

## Herd health and welfare

### Key actions

- Know the common cattle diseases in your locality and whether they are likely to affect production.
- Implement a disease management plan using veterinary advice.
- Vaccinate against specific diseases that can infect cattle and people.
- Seek veterinary advice for any unexplained health problem.
- Develop a biosecurity plan to prevent the introduction of infectious diseases.
- Review all factors affecting the welfare of your cattle herd.

### Why is the health and welfare of your herd important?

A well-planned approach to managing cattle health and welfare controls the risk of disease in a cost-effective way and maximises the production potential and profit of your herd.

In 2010–11, animal health costs in beef herds amounted to approximately 4% of total costs in south-western Victoria (Department of Primary Industries, Victoria Farm Monitor project 2011). While the direct cost of managing diseases in beef herds in southern Australia appears relatively small, individual diseases and disorders can have a major financial impact on profitability.

A 2011 MLA report, *Managing production risk on high input farms*, identified that the difference between good and poor worm control in a typical, high rainfall southern beef herd is typically 0.05/kg liveweight, or an \$18/hectare difference in cost of production. The increase in cost of production is the direct result of lower production.

This module outlines the five key procedures required to manage a healthy beef cattle herd.

A sound animal health management plan uses preventative approaches to avoid disease from striking, and early treatment in the event that it does.

If treatment is necessary, it should use as few chemicals as possible. Access to both domestic and export markets is dependent on beef being free from chemical and pesticide residues. Consumers of beef want safe, wholesome meat produced with minimum chemical use. Overuse of some chemicals to treat disease has led to them becoming ineffective, and there are few new alternatives available to producers.

### Use chemicals at correct dosage rates as per recommendations

### How does this module assist you?

This module describes how to prevent health problems, in preference to reacting after disease has already affected the herd. It is based on:

- knowing the conditions that can influence cattle health
- applying the right management strategy or treatment when your cattle are at risk
- preventing the introduction of infectious diseases onto the property.

### Linkages to other modules

This module outlines the procedures required to manage a healthy cattle herd. Without implementing these procedures, producers cannot achieve the productivity gains possible from purchasing additional livestock when a period of excess pasture is predicted (see **Module 2: Pasture growth**), better utilising available pasture (see **Module 3: Pasture utilisation**) and optimising weaner throughput (see **Module 5: Weaner throughput**).

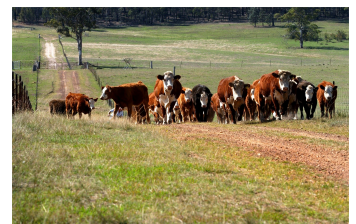
Following the five procedures will also help producers to meet market specifications (see **Module 7: Meeting market specifications**).

### Principles of herd health and welfare

- Know the most important cattle diseases and disorders in your locality or region.
- Disease prevention is more effective and less costly than treatment.

### Procedures for managing the health and welfare of your herd

- Procedure 1 – Disease prevention
- Procedure 2 – Vaccinations
- Procedure 3 – Keep watch
- Procedure 4 – Biosecurity strategies





## Procedure 1

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# Choose the appropriate management practice, corrective treatment or a combination to prevent common diseases or disorders

### Guidelines for choosing the appropriate disease management practice

All the procedures in this module rely on knowing the health problems that are potential risks to your beef enterprise.

#### Know the common cattle diseases in your locality

Consider whether any of the more common diseases, trace element deficiencies or parasites are likely to occur in your beef enterprise by assessing:

- grazing and husbandry practices
- age groups and classes of cattle
- disease status of introduced cattle
- locality of your enterprise.

**Tool 6.7** provides a list of common production and reproduction diseases and conditions for their likely occurrence. These diseases of cattle can lead to significant economic loss when left untreated or treatment is delayed.

Diseases that affect cattle may be caused by:

- infections from bacteria, viruses or fungi
- parasite infestations
- nutritional deficiencies, excesses or imbalances
- metabolic disorders.

Pathogenic or viral infections include:

- calf scours (neonatal calf diarrhoea)
- pinkeye.

Parasite infestations to be aware of include:

- gastrointestinal parasites
- liver fluke.

Nutritional diseases discussed in this procedure include:

- grass tetany (hypomagnesemia)
- milk fever (hypocalcaemia)
- bloat
- mineral deficiencies (copper, cobalt, selenium, phosphorus)
- ketosis (pregnancy toxaemia).

Important reproductive diseases include:

- vibriosis
- trichomoniasis
- leptospirosis.
- mucosal disease (bovine pestivirus, bovine viral diarrhoea virus or BVDV).

Consult with neighbours, producers with similar production systems, local veterinary practitioners and state departments of primary industries and agriculture to assist with a thorough assessment of the disease status of your herd.

### Use local and veterinary advice to develop a disease management plan

**Tool 6.7** includes maps showing where trace element deficiencies (selenium and cobalt) are most likely to occur in southern Australia.

Check that your herd is free of diseases by using **Tool 6.7**, an aid to diagnosing a number of common cattle diseases. Misdiagnosing a disease may result in substantial losses, so consult with a veterinarian to confirm a diagnosis.

Disease prevention is more effective and less costly than treatment. Vaccinate against specific diseases if it is cost-effective or a human health risk.

Once you have identified the risk from any particular animal health issue, decide whether to:

- take immediate action and develop a preventive management program, or
- monitor the herd when disease symptoms are likely to occur in the production cycle, and act only when diseases appear.

To help decide whether prevention of some of the more commonly recurring diseases (eg bloat, grass tetany, clostridial diseases) is cost-effective, use a spreadsheet to complete a simple partial budget, or use MLA's Health Cost Benefit Calculator (see [Tool 6.1](#)).

