An introductory section, *Health and Welfare*, outlines general health and welfare issues related to the specific organic production system. Emphasis is placed on the requirements of organic standards in the approach to health and welfare problems. A second section, accessible via the *Disease Index*, deals in detail with the specific conditions affecting the species in question. Each disease is indexed alphabetically, and by the veterinary and common terms normally applied.
6. The *Disease Section* describes a range of specific condition is divided further into sub-sections on causes, symptoms, treatment, control, prevention, welfare implications, good practice based on current knowledge and guidelines for the conversion period. The poultry compendium does not contain a sub-section on the conversion period as there is little technical information available to support this.
7. In total, the compendium covers 45 cattle, 44 sheep, 32 poultry and 27 pig diseases and conditions.
8. Each section is supported throughout by references to scientific literature and other publications. These references can be accessed directly from the text by using text links to scientific abstracts, scanned-in advisory materials and reference or reading lists.
9. The compendium has *Help* and *Search* facilities.
10. At the time of publication. the compendium contains over 1700 scientific references and more than 50 full advisory documents. It is intended that this particular feature of the compendia will prove useful when in-depth information is sought, or the compendia are used as a training tool.
11. It should be emphasised that the compendium is not intended as a diagnostic or self-help tool for animal health management on the farm. For this reason, diagnostics are not covered in any depth, and the treatment sections usually only suggest potential treatment categories and discuss the urgency and need for treatment from an animal welfare perspective. The authors wish it to be known that diagnosis should always be carried out by a veterinary surgeon, in response to problems seen on a farm.
12. The compendium have been reviewed by members of the advisory team at the Organic Advisory Service on Elm Farm Research Centre in Berkshire, by specialist veterinarians and by organic farmers.
13. In light of the rapid developments within organic farming and research, it is proposed that the information contained within the compendium will require frequent updating, probably on an annual basis. A proposal for the maintenance and expansion of the compendium has been included within the final proposal. The main component of this proposal is the development of a “stakeholder club” of interested parties, whose function would be to raise financial support, to supply technical information and to provide a practical link to the organic farming, advisory and administrative sectors.

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**Scientific report (maximum 20 sides A4)**

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**Background**

Organic farming in Europe, and more specifically in the UK, has recently undergone a rapid increase in popularity, largely as a consequence of increased consumer demand and the setting of targets by Governments to increase the area of land under organic production. The latter has resulted in an increase in financial support to farmers wishing to convert their farms to organic production. This rapid change has resulted in an increased requirement for further research, so as to develop the sector and to provide technical support to current and future producers.

The general dearth of advice available to livestock producers has been recognised, with many producers seeing this as a major constraint (Roderick and Hovi, 1999). Whilst it is generally accepted that organic systems may require specific studies, there is potentially a significant proportion of research that has been conducted on conventional systems that may be considered appropriate to the development of the organic sector. Furthermore, research conducted in EU countries other than the UK is also being undertaken, much of it appropriate to the UK situation. A recent report by Keatinge *et al* (2000) has described much of the current work being conducted in the EU.

The overall goal of the research project reported here has been to gather and assess current information specific and appropriate to the health and welfare of organically managed livestock, and to develop advisory material from these sources in the form of a compendium.

**Aims and objectives**

The objective of the project has been to:

- Create a database and archive of information on animal health, welfare and husbandry relevant to livestock production under organic standards;
- Assess the database and its relevance to organic livestock production;
- Develop a series of compendia of advisory resource materials on CD-ROM and in printed format, in consultation with relevant sector bodies, the veterinary profession and organic livestock producers.

The aim of the compendia is to serve as a resource material for advisors, inspectors and veterinarians who work with organic or converting farmers in the UK. It is also envisaged that the compendia could be used as a training tool for advisors and veterinarians learning about the issues related to general and specific animal health and welfare aspects of organic livestock production. In addition, the material will provide a useful resource material for the sector bodies and policymakers in the development of organic livestock production standards and regulations.

