

# Practical Biosecurity Strategies to Prevent Disease in Australian Dairy Cattle

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Within the past decade, a run of biosecurity events including the foot and mouth disease (FMD) outbreak in the United Kingdom (UK) and bovine spongiform encephalopathy (BSE, or “mad cow disease”) in Europe have highlighted the importance of biosecurity in the world (DAFF Biosecurity 2012). Australia benefits from relative geographical isolation and border-focused system of biosecurity (DAFF Biosecurity 2012). Although Australia has implemented national biosecurity programs to prevent disease from entering the country, the biosecurity practices at the farm level may not be to the same calibre. There are three main aspects of biosecurity which are bioexclusion, management and biocontainment (CFIA 2013). Bioexclusion are strategies that prevent introduction of pathogens to cattle on a property (CFIA 2013). Management encompasses strategies that prevent spread of pathogens among cattle within a property (CFIA 2013). Biocontainment involves strategies that focus on preventing pathogen spread between properties and also limiting spread within a property (CFIA 2013). This article will focus on specific and practical bioexclusion practices that dairy producers can implement to prevent pathogen introduction onto their property.

In 2013, a survey was performed in the UK to study producers' understanding and attitude toward biosecurity (Brennan & Christley 2013). This study highlighted that many producers see the value of biosecurity as many of them believed biosecurity to be cost-effective (75%) and more time-efficient (66%) than treating a disease on farm. Unfortunately no such survey has been conducted and published in Australia and therefore it may be difficult to extrapolate this information to Australian dairy producers. Many producers in the UK may have experienced the FMD outbreak of 2007 and experienced the detrimental effects of not having biosecurity practices in place. This study also found that producers would most likely take advice on biosecurity from their private veterinarian (95%) over other sources such as journals, government publications, and other farmers. Furthermore, there was an article published in the Australian Dairy Farmer recently this May that quoted, ‘A dairy vet... is a great source of local knowledge about biosecurity and disease control’ (Irwin 2014, p. 104). Therefore, it is vital for the veterinarian to be

prepared to answer and advise these important biosecurity issues that clients may have.

There are many checklists available for producers such as the examples listed on the websites [dairyaustralia.com.au](http://dairyaustralia.com.au) and [farmbiosecurity.com.au](http://farmbiosecurity.com.au). Though many concepts of bioexclusion may be familiar to most veterinarians, some of the practical strategies that dairy producers can utilise may be overlooked. The following is a list of bioexclusion techniques that can effortlessly and cheaply be implemented on many dairy productions regardless of the size of operation. This list can be used to advise clients on ways to prevent disease from entering their property.

## Biosecurity Checklist for Dairy Producers

### New personnel into the farm (ie. workers, contractors, visitors, etc.)

- » Park away from stock areas (Brennan & Christley 2013)
- » Keep the loading area (e.g. new equipment, feed) away from the rest of the stock (Brennan & Christley 2013)
- » Put up a biosecurity sign for visitors (Dairy Australia 2011)
- » Sign in sheet (important for history in case of a disease outbreak)
- » Staff and visitor risk assessment
  - A good example of a risk assessment analysis sheet can be found at [www.farmbiosecurity.com.au/wp-content/uploads/2012/11/Visitor-and-Staff-Risk-Assessment.pdf](http://www.farmbiosecurity.com.au/wp-content/uploads/2012/11/Visitor-and-Staff-Risk-Assessment.pdf)

### Workers:

- » If they work at multiple dairies, need new clothes and to wash hands and boots properly in between dairies (can be a source of *Staphylococcus aureus*)

### Visitors:

- » Need to control access by closing gates and seeing visitors by appointment only (Brennan & Christley, 2013)

**Contractors (e.g. vets, dairy consultants, foot trimmers, etc.)**

- » Sign in sheet (important for history in case of a disease outbreak)
- » Clean working clothes, shoes and equipment

**Equipment**

- » Clean and disinfect equipment and vehicles routinely
- » Minimise the sharing of equipment and machinery with other farms (Brennan & Christley 2013)
- » Minimising equipment use for different purposes (Brennan & Christley 2013)
  - ie. don't use equipment used for manure handling for feed as well (Wells 2000)

**Stock Movement (Introducing new stock and movement within stock)****Moving stock**

- » Checking National Vendor Declarations and ensuring that animal movements are notified to National Livestock Identification System (NLIS) (Dairy Australia 2011)

