

Items available
to Biosecurity
Champions
for promoting
biosecurity

Biosecurity
PowerPoint
presentation

Biosecurity roll-up
poster

Visitor log
books

Posters

Backyard flock
brochures

Pens/highlighters

Gate signs 6" x
24"

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Clean may not be Clean

Microorganisms, bacteria especially, develop unique ways of surviving our attempt to eliminate them. An important survival tool is the creation of biofilms on surfaces like the floor of a farrowing crate, on a barn wall, on milking equipment, within feedlot watering bowls and the floors and sides of trucks transporting livestock. Though only several microns thick, biofilms tenaciously protect bacteria, increasing resistance to sanitizers up to a thousand fold. Ninety-nine percent of all bacteria exist in biofilm communities, the only requirements being: a compatible surface to grow on and moisture.

Biofilms are pervasive and invisible sources of recontamination causing inapparent breaches in biosecurity. For example, the persistence of E. coli-associated diarrhea in farrowing barns - despite how clean they appear - is often the result of biofilms that trap and protect bacteria. The reappearance of salmonella in layer barns following cleaning and disinfection has been traced to biofilms on egg belts. Cases of salmonella infection in livestock acquired during transport has been linked to contact with biofilms on metal surfaces of trailers.

For years, cleaning and disinfection in animal production systems considered bacteria as free-floating colonies. Scientists now recognize that in the natural world most bacteria aggregate as biofilms (Figure 1) and bacteria in biofilms behave very differently.

The persistence of infection and risk of reinfection that biofilms represent are changing traditional biosecurity practices. In particular, strict attention must be given to complete removal of organic debris from surfaces using high pressure, heat and cleaning agents prescribed for the surfaces being cleaned. The choice of appropriate disinfectants and the conditions under which they are used are critical considerations. Allowing all surfaces to dry properly is important and a special challenge for the trucking industry during cold weather. Selection of non-porous materials for construction of buildings and equipment minimize surface defects where bacteria can be sheltered in biofilms. Cost and durability are limiting factors.

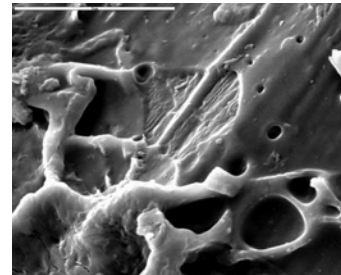


Figure 1.

Biofilms develop in three phases. First, offending bacteria find a favorable surface where they attach and rapidly multiply. If not disturbed by cleaning and disinfection, the growing mass of bacteria soon create a resistant, gelatinous matrix that envelops and protects the entire colony. Biofilms spread as protected colonies break away and reattach on adjacent surfaces.

Bacteria in animal production systems can never be totally eliminated. A critical starting point, however, is understanding that bacteria exist in resistant and invisible biofilms and that biofilms present unique challenges to the design of biosecurity programs. Assuming that "visibly clean is probably not clean" is a good place to start.

The body of information on biofilms is extensive and more comes onto line everyday. Biosecurity Champions may find the following of interest:

1. http://www.edstrom.com/DocLib/4230-DS3100_CompleteBiofilm.pdf
2. <http://www.erc.montana.edu/>

ALBERTA BIOSECURITY CHAMPIONS

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FAO Biosecurity Tool Kit

The overarching goal of biosecurity is to prevent, control and/or manage risks to life and health. Biosecurity is based on recognition of the critical linkages between sectors. Inadequate controls in one sector can have farreaching consequences for other sectors making biosecurity an essential element of sustainable agricultural development.

The Food and Agriculture Organization (FAO) Biosecurity Toolkit describes a strategic and integrated approach to biosecurity. Principles within the document have direct relevance to consumer expectations about food safety, preventing and controlling zoonotic disease, ensuring the sustainability of agriculture, safeguarding terrestrial, freshwater and marine environments, and protecting biodiversity.

The first part of the toolkit provides a broad introduction to biosecurity and describes development and implementation of an integrated biosecurity approach across all sectors. The second part provides guidance on how to assess biosecurity capacity across sectors and sector organizations. The third part of the toolkit presents a generic guide to the structure and application of risk analysis principles in biosecurity.

For more information: <http://www.fao.org/docrep/010/a1140e/a1140e00.HTM>

Champion in Profile

David Moss - Livestock Identification Services (LIS) Ltd.

David is Chief Operating Officer of LIS, headquartered out of Calgary. He has been in and around the cattle industry all his life, growing up the son of a large animal practitioner in rural Alberta and co-manager of a family owned feedlot, custom silage and cow/calf operation at Bassano. In 1997, David moved to High River where he assumed the position of General Manager of Cattle Operations at Western Feedlots, Canada's largest custom feedlot with a one-time capacity of 96,000 head.

David holds a Bachelor of Management degree from the University of Lethbridge and a Master's Certificate in project management. He is married with three teenage children.