**Methodology**

1. The following sequence of events were followed in the production of the compendium:
2. Identification of the major animal health and welfare issues to be covered for each of the four species
3. A search of appropriate scientific, advisory and information material, obtained largely from:
  - the CABI OVID database,
  - research reports from institutes involved in organic research (including those identified in MAFF research project)
  - reports obtained from specialist groups and institutes, including MAFF publications, sector bodies and research establishments
  - a search of material available on the Internet
  - personal communication with key informants

4. Synthesis of information and assessment of appropriateness of the gathered material to organic livestock systems
5. Design of the compendium and production of a first draft of the compendium
6. Presentation of the first draft to the project steering committee
7. Preparation of the final draft of the compendium and CD production
8. A review of the compendium by members of veterinary associations, organic advisors and producers
9. Final production of the compendium

## RESULTS

This section will describe the structure, content and presentation of the compendium. A copy of the compendium in CD format is presented with this report. A typical chapter is presented in Appendix 1.

### The Structure

The compendium is divided into four sub-compendia covering Sheep, Cattle, Pigs and Poultry. Each sub-compendium is further divided into two main sub-sections (Health and Welfare and Diseases), a home page and a disease list and index. Each disease is further divided into sections describing the condition, treatment of the condition, prevention and control and an outline for good practice. Where appropriate, some diseases contain information pertaining to the conversion period.

The following outline is copied from the introductory pages of each species compendium, detailing the structure of the compendium.

**Home:** A short introduction to the compendium.

### Health & Welfare:

A summary of current knowledge of livestock health and welfare during the different production stages.

### Disease List:

Detailed discussions of livestock diseases. For each condition, the following aspects are covered:

- Condition** - The disease and its nature, causes and symptoms.
- Control** - A literature review of current understanding on prevention and control of the disease.
- Treatment** - A description of the conventional treatment and its suitability to organic production.
- Welfare** - A short statement on the welfare significance of the condition.
- Good Practice**- Practical suggestions for an approach that is acceptable under organic husbandry.
- Conversion** - A summary of recommendations for the conversion period.
- References** - Sources of further information and abstracts of academic articles.

**Search:** This facility allows a search of the compendium for a particular word or phrase

**Help:** This facility offers a guide to understanding how the compendium works.

### The Content

#### List of Diseases

There are a total of 45 cattle, 44 sheep, 32 poultry and 27 pig diseases covered in the compendium. These are linked to more than 1700 scientific references and 50 links to scanned literature, including reports and advisory material.

A full list of diseases covered in the Compendium is presented in the table below.

Cattle diseases	Pig diseases	Poultry diseases	Sheep diseases
Abomasal Displacement	Clostridial Diseases	Acute Death Syndrome	Ruminal Acidosis
Abortion	Coccidiosis	Aflatoxicosis	Blowfly Strike
Bloat	Cystitis	Ascarid Roundworm	Border Disease
Bovine TB	Dysentery	Ascites	Calcium Deficiency
BVD	E. coli	Aspergillosis	Campylobacteriosis
BSE	Erysipelas	Bumble Foot	CCN
CCN	Influenza	Calcium Deficiency	Clostridial Diseases
Clostridial Diseases	Heatstroke	Candidiasis	Cobalt Deficiency
Cobalt Deficiency	Seasonal Infertility	Capillaria	Coccidiosis
Coccidiosis	Internal Parasites	Coccidiosis	Coenurosis
Cryptosporiosis	Lameness	Crop Impaction	Keratoconjunctivitis
Copper Deficiency	Leptospirosis	E. coli	Copper Deficiency
E. coli	Mastitis	Egg Drop Syndrome	Copper Poisoning
Enzootic Pneumonia	MMA	Favus	Cryptosporidiosis
Liver Fluke	Parvovirus	Fowl Cholera	Enzootic Abortion
Worms	Pneumonia	Feather Pecking	Tick-Borne Fever
IBR	Predation	Gapes	Liver Fluke
Infertility	PRRS	Gumboro Disease	Headfly
Johne's Disease	PSS	Helminthiasis	Jaagsiekte
Ketosis	Rhinitis	Heterakis	Johne's Disease
Lameness	Salmonellosis	Histomoniasis	Joint-ill
Leptospirosis	Scours	Infectious Bronchitis	Lameness
Lice	Skin Conditions	Marek's Disease	Lice
Listeriosis	Streptococcal Infections	Mites	Listeriosis
Lumpy Jaw	TGE	Mycotoxigenesis	Louping-ill
Lungworm	Vices	Mycoplasmosis	Lymphadenitis
Mange	Wounds	Newcastle Disease	Maedi-Visna
Mastitis		Nutritional Deficiencies	Magnesium Deficiency
Magnesium Deficiency		Ochratoxicosis	Mastitis
Milk Fever		Pullorum Disease	Orf
Neospora caninum		Salmonellosis	Pasteurellosis
New Forest Eye		Tapeworms	Photosensitization
Pasteurellosis			Vaginal Prolapse
Ringworm			Tick Pyaemia
Rotavirus			Salmonellosis
Salmonellosis			Sheep Scab
Scours			Scrapie
Selenium Deficiency			Selenium Deficiency
Wooden Tongue			Ticks
			Pregnancy Toxaemia
			Toxoplasmosis
			Watery Mouth
			Worms
			Lamb Hypothermia