To decide whether to take action, you need to know how severe a disease needs to become before it has an impact on production. Appropriate management strategies or corrective treatments for specific diseases are outlined in [Tool 6.7](#).

An example of an integrated approach for the control of internal parasites in young cattle is outlined in the box below.

### Using an integrated approach for the control of internal parasites in cattle

In cattle production, internal parasites are an important management issue, particularly in stock up to 12 months of age and especially in more intensive management systems where poor worm control can reduce cattle growth rates by at least 20%.

The approach relies on the **strategic treatment** of young stock at weaning and in winter, when worm pickup off pastures is highest. First- and second-calf cows, and occasionally mature cows, require a summer drench to prevent the emergence of inhibited larvae sitting in the gut lining. The number of drenches required depends on the local environment, pasture contamination and stock nutrition. Additional drenching of young stock is best determined by **monitoring** using tools such as faecal worm egg counts (WECs), clinical assessment of cattle performance, and laboratory tests using pepsinogen to measure gut damage.

In addition to strategic drenching and monitoring, an important strategy to minimise the impact of worms is to use **grazing management**. Young weaned cattle should graze on low worm risk pastures (eg pastures grazed by sheep for the previous 6 months), new pastures or at least pastures where older cattle have grazed (who do not contaminate the pastures as much as young stock).

**Good nutrition** is critical to minimise the impact of worms in cattle (see [Module 3: Pasture utilisation](#)).

The risk of **drench resistance** is emerging in beef cattle herds, and producers should check if drenches are working effectively on their properties by conducting a faecal worm egg count reduction trial. Producers should also use effective drenches when buying-in new stock to ensure drench resistance is not introduced.

Further information is provided in [Tool 6.7](#).

Timing of strategic drenching to prevent gastrointestinal parasites will vary slightly between regions and local conditions. MLA published *The Cattle Parasite Atlas: A regional guide to cattle parasite control in Australia* (2005), which presents an integrated approach to internal and external parasite control in various regions. It also contains basic information on the more important internal and external cattle parasites.

### What to measure and when

Individual diseases have different requirements for what to measure and when. [Tool 6.7](#) provides information on the following measurement aids:

- indicators of the conditions likely to cause common diseases of cattle
- diagnostic tools to detect the presence of common diseases
- an understanding of the likely impact of a disease and how severe it needs to become to affect production.

Potential economic loss relative to cost of management and preventive treatment can be calculated using MLA's Health Cost Benefit Calculator ([Tool 6.1](#)).

Use market information on commodity prices to calculate cost–benefit budgets.

### Further information

- Information on common diseases and disorders for specific regions is available on all state departments of primary industries and agriculture websites (see [Tool 6.6](#)).
- MLA website:
  - information on common disease and disorders
  - *The Cattle Parasite Atlas*
  - *Treating calf scours Tips & Tools* factsheet.

## Procedure 2

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# Determine the risk and vaccinate to prevent specific diseases

### Guidelines for implementing a vaccination program

Vaccination is effective in preventing some common cattle diseases. Base the decision to vaccinate on whether the potential loss is more than the cost of a vaccination program, or if the disease poses a human health risk.

Identify the diseases that can infect cattle (and people) and can be vaccinated against in your beef enterprise. These include:

- clostridial diseases
- vibriosis
- trichomoniasis
- leptospirosis
- mucosal disease
- pinkeye.

Seek local advice from your veterinarian or state department of primary industry or agriculture. A table to help determine the presence of diseases treatable by vaccination is presented in **Tool 6.7**.

### Vaccinate against specific diseases if it is cost-effective or a human health risk

If your enterprise is at risk of disease, determine whether a vaccination program will be cost-effective. Use MLA's Health Cost Benefit Calculator (**Tool 6.1**) to calculate the cost-effectiveness of treatments for bloat, grass tetany and clostridial diseases etc. **Tool 6.2** lists vaccines available for common cattle diseases and strategies for different classes of cattle. If you do have to vaccinate, treatment timing is important.

Zoonotic diseases (affect both cattle and humans) are listed in **Tool 6.3**. They include:

- leptospirosis
- Q-fever
- campylobacteriosis
- milkers nodule
- brucellosis
- tuberculosis
- cryptosporidiosis
- yersiniosis
- salmonella
- listeriosis
- ringworm
- anthrax.

### Assess the risk of cattle diseases infecting people

It is critical that a thorough risk assessment is conducted on the likelihood of you, or anyone that may come into contact with your animals, contracting one of these zoonotic diseases. If there is any risk at all, a vaccination program should be implemented or a management system put in place that is guaranteed to prevent transmission of the disease.

### What to measure and when

If you have not already done so, assess the current disease risk status of your beef enterprise, then reassess whenever conditions that affect the disease occur, or the enterprise changes to include new or different classes of stock.

Monitor the following factors regularly:

- conditions likely to lead to the development of common cattle diseases (see **Tool 6.7**)
- presence of signs of disease that can be prevented by vaccination (see **Tool 6.2**)
- potential loss compared to the cost of a vaccination program (see **Tool 6.1**)
- recent cattle prices, to determine the cost-effectiveness of vaccination.

**Note:** The timing of the vaccination for different classes of cattle is important (see **Tool 6.2**).

## **Regularly assess the disease status of your herd**

### **Further information**

- Information on common diseases that can be prevented by vaccination is available on all state departments of primary industries and agriculture websites (see [Tool 6.6](#)).
- Information on **common disease and disorders** is available on the MLA website.

## Procedure 3

# Watch for sporadic diseases and disorders

### Guidelines for managing sporadic diseases

Develop a routine to record details of diseased cattle or deaths whenever they occur. You also need to decide how and where to keep a record of:

- when an animal is suspected of having a disease
- when an animal has died
- when an animal unexpectedly fails to meet a production target.