**Buying in new stock**

- » Limit purchase frequency (CFIA 2013)
- » Quarantine new stock for a minimum of 30 days (Maunsell & Donovan 2008)
  - Strictly control traffic and personnel in the quarantine area (Maunsell & Donovan 2008)
  - Closely monitor health of new additions and investigate unusual health events (Maunsell & Donovan 2008)
  - Knowing the health status of purchased animals e.g. Market Assurance Program for Johnes disease, maintaining a Bovine Viral Diarrhoea Virus (BVDV) free status herd, etc.
  - Purchase stock that have a vaccination and health history available (Maunsell & Donovan 2008)
- » Only purchase semen and embryos from reputable sources (Dairy Australia 2011)
- » Research and seek advice (e.g. from a local vet) on regional diseases that are common in dairy cattle in the area and from where they are purchased (e.g. purchasing cattle from a *Theileria* enzootic area and bringing into a *Theileria* free zone)
- » Herd diagnostics

- Test for other diseases based on herd status, disease epidemiology, age of purchased cattle, and knowledge of source herd health history (Maunsell & Donovan 2008)
- Monitor bulk milk cell counts (BMCC) for levels of mastitis and potential infectious bacteria (ie. *Streptococcus agalactiae*)
- Speak with the local laboratory about which herd health tests are available
- » Minimise stress during transportation and processing (Maunsell & Donovan 2008)
- » Monitor new purchases for contagious mastitis pathogens at first calving (Maunsell & Donovan 2008)
- » Record health data and monitor it regularly so that problems are recognised quickly (Maunsell & Donovan 2008)
- » If rearing heifers off farm, treat them as new stock coming in (Maunsell & Donovan 2008)

**Miscellaneous****Working/feral dogs**

- » Be cautious of *Neospora* transmission if there are wild or feral dogs in the area
- » Boundary fencing
- » Ensure there is perimeter control (England 2002)
- » Ensure fencing is of good quality, patent and functioning properly
- » Ensure inspection and maintenance are done on a regular basis (Dairy Australia 2011)
- » Fencing effluent storage areas to prevent access by people and livestock (Dairy Australia 2011)


**Feed**

- » Ensure no contaminants (e.g. mycotoxins, lead) by purchasing stock feeds from reputable suppliers who can provide commodity vendor declarations as specified in quality assurance manuals (Dairy Australia 2011)
- » Ensure that stock feeds are free of animal or unwanted plant products e.g. weeds or toxic plants (Dairy Australia 2011)
- » Monitoring withholding times for introduced products such as animal manure fertilizers (Dairy Australia 2011)

Veterinarians need to not only be advocates and advisors of biosecurity, but need to be representatives of biosecurity as well. Leading by example is one of the most influential ways to persuade clients to adopt biosecurity practices. Practicing these techniques in front of clients not only promotes biosecurity but it also demonstrates that vets care about the prevention of disease to the farmers' property. Many veterinarians understand these principles but may not always practice biosecurity strategies in everyday farm visits. The chronic and persistent exposure to disease may cause veterinarians to become complacent to

biosecurity practices (Anderson 2010). Furthermore, when working to prevent disease in a healthy herd, the benefits of biosecurity may not become immediately apparent and many of these vital practices may be forgotten (Anderson 2010). Many of these biosecurity habits are simple and effortless and can easily become habit if practiced every time upon entering a new property. The following table provides some examples of bioexclusion practices that can be easily adopted in everyday dairy farm visits.

### Bioexclusion Techniques for Veterinarians (Anderson 2010)

	Change coveralls in between every visit or clean as needed		Change boots in between every visit or clean as needed
	Have a bucket with a scrub brush and disinfectant in vehicle to easily clean boots before leaving premises		Hands should be washed in between farm visits
	Wear gloves on palpating hand as well as non-palpating hand		Clean hat as needed
	Schedule vehicle cleaning inside and outside (including tires as they can spread unwanted vegetation such as fireweed)		Restrict driving into animal use areas
	Try not to leave windows down and spread flies (e.g. to prevent <i>Moraxella bovis</i> and <i>Salmonella</i> )		Limit needle use to "one needle per cow, one cow per needle"
	Autoclave or chemically sanitise surgical equipment		Non-surgical equipment should also be cleaned in between use
	Use client's supplies as much as possible		

Biosecurity is a vital aspect of dairy veterinary science. It is the responsibility of the veterinarian to not only promote but also exemplify biosecurity techniques. Prevention is a key aspect of veterinary science that can often be overlooked as its benefits may not be fully recognised. Often the value of biosecurity strategies are not realised until after disease is introduced to a property or if a disease outbreak occurs (Maunsell & Donovan 2008). A biosecurity program encompasses a multitude of different factors. It is important for veterinarians to note that there is no one protocol that will fit every farm. Each biosecurity program must be modified to meet the needs of the farm's goals, expectations and problems specific to the geographical region (Maunsell & Donovan 2008). Veterinarians are key in contributing to help tailor each farm's individual needs for their own biosecurity programs in Australia.

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