**Communication of Results**

The results of the project have been communicated by:

- Publication of the compendium in CD-format (enclosed with the final report);
- Publication of the compendium as a web-site (<http://www.organic-vet.reading.ac.uk/>);
- Presentation to various farmer and veterinary meetings, including Continuing Professional Development (CPD) courses;
- Publication and oral presentation of at an international scientific conference. The paper is included as Annex 2 of this report; and
- Presentation of the compendium CD at the Annual Organic Conference, Cirencester (January 2001).

**Development of the compendium**

The compendium has been produced in CD format and as an internet web-site (<http://www.organic-vet.reading.ac.uk/>). Although the compendium can be considered a comprehensive review, it is proposed that a system of maintenance and updating, via the web-site, will be required in order to:

- Include new scientific data emerging from current and future research;
- Adapt the compendium as legislative changes affecting organic agriculture occurs.

A proposal for the maintenance, updating and development is included as an Annex 3 of this report.

**Steering Committee**

A steering committee comprising of Mark Measures (OAS, Elm Farm Research Centre), Peter Plate (private veterinary practitioner) and Roger Unwin (FRCA/MAFF) reviewed, and advised, on the progress of all stages of the project.

## Annex 1 Lameness in sheep: an example of the contents of a typical compendium disease page

### The Condition

Lameness in sheep flocks is one of the most common and persistent disease problems in the United Kingdom. It is not only a major welfare concern but will also have major economic consequences in flocks persistently affected by lameness. Persistent lameness in flocks may lead to reduced weight gain, metabolic diseases in pregnant ewes, reduced birthweight of lambs, mismothering and poor colostrum production by ewes ([Harwood et al., 1997](#); [Henderson, 1990](#)).

### Foot Rot and Scald

Foot rot is caused by a synergistic infection of two anaerobic bacteria, *Dichelobacter nodosus* (*Bacteroides nodosus*) and *Fusobacterium necrophorum* (*Fusififormis necrophorus*). *Fusobacterium necrophorum* on its own causes a condition called scald, which affects the skin between the claws only. The skin is moist and painful, but scald is not invasive and causes no separation of the horn from deeper tissues. The damage to the skin, however, allows *Dichelobacter nodosus* to enter and colonise deeper layers. Once *D. nodosus* is established, *F. necrophorum* invades deeper tissues, where it may be responsible for a large proportion of the inflammation and tissue damage observed, caused by the action of its exotoxin. The damage can be observed externally by the under-running of the external layers of the hoof. This separation starts in the heel area and, depending on the strain of bacterium involved, may spread across the sole and eventually up the wall of the hoof ([Hofstad, 1992](#); [Winter, 1998](#)).

Foot rot spreads more readily in warm, moist weather outdoors ([Cross, 1978](#); [Cross and Parker, 1981](#)) and when sheep are housed ([Henderson, 1990](#)). Stocking density, soil pH and breed of sheep may also play a role in the infective process ([Winter, 1998](#)).

### New Virulent Foot Rot

Recently, a new type of very aggressive foot rot has been observed in a number of flocks, causing severe inflammation of the foot. It usually affects both claws, the cleft and often the skin above the hoof. The horn may completely detach, but unlike 'normal' foot rot, the coronary band where new horn is produced may be permanently damaged, resulting in the cull of the animal ([Harwood and Cattell, 1997](#); [Harwood et al., 1997](#); [Winter, 1997](#)).