### Keep records of diseased cattle and map areas where deaths occur

Record keeping is particularly important for large herd operations where more than one stock person looks after the cattle. Records need to include individual animal identification, its mob or herd, its immediate grazing history and all previous animal health treatments.

Animal identification tags and computer software programs for record-keeping are commercially available.

Electronic tags make animals traceable when they leave the property. They also enable the efficient use of automated record-keeping systems to store information electronically. This includes animal health records and production records, such as liveweights, calves weaned and other animal productivity data.

### National Livestock Identification System

The National Livestock Identification System (NLIS) is Australia's system for the identification and traceability of livestock. It was introduced in 1999 to meet European Union requirements for cattle exports. It enables cattle to be traced from property of birth to slaughter for:

- biosecurity
- meat safety
- product integrity
- market access.

NLIS is endorsed by major producer, feedlot, agent, saleyard and processor bodies. It is underpinned by state and territory legislation, which forms the regulatory framework for the system.

All cattle are required to be tagged with an NLIS-approved radio frequency identification device (RFID), and all movements or transactions must be recorded on the NLIS database.

Further information is available at [NLIS Cattle](#) on the MLA website, and from your local NLIS authority (see [Tool 6.6](#)).

### Good records are the basis of quality assurance

You can implement any recognised quality assurance program based on keeping good records and established veterinary codes of practice for cattle health and welfare. This may also provide access to new markets or better prices.

### Livestock Production Assurance

Livestock Production Assurance (LPA) is a program that underpins the National Vendor Declaration and Waybill (NVD/Waybill), which upholds Australia's reputation as a world leader in meat and livestock food safety.

LPA is a simple on-farm food safety program that enables producers to back up claims made on the NVD/Waybills. When producers sign an NVD/Waybill, they are showing their compliance with LPA.

LPA focuses on food safety management, which considers five key elements or areas of compliance, each with a food safety outcome aimed at ensuring meat from livestock is fit for human consumption. LPA is a vital component for effectively managing on-farm risk. Most producers will find that they already meet the LPA food safety outcomes, and can provide this through current records.

An example of the NVD/Waybill is provided in [Tool 6.4](#), and further information on the program is available at [Livestock Production](#)

### Collect abattoir feedback whenever possible

Feedback from abattoirs can provide an early warning of the incidence of disease in the herd. Where possible, collect abattoir feedback whenever cattle are slaughtered.

### Seek veterinary advice for unexplained health problems

If an uncommon or unexplained health problem occurs, seek professional advice from your local veterinarian or state department of primary industries and agriculture (see **Tool 6.6**). In these cases, your records provide crucial information.

Also check that there are no toxic plants or contaminated feeds accessible to your herd. A selection of references for the identification of toxic plants and noxious weeds is included in **Tool 6.6**.

**IF YOU SUSPECT AN EXOTIC DISEASE,  
DIAL THE EMERGENCY ANIMAL DISEASE HOTLINE 1800 675 888**

### What to measure and when

Regularly observe your animals grazing at pasture and weigh them occasionally to record:

- pasture and animal condition score at least monthly
- liveweight gain of growing steers and heifers for comparison against that expected from the feed on offer (FOO)
- cow breeding (reproductive) performance, including pregnancy rate dystocia rate and calving percentage.

More information of specific reproductive management issues can be found in **Module 5: Weaner throughput**.

**Note:** You do not have to weigh every animal every time. Depending on mob size, a sample of about 10–20% is sufficient to estimate and monitor a mob's liveweight gain or loss.

Also record:

- any dead or diseased animals
- amount and quality of supplementary feed provided (and relate to livestock performance)
- identification or management of noxious weeds and toxic plants (see **Tool 6.6**)
- abattoir feedback whenever cattle are sold (and information is available).

### Further information

- Common diseases, deficiencies and toxicities is available on all state departments of primary industries and agriculture websites (see **Tool 6.6**).
- Common disease and disorders available on the MLA website
- Livestock Production Assurance (LPA) program and National Livestock Identification Scheme (NLIS) on the MLA website
- Condition scoring of beef cattle available on the Department of Primary Industries, Victoria website.



## Procedure 4

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# Adopt biosecurity strategies to prevent the introduction of infectious diseases

### Guidelines for preventing the introduction of infectious diseases

The establishment of biosecurity procedures for introduced stock is an important practice to prevent the transfer of infectious diseases onto the farm.

The procedures that keep infectious diseases, pests and weeds off a property are often documented in a farm biosecurity plan.

There are two parts to a farm biosecurity plan:

- Measures to reduce the risk of introducing an infectious disease, pest or weed onto the property.
- Measures to reduce the risk of spreading an infectious disease, pest or weed within a property

The principles of quarantine and risk assessment need to be applied in the day-to-day operation of a farm.

### Reduce the risk of introducing an infectious disease

#### Quarantine introduced stock to prevent transfer of infectious diseases

Assess the risk of introducing an infectious disease before bringing new animals on to the property. Use **Tool 6.7** to assess the likely risk of introducing diseases, such as bovine Johne's disease (BJD) and mucosal disease (bovine pestivirus, bovine viral diarrhoea virus or BVDV), into a herd.

Local veterinarians or state departments of primary industries and agriculture can provide advice on preventing the introduction of infectious diseases. It is worth the cost of a phone call to avoid introducing a serious disease into your herd. **Tool 6.7** provides information to assist with assessing the disease status of cattle before being introduced into your disease-free herd.

#### Check the disease risk of all introduced cattle

In principle:

- only purchase stock known to be free of infectious diseases
- where appropriate, quarantine all introduced animals until you are sure they are disease-free.