Dave Moss

David has spent time in South America and US on development of a source verified ranch to retail alliance now operational in Texas. His work was a key impetus behind the Canadian Food Inspection Agency's recognition of the Computer Visioning System as an accepted grading tool, a world first. David has been Chief Operating Officer of LIS for the past 6 years.

The first law that required the branding of livestock was passed in 1878 in what was then the North West Territories. The law made it necessary to record every brand used in the territory that would eventually become Alberta. For over 131 years the permanent mark of a hot iron brand has been evidence of ownership in Alberta.

The National Biosecurity Resource Centre for animal health emergencies

The National Biosecurity Resource Centre links the user to a wide variety of resources related to biosecurity. Maintained by Purdue University and endorsed by the Animal and Plant Health Inspection Service of USDA and the Office of Homeland Security, NBRC is a source of information on topics like significant animal disease events around the world, a catalogue of current information on foreign animal diseases, regional responsibilities related to emergency response plans and a host of biosecurity fact sheets on subjects like disinfection guidelines and a directory of truck wash stations by state. Purdue University also offers web-based, graduate certificate programs in Animal Health Emergency Management. The Purdue site contains many great ideas, perhaps a model for collaborative Biosecurity Champion initiatives in the future.

For more information:
<http://www.biosecuritycenter.org/>

LIS (continued)

On January 1, 2009, the Livestock Identification and Commerce Act (LICA) was proclaimed. The new Act, a consolidation of the *Brand Act*, *Livestock Identification and Brand Inspection Act* and *Livestock and Livestock Products Act* followed five years of consultation with key industry groups, Alberta Agriculture and Rural Development and the industry owned LIS, (formed in 1998).

Through LICA and LIS, the Alberta livestock industry realizes:

- increased security and confidence in marketing Alberta livestock
- inclusion of other identifiers in addition to brands e.g. tattoos, tags, markings, etc.
- reduced risk of non-payment for animals sold
- protection of sales proceeds
- confirmation of ownership
- enhanced capability to trace animals and animal movement
- an improved transportation permit system

LIS employs 95 certified livestock inspectors throughout the province and is responsible for the inspection of approximately 6 million head of cattle and horses annually. Associated with the LIS team are two RCMP Livestock Inspectors who lead investigations related to the theft of livestock.

LIS staff have developed a biosecurity protocol that will minimize the risk of transmitting disease between the many premises inspectors enter and exit as part of their duties. " We have an Area Managers meeting on the 28th of August where, after testing the biosecurity procedure for the last two months, we will implement it across the province. I have received the support of the Board of Directors for the procedures and shared it with others in the industry," said David.

Biosecurity



Small Things Count

The kaleidoscope of marvels modern science parades through our world seems unending. The explosion of information about our universe, much of it at a molecular level beyond the senses of most, both astounds and overwhelms.

The product of all this is complacency, a human norm when average people grow weary of trying to comprehend things like supercomputers, nanotechnology, robotics, genetic engineering and the entire gamut of biotechnology.

There too, is the growing dependence on artificial intelligence, the kind that jumps at us from computer screens, a dependence that often smothers the human ability to utilize logic in managing risk - a trait that once set us apart from ancestors during our descent from the forest canopy. The endless search for sophisticated ways to gather, harvest and understand the rush of new information frequently trumps an old-fashioned ability to think.

So what does this have to do with biosecurity?

In a world where volumes of new information exceed the human capacity to process it and where the quest for answers to complex issues becomes the empty glare of a computer screen, simple things get forgotten. And biosecurity is about simple things, about thinking and doing simple things right every time.



We only need to look as far as the promotional messages developed by the Biosecurity Champions to regain the sense of simplicity that underlies much of what biosecurity is all about:

1. Biosecurity is a set of practices that prevent the incidental spread of disease.
2. Biosecurity doesn't have to be expensive to be effective.
3. Investing in biosecurity is good business.
4. Biosecurity can be a collection of simple steps.
5. To be effective, biosecurity measures must be part of the daily routine.
6. Biosecurity is important for all types of livestock.
7. Biosecurity is important for anybody who comes in contact with livestock or places where livestock have been.
8. Biosecurity combined with early detection reduces the impact of disease.
9. Biosecurity represents an opportunity to increase competitiveness.
10. Biosecurity works best when we all work together.
11. People need to understand why the biosecurity protocol is being used before they will use it.
12. Biosecurity is everybody's business.

Biosecurity practices are already a part of our daily life. It starts with basic things like washing hands, cleaning boots or isolating livestock following purchase.

Diseases are usually spread inadvertently through oversight. Billions have been spent controlling foot and mouth disease in Great Britain, equine influenza in Australia and during the recent US recall of 30 million pounds of peanut products contaminated with salmonella. Each case started with a niggling breach in biosecurity. Closer to home, gaps in the chain of biosecurity left us with BSE, avian influenza, H1N1 in swine herds and ILT in broiler breeders.

Biosecurity does matter. It starts with the small things.

"Right actions for the future are the best apologies for wrong ones in the past."

Tyron Edwards

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Do not wait for leaders; do it alone, person to person ...

Mother Teresa
(1910 - 1997)
Albanian Missionary