### White Line Separation

The white line is the site at which the horn of the wall of the hoof joins that of the sole. It is a naturally weak area in the horn and there are two problems that can occur here, both eventually leading to lameness. The first problem occurs when a toe abscess develops along the white line. Pus forms and the animal becomes acutely lame. Some animals suffer repeated attacks, probably due to a permanent defect in the horn.

The second problem is a more extensive degeneration of the white line. This is called shelly hoof, and is characterised by pockets, impacted with dirt and other debris, where the hoof wall has become separated. Mild cases, not necessarily leading to lameness, are very common. More severe cases get abscesses and become lame ([Scott and Henderson, 1990](#); [Winter, 1998](#)).

### Foot Abscess

Foot abscesses can form in the deeper parts of the hoof and often affect the pedal joint. The affected claw becomes swollen and very painful. Pus may burst out through the coronary band or between the claws. The deeper structures of the foot are often permanently damaged and the claw becomes chronically swollen and misshapen. The animal may become permanently lame ([Winter, 1998](#)).

### Granuloma

A granuloma is a strawberry-shaped piece of proud flesh, which grows at the site of damage to the foot. The overlying horn is unable to grow back normally. It is often caused by over-paring which has led to bleeding, although other causes of injury to the foot may play a role. It usually causes an overgrown misshapen hoof, because the animal does not put its full weight on the foot due to chronic lameness ([Scott and Henderson, 1991](#); [Winter, 1998](#)).

See also [MAFF, 1992](#).

### Methods of Control and Prevention

#### Foot Rot and Scald

Scald cannot be eradicated from the flock, as *Fusobacterium necrophorum* occurs naturally in the soil. In contrast, foot rot can be eliminated from a closed flock, as *Dichelobacter nodosus* can survive for only 2-3 weeks on pasture. However, rigorous measures are needed to prevent neighbours' sheep straying onto the land and attention must be paid to any bought-in rams.

Having a closed flock, a practice often applied in organic farming, will make it easier to eradicate foot rot from the flock and keep the flock free from the disease. Also, the reduced stocking rates practised in organic farming decrease the foot rot challenge. Nosodes for the prevention of foot rot are widely used in organic farming ([Elliott and Pinkus, 1993](#)).

The best and most cost-effective conventional method for the control and prevention of scald and foot rot is regular foot bathing with 10% zinc sulphate ([Cross and Parker, 1981](#); [Parajuli and Goddard, 1989](#); [Salman et al., 1988](#)). As scald infection is superficial, the animals do not have to stand in the footbath for very long ([Winter, 1998](#)). Long pasture should be avoided, as this may cause interdigital abrasions predisposing the interdigital skin to infection ([Whittington, 1995](#)).

However, in the case of foot rot the animals need to stand in the foot bath much longer: 15 - 30 minutes in the case of zinc sulphate ([Winter, 1998](#)). As this is often not practical, infected and uninfected sheep should be sorted and treated separately. Treated animals should be turned out on grazing which has been free from sheep for at least three weeks. Stockholm Tar (Battle, Hayward & Bower) and Tar (Wood Tar) may be used alone or with a packing material to fill defects in the wall, sole, or frog, and help to prevent entry of gravel and reinfection ([The Veterinary Formulary, 1998](#)).

Sheep should be free of foot rot when housed, as housing increases the spread of the disease. Any lame sheep need to be treated and isolated from the rest of the group. Regular footbathing throughout the housed period should maintain freedom of foot rot. Adequate straw bedding should be maintained to keep feet dry and clean. Lime spread on the floor, especially around water troughs, will help dry and sterilise the bedding and reduce the risk of spread ([Henderson, 1990](#)).

Persistently infected sheep which do not fully respond to treatment should be culled from the flock, as they are a source of infection to the rest of the flock ([Winter, 1998](#)).

There are two foot rot vaccines currently on the market, Footvax (Schering-Plough) and Vaxall (Fort Dodge). These vaccines are used in conventional farming to reduce the number of infected sheep, since they can be curative as well as preventive. However, the use of foot rot vaccines is not endorsed in organic farming and permission has to be sought. If the vaccines are used in organic farming, a withdrawal period of 14 days should be observed ([UKROFS, 1997](#)). A persistent reaction can occur at the injection site and may produce local pigment changes in the wool. Therefore, vaccination should be avoided within 6 - 8 weeks of shearing or 6 months before sale or showing ([The Veterinary Formulary, 1998](#)). Cost is another drawback.