#### Closed herds are easier to manage against common production and reproduction diseases

As an overall disease prevention strategy, implement a biosecurity plan for the property by:

- ensuring the boundary and internal fences are stock-proof
- quarantining all introduced cattle, with the length of quarantine dependant on the disease
- using effective drenches to prevent the introduction of gastrointestinal parasites and fluke (monitor faecal worm egg count and fluke about 10 days post-drenching to ensure treatment has been effective)
- restricting use of yards and handling facilities to your own stock
- ensuring visiting vehicles remain in the house area.

#### Reduce the risk of spreading an infectious disease

A notifiable disease must be reported immediately to relevant authorities. If you suspect or can confirm that an animal is showing symptoms of a notifiable disease, it must be reported to a local vet or by telephoning the Emergency Animal Disease Watch Hotline on 1800 675 888.

Continually monitor your livestock for signs of disease. **Tool 6.7** provides diagnostics to detect diseases, and is designed to help you diagnose disease status. It provides strategies that can help lessen the impact if a disease is found on your property.

Local veterinarians or state departments of primary industries and agriculture can provide advice on preventing the spread of diseases.

### What to measure and when

Use **Tool 6.7** to:

- assess the risk of introducing infectious diseases into your herd, including BJD and mucosal disease
- know the symptoms of common diseases and carefully check all cattle introduced onto the property, if there is a risk
- take immediate action to prevent the disease spreading if your herd contracts an infectious disease
- report a suspected a notifiable disease to your local vet or telephone the Emergency Animal Disease Watch Hotline on 1800 675 888.

## Further information

- Information on diseases, deficiencies and toxicities and strategies to prevent the disease or plant from being introduced onto your property is available on all state departments of primary industries and agriculture websites (see Tool 6.6).
- Biosecurity information available on the MLA website.
- Information on diseases, including BJD, on the [Animal Health Australia website](#).
- Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) maintains a [national list](#) and [state and territory lists](#) of notifiable animal diseases.

## Procedure 5

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# Manage the welfare of all cattle

### Guidelines for managing the welfare of your cattle herd

Animal welfare management is a critical component of whole farm management. You should review all factors that affect cattle welfare and well-being. **Tool 6.5** provides a checklist of important factors potentially affecting cattle welfare on-farm.

#### Check all health, nutrition, climatic and management factors that can affect cattle welfare

- Monitor cattle condition scores to achieve production targets while ensuring physical welfare.
- Apply management practices and techniques to prevent diseases.
- Use appropriate and efficient stock handling methods and well-designed facilities that exploit natural livestock behaviour.
- Audit all factors that could affect cattle welfare.

Producers have a duty of care to their livestock.

#### Meet nutrition targets for all cattle classes

Ensure stock maintain recommended condition score targets or weights for their class. Generally, cattle should be maintained at condition score 2.5 or above to achieve satisfactory reproductive performance and welfare requirements (see **Module 5: Weaner throughput**).

#### Keep animals free from important diseases

Basic animal welfare standards include freedom from disease. All diseases need prompt diagnosis and treatment. As a guide, aim to keep mortality rates for all classes of cattle below 2%.

Major diseases, including gastrointestinal parasites, bloat or grass tetany, can be well controlled with an integrated approach to management (see **Procedure 2** and the tools in this module for further information).

#### Follow national and state codes of practice

Under the **Australian Animal Welfare Strategy (AAWS)**, Animal Health Australia (AHA) was commissioned to facilitate the development of nationally consistent standards and guidelines for livestock, the **Australian National Animal Welfare Standards and Guidelines**.

Some states have different requirements in relation to keeping livestock. Contact your state department of primary industry and agriculture for further information.

It is important that you are aware of the various codes of practice, guidelines and requirements set down nationally and state-by-state, and that you adhere to them.

Follow all relevant codes of practice to ensure all important animal welfare standards are being met.

#### Follow guidelines for the transport of cattle

When transporting livestock, it is essential that they are managed in a way that reduces stress and minimises any risks to animal welfare.

It is also important that producers understand their roles and responsibilities, as well as any standards and guidelines when transporting livestock.

Cattle should always be transported in accordance with the guidelines outlined in the codes of practice for transport and the *Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock*.

Information on **transporting livestock** is available on the MLA website and in *Is It Fit to Load?* (2012) published by MLA.

#### Undertake routine husbandry procedures correctly

While routine husbandry procedures are conducted on all stock, some important aspects need to be considered.

- Plan husbandry procedures to minimise stock handling and maximise disease control. Aim to minimise handling to reduce livestock stress. Where possible, combine procedures so cattle are handled less frequently.
- Ensure the correct technique for invasive husbandry procedures that cause pain (eg castration, dehorning), including adherence to 'correct age' guidelines and hygiene requirements.
- Undertake uncommon procedures, such as tail docking, only where there are welfare benefits for the animal or when prescribed by a

veterinarian. Some procedures are prohibited in some states. These procedures should only be undertaken in accordance with the relevant codes of practice.

- Ensure people handling livestock are skilled and competent. If the necessary skills are not available through on-farm labour, consider using accredited contractors (eg members of the Livestock Contractors Association). It is important that animal handlers can provide a level of technical competence to meet health and welfare standards.

### Manage breeding heifers to minimise dystocia

While some neonatal calf losses are likely, they can be significantly reduced through good management practices. Good heifer management, including management of nutrition to ensure heifers are well grown but not too fat, is very important (see **Module 5: Weaner throughput**). In addition, a tight mating period will assist with calving management. Careful use of genetics in selection of bulls and heifers is critical to minimise dystocia (see **Module 4: Cattle genetics**).

### Develop a disaster management plan

Implement a disaster management plan when cattle come under increased stress from naturally occurring events, such as drought or flood.