Work in Australia ([Raadsma et al., 1990](#)) and New Zealand ([Patterson and Patterson, 1989](#); [Skerman et al., 1988](#); [Skerman and Moorhouse, 1987](#)) has shown that selection of animals resistant to foot rot is possible. [Skerman et al. \(1988\)](#) concluded that selection of the top 5% of progeny tested sires for breeding would reduce the prevalence of foot scald and foot rot by approximately 45% per generation. Differences between breeds have also been reported ([Emery et al., 1984](#)). To our knowledge, no work has been carried out on the selection of sheep resistant to foot rot in the United Kingdom.

### White Line Separation

Regular foot paring may prevent shelly hoof becoming infected ([Scott and Henderson, 1991](#)).

### Granuloma

Most granulomas can be prevented by not over-paring the animals feet, causing bleeding ([Winter, 1998](#)).

See also [MAFF, 1992](#).

### Methods of Treatment

#### Foot Rot and Scald

The homoeopathic treatment of foot rot and scald is widely used in organic farming ([Elliott and Pinkus, 1993](#)). The causal organism of scald is found in the environment and cannot be eliminated. If small numbers of sheep are affected in a group these can be treated with coloured oxytetracycline spray, provided the treated animals are not immediately returned to wet grass ([Harding et al., 1981](#)). For larger numbers, the only practical answer is foot bathing. Zinc sulphate is the most commonly used product.

Severe cases of foot rot should be treated individually with injectable antibiotics and coloured oxytetracycline sprays. Long-acting oxytetracycline is very effective in treating the disease and requires less handling than short-acting oxytetracycline ([Grogono-Thomas et al., 1994](#)). A meat withdrawal period of twice that stated in the product datasheet [UKROFS \(1997\)](#) should be observed. The other animals in the group should be footbathed with zinc sulphate ([Salman et al., 1988](#); [The Veterinary Formulary, 1998](#); [Winter, 1998](#)).

#### Virulent Foot Rot

The most successful treatment for virulent foot rot is a 10% zinc sulphate heptahydrate foot bath given twice for five minutes, 7 days apart, or a single injection of a long-acting oxytetracycline ([Winter, 1997](#)). Again, a meat withdrawal period of twice that stated in the product datasheet [UKROFS \(1997\)](#) Organic Standards should be observed.

#### White Line Separation

Sheep with toe abscesses should be carefully pared along the white line, and this will usually reveal a dark mark. Sometimes pus will be released during paring. The horn should not be pared so deeply that bleeding is caused. Difficult cases may need poulticing for a couple of days to soften the horn and speed recovery. In the case of antibiotic use, a meat withdrawal period of twice that stated in the product datasheet [UKROFS \(1997\)](#) Organic Standards should be observed. Further paring may have to be carried out to remove underrun horn as the hoof heals, though carefully and not excessively. If not treated, the pus eventually bursts out at the coronary band and the animal gradually recovers.

Regular foot paring should prevent the build-up of dirt and debris in shelly hoofs. If the build-up of pus does occur, the treatment is the same as for toe abscesses. As with toe abscesses, pus will burst out at the coronary band if left untreated ([Scott and Henderson, 1991](#); [Winter, 1998](#)).

#### Foot Abscess

Foot abscesses, which affect the pedal joint, are much more serious and need veterinary attention. In conventional farming, the most usual treatment is the amputation of the affected claw ([Winter, 1998](#)). However, it may be better to cull the affected animal, as amputation is not an ideal option under Organic Standards. The decision whether or not to amputate will partly depend on the foot involved. If the front feet are involved, the animal stands a better chance of a reasonably normal life.

### Granuloma

Granulomas also need veterinary attention, as it is necessary to anaesthetise the foot before trimming to expose the granuloma. The granuloma is then removed and the base cauterised. If done correctly, this will restore the foot to near normal ([Scott and Henderson, 1991](#)). Repeat cases should be culled.

See also [MAFF, 1992](#).

### The Condition and Welfare

Most cases of lameness in sheep are easily prevented and **should be prevented** through good husbandry methods of control and prevention. Lameness in sheep is a major welfare problem in the United Kingdom. Lameness affects two of the [Five Freedoms](#) promoted by the Farm Animal Welfare Council as it not only causes pain to the animal, but can also cause a depression in feed intake.