This package does not contain detailed drought feeding information; however, extensive and detailed assistance is available from state departments of primary industries and agriculture, and private consultants. Various decision support tools and training, such as StockPlan®, enable producers to explore options during a drought, and to make informative and timely decisions before the onset of drought.

Issues that should be considered in a disaster management plan include:

- What feed and water options do I have for the livestock?
- How much will it cost to feed or water my stock for a specified time?
- Do I feed, sell or agist my stock, or do a combination of all strategies, to manage the impact of the event?
- How will my decision affect my herd and financial position this year? And next year?
- Is it better to buy or breed in the recovery phase?

Closely monitor body condition of the retained herd to ensure they do not fall below condition score 2.0–2.5, as this will adversely affect their welfare and performance. *A national guide to describing and managing cattle in low body condition* provides guidance on management of low body condition cattle.

The main aim should be to ensure cattle producers make management decisions that minimise adverse cattle welfare, environmental, personal and financial impacts of natural events and minimise the recovery time.

### Design an effective livestock handling system

Keep cattle handling to the minimum level necessary for health management and productivity. Design handling facilities (eg yards and laneways) to minimise the risk of injury to cattle, and to take advantage of natural cattle behaviour. Cattle familiar with directions tend to move better and remain calmer if they see other animals within touching distance.

- Design yards to ensure a smooth flow of stock.
- Avoid shadows in yards that can cause cattle to balk.
- Use materials that do not make a noise and are designed to avoid potential injury to cattle.
- Provide non-slip flooring.
- Maintain cattle handling facilities in good working order, and complete repairs well before major husbandry practices are carried out.

### Use low stress stock handling techniques

Stockmanship is a broad term that encompasses the expertise of people involved in handling stock. Cattle handling methods are very important for ease of movement, increased productivity, reduced work health and safety issues, and animal productivity. Understanding cattle behaviour is an important part of good stockmanship and improves a handler's ability to move stock while minimising stress. Poor stockmanship can result in bruising, carcass downgrades and dark cutting meat.

Low stress stock handling techniques increase productivity and improve meat quality. Courses are available through state departments of primary industries and agriculture, as well as private training providers. Search online for 'low stress stock handling'.

### What to measure and when

- Review all aspects of cattle welfare on-farm, including relevant codes of practices, animal husbandry procedures, disaster management plans and on-farm handling facilities on a regular basis (ie quarterly). See **Tool 6.5** for a checklist you can use when reviewing these items.

### Further information

- The *Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock* are available from: <http://www.animalwelfarestandards.net.au/land-transport/>
- Further information on the progress of the development of the *Australian Animal Welfare Standards and Guidelines for Cattle* can be found online at: <http://www.animalwelfarestandards.net.au/cattle/>
- State departments of primary industries and agriculture can provide information on codes of accepted farming practice for the welfare of

cattle, saleyards and transport, as well as information on disaster management. See **Tool 6.6** for a list of websites.

- Information on **transporting livestock** is available on the MLA website and in *Is It Fit to Load?* (2012) published by MLA.

# Health Cost Benefit Calculator

A Health Cost Benefit Calculator is available on the MLA website: [www.mla.com.au](http://www.mla.com.au).

The calculator has been developed to help you work out the benefit of applying an animal health treatment to your herd for bloat, clostridial diseases and grass tetany.

**Health cost benefit calculator**  
Developed to determine the benefit of applying an animal health treatment to your herd

Clostridial
Bloat
Grass tetany

**Clostridial vaccination cost benefit analysis**

Herd structure	Number	Value* (per head)	Unprotected* mortality	Value of deaths saved	Vaccinations* (per head, per year)	Total units of vaccine
Mature cows	0	\$ 0.00	0.0 %	\$0.00	0	0
2-3 year old cows	0	\$ 0.00	0.0 %	\$0.00	0	0
0-1 year old cows	0	\$ 0.00	0.0 %	\$0.00	0	0
Calves	0	\$ 0.00	0.0 %	\$0.00	0	0
1-2 year old steers	0	\$ 0.00	0.0 %	\$0.00	0	0
2+ year old steers	0	\$ 0.00	0.0 %	\$0.00	0	0
Bulls	0	\$ 0.00	0.0 %	\$0.00	0	0
Trade cattle	0	\$ 0.00	0.0 %	\$0.00	0	0

**Marking percentage:** \*  %

**Expenses**

Cost of vaccination *	\$ 0.00
Cost of labour *	\$ 0.00
Vaccine protection rate *	<input style="width: 50px;" type="text" value="0.0"/> %
Total units of vaccine required	0

**Budget**

Less deaths	\$0.00
Other	\$0.00
<b>Total</b>	<b>\$0.00</b>
Vaccine	-\$0.00
Labour	-\$0.00
<b>Total</b>	<b>-\$0.00</b>

**Benefit**

<b>Benefit from treatment</b> <small>(before interest and tax)</small>	<b>\$0.00</b>
<b>Marginal rate of return</b>	<b>0%</b>
<small>(Note marginal rate of return is usually acceptable if above 30%)</small>	

Figure 1: MLA's Health Cost Benefit Calculator

## Cattle disease vaccines and strategies

**Note:** The information contained in these pages is intended as a general guide only. Always obtain professional advice about your specific situation.

Disease	Vaccinations	Vaccination strategy
<p><b>Clostridial vaccine</b></p> <ul style="list-style-type: none"> <li>■ Tetanus</li> <li>■ Black leg</li> <li>■ Black disease</li> <li>■ Malignant oedema</li> <li>■ Pulpy kidney</li> </ul>	<ul style="list-style-type: none"> <li>■ Ultravac 5 in 1™</li> <li>■ Websters 5 in 1 vaccine for cattle and sheep™</li> <li>■ Websters 5 in 1 vaccine with vitamin B12 for cattle and sheep™</li> <li>■ Websters low volume 5 in 1 vaccine for cattle and sheep™</li> <li>■ Tasvax 5 in 1™</li> <li>■ Tasvax 8 in 1™ which include additional strains of <i>C. perfringens</i> and <i>C. haemolyticum</i></li> </ul>	<p>For maximum protection of young calves:</p> <ul style="list-style-type: none"> <li>■ vaccinate cow 2–6 weeks before calving.</li> </ul> <p>For protection of calves from unvaccinated cows:</p> <ul style="list-style-type: none"> <li>■ vaccinate early and a booster 4–8 weeks later.</li> </ul> <p>For protection of calves from vaccinated cows:</p> <ul style="list-style-type: none"> <li>■ vaccinate calves at 6–8 months and booster 4–8 weeks later.</li> </ul> <p>For older stock:</p> <ul style="list-style-type: none"> <li>■ give an annual booster timed before high-risk period, or more frequently in high-risk situations, such as grain feeding in drought.</li> </ul> <p>For new stock:</p> <ul style="list-style-type: none"> <li>■ implement vaccination procedures as for normal stock. If history of vaccination known, implement herd program. If vaccination history not known, give a sensitising dose then booster 4–8 weeks later.</li> </ul> <p>With all clostridial disease, consider the local risk based on previous local district history and if available property history. Intensification is likely to increase risk of clostridial diseases, such as blackleg or pulpy kidney.</p>
<p><b>Clostridial vaccine</b></p> <ul style="list-style-type: none"> <li>■ Botulism</li> </ul>	<ul style="list-style-type: none"> <li>■ Ultravac Botulinum Vaccine</li> <li>■ Singvac 3 Year single shot bivalent botulinum vaccine for cattle</li> <li>■ Longrange botulinum vaccine</li> <li>■ Websters low volume bivalent botulinum vaccine for sheep and cattle</li> <li>■ Singvac 1 Year single shot bivalent botulinum vaccine for cattle</li> <li>■ Botulinum vaccine bivalent</li> <li>■ Websters bivalent botulinum vaccine for sheep and cattle</li> </ul>	<p>For maximum protection, follow these guidelines:</p> <ul style="list-style-type: none"> <li>■ Especially on properties where deaths due to Botulism have occurred in the past, animals ought to be vaccinated.</li> <li>■ The standard routine is for a first vaccination (at any age), followed by a booster after 4 – 6 weeks and then once a year.</li> <li>■ SingVac 3 requires the follow-up booster only once every 3 years.</li> </ul>
<p><b>Vibriosis</b></p>	<p>Vibriovax™</p>	<p>For bulls:</p> <ul style="list-style-type: none"> <li>■ Initially two doses at least 4 weeks apart when bulls first introduced onto property and then an annual booster.</li> </ul> <p>For females:</p> <ul style="list-style-type: none"> <li>■ Not routinely, use only if presence of infection confirmed</li> </ul>

Disease	Vaccinations	Vaccination strategy
		by your veterinarian.
<b>Leptospirosis</b>	<ul style="list-style-type: none"> <li>■ Cattlevax LC 7 in 1™</li> <li>■ Leptoshield™</li> <li>■ Leptovax™</li> <li>■ Ultravac 7 in 1™</li> <li>■ Websters Clepto-7™</li> </ul>	<p>For calves:</p> <ul style="list-style-type: none"> <li>■ give a priming dose administered at a minimum of 4 weeks of age</li> <li>■ give a booster dose 4–6 weeks later.</li> </ul> <p>For older stock:</p> <ul style="list-style-type: none"> <li>■ give an annual booster timed prior to season of greatest risk (eg when conditions are wet), or cows 4–6 weeks before calving.</li> </ul> <p>For new stock:</p> <ul style="list-style-type: none"> <li>■ consider risk of introducing infection. Implement herd vaccination program if new stock have previously been vaccinated. If history not known, give a priming dose then a booster 4–6 weeks later.</li> </ul> <p>Leptospirosis vaccine is usually given with clostridial vaccines.</p>
<b>Mucosal disease (bovine pestivirus or BVDV, bovine viral diarrhoea virus)</b>	Pestigard Vaccine™	<p>For bulls:</p> <ul style="list-style-type: none"> <li>■ give two doses 4–6 weeks apart with annual boosters thereafter. Must be given before breeding.</li> </ul> <p>For females:</p> <ul style="list-style-type: none"> <li>■ give two doses 4–&gt;6 weeks apart with annual boosters thereafter. Must be given before breeding for foetal protection to occur.</li> </ul> <p>Management:</p> <ul style="list-style-type: none"> <li>■ identify persistently infected cattle in conjunction with your veterinarian and remove from herd.</li> </ul> <p>Minimise risk of exposure (avoid exposing breeding herd to outside cattle – see Procedure 4 for guidelines for preventing the introduction of infectious diseases). Also used in some cattle feedlots to minimise respiratory disease.</p>
<b>Pinkeye</b>	Coopers Piliguard™	<p>For calves:</p> <ul style="list-style-type: none"> <li>■ At risk calves should be vaccinated with a single dose of vaccine (Pilliguard™) about four weeks prior to the onset of conditions conducive to the spread and development of disease with the onset of warm dusty conditions where calves are likely to be in close contact.</li> </ul> <p>Management:</p> <ul style="list-style-type: none"> <li>■ avoid close contact of young calves, especially in hot dusty conditions with intensive feeding in the face of an outbreak. Quarantine mobs with active pinkeye from mobs with no pinkeye.</li> <li>■ control fly activity when intensive feeding such as in drought or with yard weaning when spread is more likely.</li> </ul> <p>Treat cattle affected with pinkeye to speed recovery time and reduce animal discomfort.</p>

Other vaccines less commonly used or used in special circumstances include Bovilus S™ for salmonellosis, Bovilus E for *E. coli* K99™ strain for neonatal calf diarrhoea, Bovilus MH™ for *Mannheimia haemolytica* and Bovilus MH+IBR™ mostly used in feedlots, a variety of botulism vaccines mostly used in northern Australia and vaccines for ephemeral fever and anthrax.