This depression of feed intake leads to a general loss of condition and predisposes the animal to other conditions, such as [pregnancy toxemia](#), low birth weights and poor colostrum production. These lead to lambs suffering hunger, hypothermia and disease ([Harwood et al., 1997](#)). Lameness in breeding rams causes pain, thus reducing work rate during the breeding season ([Henderson, 1990](#)). As lameness in sheep has an obvious association with pain, this association has been used to research measurements of pain. [Ley et al. \(1992\)](#) found increased levels of plasma adrenaline and noradrenaline in lame sheep compared to control animals, which tended to persist even after clinical resolution of the condition. Also, research has indicated that plasma cortisol levels are depressed, prolactin levels elevated, and the mechanical pain threshold is reduced in sheep with painful clinical foot rot ([Ley et al., 1988](#); [Ley et al., 1991](#)).

#### Good Practice based on Current Knowledge

- As foot rot is a major welfare concern, the eradication of foot rot from the flock should be a priority and part of the Flock Health Plan.
- Regular foot bathing with zinc sulphate followed by turn out to clean pasture should eradicate foot rot and keep scald under control.
- Long pastures should be avoided as the interdigital abrasions caused by these pastures make the sheep prone to interdigital infection.
- Any bought-in sheep should be foot bathed and quarantined for at least 3 weeks before entering the main flock.
- Feet should be pared regularly to prevent shelly and overgrown hoofs but overparing should be avoided as this may cause granulomas.
- In the case of virulent foot rot, foot abscesses or granulomas the named veterinary surgeon should be contacted immediately.

#### Guidelines on the Condition during the Conversion Period

- The eradication of foot rot from the flock should be part of a Flock Health Plan, as foot rot is a major welfare threat.
- In small flocks with a foot rot problem, individual cases should be treated with long-acting oxytetracycline in consultation with the named veterinary surgeon. The sheep should be foot bathed in a 10% zinc sulphate heptahydrate solution for 15-30 minutes, followed by turnout to clean pasture. The foot bathing should be repeated every two to three weeks.
- In large flocks with a foot rot problem, the sheep should be sorted upon inspection and foot paring into infected and uninfected groups. The uninfected group can be given a short footbath and turned out to clean pasture. Severe cases in the infected group may need an injection with long-acting oxytetracycline (in consultation with the named veterinary surgeon). The infected group should be foot bathed in a 10% zinc sulphate heptahydrate solution for 15-30 minutes followed by turnout to clean pasture. The infected group should be kept separate from the uninfected group so that treatment can be repeated every 2-3 weeks until the animals are cured.
- Flocks with a severe foot rot problem may benefit from vaccination to reduce the number of infected sheep. Vaccination is both curative and preventive. The drawbacks are cost and the possibility of severe reactions to the oily base. The vaccines are also not very effective and have to be repeated every 6 months.
- Persistently infected sheep which do not fully respond to treatment have to be culled, as they are a source of infection.
- Any sheep bought-in during the conversion period need to have their feet pared, checked and bathed upon entry to the farm. These sheep need to be grazed separately for at least 3 weeks, and foot bathed again before entering the main flock.
- Shepherds of flocks with a history of granuloma cases should be given a training session in foot paring by the named veterinary surgeon during the conversion period.

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**ANNEX 2: A paper presented at the 13<sup>th</sup> International IFAOM Scientific Conference, Basel 2000****Resource and training materials in animal health – a CD-ROM-based compendium of animal health and welfare in organic farming**

*Stephen Roderick and Malla Hovi*

Veterinary Epidemiology and Economics Research Unit, PO Box 236, Reading RG6 6AT, UK.

*e-mail: [veeru@reading.ac.uk](mailto:veeru@reading.ac.uk)*

Keywords: *animal health, animal welfare, training, advice, extension, CD-Rom*

**Introduction**

A rapid growth in organic conversion in the UK has seen a correspondingly rapid increase in the demand for organic livestock advisors. However, there is a dearth of available information on which sound and appropriate advice on the health and welfare of organically managed livestock can be based. As a response, a project was initiated to develop a compendium of current information, which would provide resource and training material to advisor and promote the concept of preventive veterinary practice in organic farming. A series of four compendia (sheep, cattle, pigs and poultry) have been produced in electronic format to be accessed on CD and via the internet. The compendia are easily accessible and designed for use on-farm or in a training environment. Although treatment strategies are included, the compendium was not intended as a self-help, diagnostic tool, or solely to provide details of alternatives to conventional treatments. The emphasis is upon preventive measures, management and planning for improved health and welfare.