**Important considerations when vaccinating cattle:**

- Follow the manufacturer's instructions closely.
- Store and handle vaccines correctly to ensure the effectiveness of the vaccine is not reduced.
- Carefully adhere to safety precautions for workers handling vaccines and associated equipment.
- Dispose of used equipment safely, avoiding environmental contamination.
- To optimise the immunity gained ensure animals are in good health.
- Full protection does not occur until up to four weeks after the initial doses of the vaccine.

## Zoonotic diseases of cattle

This table list outlines diseases that infect cattle and can also infect people.

Disease	How it spreads	Common signs in people
<b>Leptospirosis</b>	Urine contamination with skin or mucosal surface	Headache, chills, fever, muscle pain malaise, inflamed throat/pharynx
<b>Q fever</b>	Inhalation of aerosols and dust	Headache, chills, fever, muscle pain malaise, coughing, vomiting
<b>Campylobacteriosis</b>	Ingestion of contaminated food or water	Severe diarrhoea, pain, fever, headache, nausea
<b>Milkers nodule</b>	Handling teats of cows or mouths of calves	Initially dark papule that heals spontaneously
<b>Brucellosis</b>	From aborted foetus, faeces, raw flesh or bacteria in unpasteurised dairy products penetrates skin conjunctiva respiratory or gut Initially dark papule that heals spontaneously	One case in Victoria in 2001; undulant fever aches, pains
<b>Tuberculosis</b>	Eradicated from Australia	Chronic cough, fever, weight loss
<b>Cryptosporidiosis</b>	Faeco-oral route	Mild watery diarrhoea
<b>Yersiniosis</b>	Faeco-oral route	Acute watery diarrhoea, fever, headache
<b>Salmonella</b>	Faeco-oral route	Acute watery/blood flecks diarrhoea, fever, headache
<b>Listeriosis</b>	Foodborne disease, especially chilled foods	Transient mild flu-like to acute eningoencephalitis with case fatality rate of 30%, foetal infection can lead to abortion
<b>Ringworm</b>	Direct contact with skin or from cattle handling equipment	Dry, reddened skin, hair loss, inflamed skin
<b>Anthrax</b>	Respiratory, ingestion or local through break in skin	Respiratory or gastrointestinal forms has a very high mortality rate as does local skin infection if left untreated

Seek immediate medical advice with all diseases or suspected disease outbreaks.



## On-farm animal welfare compliance

### Open PDF of the checklist of onfarm animal welfare compliance

Procedure	Comment	✓ or ✗
Read and adopt code of practice for welfare of cattle.	Have all guidelines been followed for your farm? Refer to <a href="#">Procedure 5</a> for a list of relevant codes, guidelines and publications.	
Read and adopt code of practice for transport.	Have all guidelines been followed for your farm including not exceeding the time cattle are off water for transport? Refer to <a href="#">Procedure 5</a> for a list of relevant codes, guidelines and publications.	
Read and adopt code of practice for animals at saleyards.	Have all guidelines been followed for your farm including not exceeding the time cattle are without access to water? Refer to <a href="#">Procedure 5</a> for a list of relevant codes, guidelines and publications.	
Read and adopt MLA's Is it fit to load? publication.	Have all guidelines been followed and do you ensure cattle unsatisfactory for transport are not loaded? Refer to <a href="#">Procedure 5</a> for details on the publication.	
Do your cattle meet or exceed condition score targets?	Meeting targets is a core requirement for effective production and welfare of cattle.	
Do you provide adequate quality and quantity of water to your cattle?	Refer to information on water quality available from <a href="#">state departments of primary industries and agriculture</a> for water quality for cattle.	
Are cattle free of diseases (or managed)?	Adopt control programs for worms, fluke and other important diseases. Refer to information on <a href="#">sporadic diseases and disorders</a> and <a href="#">Tool 6.7: Cattle disease guide</a> .	
Are cattle polled?	Ideally, select for polled cattle to eliminate welfare issues and carcass damage to cattle.	
Response to health problems: Do you monitor the production of your cattle, including nutrition, deaths and other signs and have trigger points to investigate disease before they cause significant problems?	Mortality rate <2% for all classes of stock. Refer to information in <a href="#">Procedure 1, 2, and 3</a> .	
Adopt efficient husbandry procedures. Combine management events to minimise handling, follow codes of practice.	Adopt management systems that prevent impact of diseases. Refer to <a href="#">Procedure 5</a> .	
Management of calving cows. Provide adequate nutrition and manage heifers to minimise dystocia rates.	Management of heifers to minimise dystocia and provide adequate nutrition to optimise herd production. Refer to <a href="#">Procedure 5</a> .	

Management of disasters, fire, flood, drought.	Have you developed contingency plans for severe climatic events? Refer to <b>Procedure 5</b> .	
Do your handling systems incorporate features of animal behaviour to minimise stress?	Do you and staff continue to develop expertise in animal handling and management? Refer to <b>Procedure 5</b> .	

## Summary of information sources

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### Disease information sources

#### Credible sources of disease information include:

- State departments of primary industries and agriculture, as well as other government agencies
- Private veterinarians and consultants
- MLA has a range of information on diseases of livestock available under the **Livestock production** section of its website.