**Materials and Methods**

- A complete literature search of all scientific and “grey” animal health and welfare literature was conducted and material appropriate to preventive veterinary practices in organic livestock systems was identified and abstracted.
- Using this material, a compendium of current and appropriate literature was written for each species system (sheep, cattle, pigs and poultry), sub-divided into two distinct sections:
  - description of the livestock production systems in the UK, and health and welfare risk factors associated with these systems
  - description of the major health problems associated with these systems and the important preventive measures to control these.
- For each disease/health problem sub-sections were written describing: the condition; control and prevention; treatment; good practice; and welfare;
- Where appropriate, information and advice on the conversion period was included for each disease;
- For each disease all aspects were discussed with respect to national, sector body and EU organic standards;
- The text of each compendium was fully referenced, with links to appropriate scientific abstracts;
- Suitable advisory material were scanned so as to be accessed as read-only material;
- Each compendium was reviewed by a member of a veterinary society or practising veterinarian, a representative from the organic advisory sector and members of a project steering committee;

**Workshop Presentation and Discussion**

The compendium will be presented as a workshop in order to demonstrate the compendia to participants and to provide preliminary information on the uptake of this format of advisory training and support in the UK. It is envisaged that the workshop will provide opportunity for the participants to gain hands-on experience with the compendia and to be able to offer feed-back on the materials.

It is intended that the following issues will be presented and discussed at the workshop:

- Appropriateness of the material to organic advisors: feed-back from advisors and researchers and proposed improvements;
- A methodology for financing, maintaining and updating the compendium;
- Proposals for improving the technical content and presentation of the compendia.

**Summary**

An easily accessible compendium of material for organic livestock advisors has been written that will provide a useful on-farm tool, and will assist in maintaining high standards of health and welfare on organic farms. It is envisaged that the compendium will also be of use to veterinarians and students. The IFOAM2000 workshop will be used as a forum to promote the concept and to elicit a response that will enable future improvements to this resource.

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**ANNEX 3**

**Proposal for an Internet Based Advisory Service on Animal Health and Welfare in Organic  
Livestock Production**

*Malla Hovi DVM MSc MRCVS*  
*Nick Short BVSc MSc MRCVS*  
*Stephen Roderick BSc (Hons) MSc PhD*

*March 2001*

## Introduction

Organic husbandry standards are based on maintaining health and welfare of animals by means of breeding, feeding and husbandry strategies that will lead to a situation where disease levels and routine veterinary medicinal inputs are gradually reduced. Retailers and consumers of organic products also have exacting requirements for public health and food quality. Organic livestock producers have a need for detailed advice and support to allow them to put the organic standards into practice.

Currently there is very little published information addressing the specific animal health, welfare and husbandry problems affecting organic livestock producers. However, existing knowledge, particularly in the fields of husbandry, feeding and preventive veterinary medicine is likely to offer substantial support to organic farmers in the control of disease and improvement of welfare in their stock. In recent years, a number of research projects on animal health and welfare related topics in organic farming have also been initiated both in the UK and elsewhere in Europe. In order to pool this information and make it easily accessible for organic farmers and advisers, the Organic Livestock Research Group (OLRG) at the University of Reading, has created an electronic compendium on animal health and welfare. The compendium comprises four sections on sheep, cattle, pigs and poultry. It includes over 1000 scientific abstracts from the CAB International database and references as well as other support material including leaflets, web site links and contact lists.

The development of the compendium was funded by the Ministry of Agriculture, Fisheries and Food (MAFF) and includes inputs from specialist veterinary associations as well as the Organic Advisory Service at the Elm Farm Research Centre (OAS). It has been designed as a reference and training resource for organic advisors and inspectors, practising vets and veterinary students and farmers.