#### Further information

Reference material such as:

- *Diseases of Livestock* by TG Hungerford
- *Livestock Diseases in Australia* by T Brightling
- *Stock Diseases* by A Brightling (Inkata Press)
- *Diseases of Cattle in Australasia* by TJ Parkinson, JJ Vermunt and J Malmo

These books are usually available from major bookstores, state departments of primary industries and agriculture, or for purchase online - Google the title of the book.

- MLA has a range of publications on diseases available on its website including:
  - *Tips & Tools: Preventing calf scours in suckler beef enterprises*
  - *Tips & Tools: Treating calf scours*
  - *Producing healthy dairy beef calves*
  - *Rearing dairy beef calves*
  - *Dairy beef calves - what makes a good one*

### Toxic plant and noxious weed identification

Publications available on toxic plants and weeds include:

- *Poisonous Plants of Australia* by S Everist (Angus & Robertson)
- *Poisonous Plants: A handbook for farmers and graziers* by EJ McBarron (Inkata press)
- *Medical and veterinary aspects of plant poisoning in New South Wales* by EJ McBarron (NSW Agriculture)

For further identification and management of toxic plants and noxious weeds consult your local private veterinarian or consultant or relevant state government authority.

- MLA has a range of publications on toxic plants available on its website including:
  - *Managing Paterson's curse to boost pasture production*
  - *A practical guide to biological control of Paterson's curse*
  - *3D weed management: Paterson's Curse Case Study*
  - *3D weed management: Paterson's Curse Best Practice Manual*
  - *The biological control of Paterson's curse - Pollen beetle*
  - *The biological control of Paterson's curse - Flea beetle*
  - *The biological control of Patterson's curse - Crown weevil*
  - *The biological control of Paterson's curse - Root weevil*
  - *Tips & Tools: Perennial ryegrass toxicosis*
  - *Tips & Tools: Making perennial ryegrass-based pastures productive and persistent*
  - *Pimelea poisoning in cattle*
- Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock are available from:
- Information on the progress of the development of the *Australian Animal Welfare Standards and Guidelines for Cattle* can be found online
- The MLA Health Cost Benefit Calculator
- The Department of Agriculture maintains a national list and state and territory lists of notifiable animal diseases.

## Cattle disease guide

Please choose a Cattle Type and select the Clinical sign/s you have observed, then click the Search button below. Alternatively, you can search by manually typing in a keyword and press the Search button next to the entry field, or [click here](#) to browse all diseases.

**Cattle type:**

Adult

Calves

**Keyword:**

Search

**Clinical signs:**

**A**

- Abdominal pain
- Abortion, early term
- Abortion, later term
- Aggression

**B**

- Bloody, port-wine coloured urine
- Bone fractures
- Bottle jaw

**C**

- Cloudy eye
- Contaminated wound
- Convulsions
- Convulsions (when recumbent)

**D**

- Decline in quantity and quality of milk
- Dehydration
- Delirium
- Depression
- Diarrhoea
- Distension in the upper flank if still alive (mob, not just individual)
- Dry muzzle
- Dry, cracked skin

**E**

- Either just about to calve or recently calved
- Elevated temperature
- Emaciation
- Extended breeding season

**F**

**H**

- Hyper-excitability

**I**

- Inability to rise
- Increased tear production / weepy eyes
- Infertility

**L**

- Low calving rates

**P**

- Pale mucous membranes
- Persistent infections
- Pica (eating bones and other rubbish)
- Pink or yellow eye colour
- Poor growth

**R**

- Recumbent
- Red water post calving
- Rough coat

**S**

- Sandy colour Herefords or bronze tinged Angus colour
- Severe lameness
- Soft bones
- Staggering
- Stiff-legged gait
- Sudden death
- Sudden death (mob, not just individual)
- Swelling (local)
- Swelling of leg

**W**

Fever

Weak, stunted and deformed calves

Weight loss

**Clear selection**

Search

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### **Black disease**

Clinical signs of Black Disease include profound depression, abdominal pain, and sudden death.

[Read more...](#)

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### **Black leg**

Clinical signs of black leg include severe lameness, swelling on affected leg, very depressed, fever, dry and cracked skin, often sudden death

[Read more...](#)

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### **Bloat**

Clinical signs of bloat usually affect the whole mob, not just individual, and include sudden death, distension in the left upper flank if still alive or others in mob with mild signs.

[Read more...](#)

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### **Bovine Johne's Disease**

Clinical signs of Bovine Johne's Disease (BJD) include diarrhoea, progressive weight loss despite a good appetite, emaciation, bottle jaw, ill thrift, fall in milk yield, and death.

[Read more...](#)

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### **Calf scours**

Clinical signs of calf scours (neonatal calf diarrhoea) include depressed calves, elevated temperature, scouring with or without blood, dehydration, and may result in death.

[Read more...](#)

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### **Cobalt deficiency**

Clinical signs of cobalt deficiency include malnutrition-like symptoms, emaciation, ill-thrift.

[Read more...](#)

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### **Copper deficiency**

Clinical signs for copper deficiency include a rough coat, sandy colour Herefords or bronze tinged Angus colour, poor growth, and diarrhoea.

[Read more...](#)

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### **Gastrointestinal parasites**

Clinical symptoms of gastrointestinal parasites include pale mucous membranes (a sign of anaemia), weight loss, bottle jaw, and sometimes diarrhoea.

[Read more...](#)

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### **Grass tetany**

Clinical sign of grass tetany include hyper-excitability and thrashing convulsions if recumbent.

[Read more...](#)

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## **Ketosis**

Clinical signs of ketosis include pregnancy, animal recumbent, or neurological signs such as staggering, aggression, delirium. Often associated disease process.

[Read more...](#)