The compendium has been designed to allow easy access off the web or from a CD-ROM. The intention is to make it available to a wide audience at minimal cost. However, it is also important to ensure that the resource continues to be developed and updated. It is therefore proposed to establish an organic livestock production web site, which will be based around a "stakeholder club" of the principal users and beneficiaries of the site. The club will be responsible for directing the development of the resource, providing expert advice and securing funding for the maintenance of the service.

## Proposal for the Service

### Initial services

It is proposed that the new site will be developed jointly by the OLRG and the OAS and initially will provide the following resources and services:

#### 1. Complete animal health and welfare compendium

Using the references, abstracts and resource material compiled by the OLRG. This resource will be indexed and searchable enabling it to be used as a reference resource by vets, advisers and farmers. This material will be finalised by the end of July 2000.

#### 2. Ask the Expert Consultation Service

Feedback forms which will enable users to pose specific technical questions. The questions and answers will be archived in a Frequently Asked Question section for future reference.

### **3. Electronic forum to enable users to share experience**

An electronic threaded discussion forum will be provided for farmers and advisers to share knowledge and best practice.

#### **Further development of the service**

It is proposed that the system would evolve, subject to funding, to include the development of new resources a broader range of services, including:

##### **1. Monthly electronic newsletter**

Key topics will be abstracted and incorporated into a monthly newsletter, which will be sent out by E-mail. This will provide a summary of new information on the site for busy farmers and advisers.

##### **2. Distance learning support for herdsmen, farmers and vets**

Interactive learning materials including audio and video will enable farmers, even in remote areas, to study in their own time.

##### **3. Monthly case study notes from advisory service**

A monthly case study produced from the advisory services field experiences, describing a "problem" farm and potential solutions.

In the longer term, there is also potential scope for the development of a compendium of a broader range of organic livestock production topics, including feeding and breeding.

#### **Proposal for a Stakeholder Club**

The proposed site will be of significant value to a wide range of users, including farmers, advisers, vets, commercial organisations and market outlets. It is proposed to establish a "stakeholder club" which will help to involve these users in the planning, development, support and funding of the site. This ownership will be fundamental to the success of the project and help to ensure that the site is recognised as the principal portal on the web for organic livestock producers.

As a first step, representatives of the key stakeholders will be invited to comment on this proposal. They will then be invited to a meeting in Reading, where details of the services to be offered, funding model and publicity requirements will be agreed. Subsequently there will be regular electronic consultation with the stakeholders and meetings of a steering group made up from representatives selected by the stakeholders.

At present, the following groups have been identified as significant stakeholders:

- Organic Advisory services outside OAS;
- Standards and accreditation organisations, including the Soil Association, the Organic Farmers and Growers and the Scottish Organic Producer Association;
- Commercial organic sector organisations, including OMPCO, Calon Wen and OLMCO;
- Specialist veterinary organisations, including the Pig Veterinary Society, the Sheep Veterinary Society and the British Cattle Veterinary Association;
- Research organisations involved in organic livestock research, including University of Aberystwyth, University of Aberdeen, ADAS, OLRG, SAC and Elm Farm Research Centre;
- MAFF; and
- CAB International.

### Funding

A number of potential sources of funding have been identified for the project. Initially funding will be sought to establish and maintain the site for a one-year period. Subsequently, should the site be popular, it is proposed to levy a small annual subscription on users to cover running costs.

It is estimated that the budget for the first year of development and operation will be about £12,000.

The following have been identified as possible sources of this initial funding:

- MAFF – for upkeep/updating of technical content of the original compendia;
- Funding industry bodies (OMSCO, OLMCO, SA, OF&G, SOPA etc.) in form of paid assistance to their producer services;
- Retailers: sponsorship; and
- Funding from training and Continued Professional Development programmes.

Proceeds from the sale of the first edition of the Compendium CD-ROM will be used to maintain the site until further funding is found and to initiate the Stakeholder Club (see Budget Proposal).

### Timetable

The following table provides an indication of key milestones anticipated for the development of the site. The response to the stakeholder consultation and the first stakeholder meeting will determine the developments thereafter.

Milestone	Target Date
Compendium CD-ROM and web-site completed	November 2000 ( <u>completed</u> )
Business plan completed	December 2000 (completed)
Stakeholders consulted	March 2001
Initial stakeholder meeting	July 2001
Prototype site developed and launched	December 2001
Annual stakeholder meeting	March 2002

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