

# Food Safety Sentinel

ISSUE NO. 1

Quarterly Newsletter for Alberta's Provincially Licensed Abattoirs

## Communicating with Alberta's Abattoirs

In previous years, we had a newsletter for Alberta Agriculture and Rural Development's (ARD) licensed meat facilities. The response was positive and we heard from both industry and ARD staff that the newsletter should be reintroduced.

We are always looking for ways to communicate with our industry stakeholders and this newsletter is one way to get food safety messages, animal welfare information and other topics of interest out to the meat facilities.

ARD would also like to give a special thank you to the owners/operators who volunteered their time and effort to sit on the industry committee for 2013. The volunteers helped contribute to the building of the new inspection and processing checklists and provided feedback and recommendations for the meat inspection operations.

## Meet Dr. Jeff Stewart: The New Executive Director of the Food Safety & Animal Welfare Division



Jeff joined Alberta Agriculture and Rural Development in October 2013 following a career of more than 30 years with the Agriculture and Agri-Food Canada (AAFC). For the last four years, Jeff was the Director of Research, Development and Technology Transfer for AAFC activities in Alberta. Dr. Stewart has led large multi-disciplinary teams for sustainable crop and livestock production systems, including those involved with animal health and food safety.

The Food Safety & Animal Welfare Division is made up of 2 branches—the Meat Inspection Branch (MIB) and the Safe Food & Animal Welfare Branch (SFAWB).

The MIB is responsible for regulating 113 red meat and poultry abattoirs and 34 mobile butcher facilities in Alberta. Leadership within MIB work together to ensure meat safety by providing training and strategic direction to the meat inspection staff.

The SFAWB provides extension activities and services to industry to enhance processing and production systems related to food safety and animal welfare while enhancing market access and consumer confidence.

## IN THIS ISSUE

Comparing Food Safety and Food Quality

Funding Opportunities

How Can Livestock Welfare Affect Meat Quality?

What is 'Food Safety Culture?'

Upcoming Events and Courses



March 2014

Alberta Agriculture and Rural Development  
Food Safety & Animal Welfare Division

3115 5th Avenue N  
Lethbridge, AB T1J 4C7  
T. 403-381-5114 F. 403-381-5766  
Toll free dial 310-000 within Alberta  
[kimberly.comeau@gov.ab.ca](mailto:kimberly.comeau@gov.ab.ca)

## Comparing Food Safety and Food Quality

**Food safety** and **food quality** are two important aspects in the meat industry. The aim for food safety is to prevent health hazards such as pathogenic micro-organisms, misuse of food additives and contaminants such as chemical, biological toxins and adulteration. Food quality includes all attributes that influence the value of the product such as colour, flavour, texture and taste.

The contamination of food products with micro-organisms could be a serious problem from both a food safety and food quality standpoint since the growth and metabolism of micro-organisms can cause serious food-borne illnesses (food safety aspect) and/or rapid spoilage of food products which is considered a quality problem. The number and nature of micro-organisms will determine the acceptance and safety of a food product.

### Food Safety Versus Food Quality Micro-organisms

#### Pathogenic Micro-organisms

Pathogenic micro-organisms, or pathogens, cause food-borne disease. Pathogens often do not change the colour, odour, taste or texture of a food product, making it difficult to recognize if the product is contaminated. Common meat pathogens include *E. coli* 0157:H7 (ground beef), *Campylobacter* and *Salmonella* (chicken) and *Listeria monocytogenes* (ready-to-eat meats).

#### Spoilage Micro-organisms

Spoilage micro-organisms, including bacteria, yeast, and moulds, cause deterioration of food and develop unpleasant odours, tastes and textures. Spoilage micro-organisms normally do not cause illness; however, when consumed in high concentration they can cause gastrointestinal disturbance. Some common meat spoilage micro-organisms include *Pseudomonas spp.* (causes odour and slime in raw meat and poultry), and *Lactobacillus* (causes an aroma of hydrogen sulphide in vacuum-packaging).

Both pathogenic and spoilage micro-organisms in meat can result in high economic losses for industry, especially under incorrect refrigerated conditions.

### How to Reduce the Risk of Bacteria Contamination

**Sanitary Hide Removal & Evisceration:** Hygienic hide removal and evisceration techniques are critical to prevent

contamination from the hide and contents of viscera onto the exposed carcass and associated offals. Employees must be properly trained to remove the hide and viscera in a manner that will prevent or reduce any cross contamination.

**Employee cleanliness and behaviour** including frequent hand washing, wearing clean protective clothing and ensuring proper employee traffic flow is enforced (move from clean to dirty areas).

**Temperature Control:** Many food-borne illnesses are a result of product temperature abuse. Bacteria grows best in temperatures between 4 to 60 °C, therefore keep meat out of this temperature range.

**Cleaning and Sanitizing:** Proper cleaning and sanitation of facilities, equipment and utensils is essential to preventing pathogenic and spoilage micro-organisms from contaminating your product.

**Thermal Treatment/Steam Pasteurization:** Some plants use steam pasteurization or hot water cabinets to blast the outside of carcasses with steam, which pasteurizes carcasses.

**Antimicrobial Spray** is a processing aid that can help control pathogenic and spoilage bacteria on meat surface post slaughter. Organic acids (lactic acids, acetic and citric), peroxyacetic acid and chlorine-based compounds such as sodium hypochlorite are commonly used.

## GROWING FORWARD 2 FUNDING AVAILABLE APRIL 2014

### PROGRAMS THAT APPLY TO YOU

- Agri-Processing Automation and Efficiency—Livestock
- Agri-Processing Product and Market Development—Livestock
- Business Management Skills Development
- Business Opportunity
- Livestock Welfare Processor
- Food Safety Systems Processor

For more information visit-  
[www.growingforward.alberta.ca/Programs/](http://www.growingforward.alberta.ca/Programs/)

## How Can Livestock Welfare Affect Meat Quality?

Good pre-slaughter handling procedures can increase meat quality, improve animal welfare and reduce bruising. Bruising and other quality issues can largely impact economic gains.

### Meat Quality Conditions

**PSE** - pale, soft, exudative meat in pork occurs when there is a rapid post-mortem pH decline and loss of protein functionality. PSE in pigs is caused by severe, short-term stress just prior to slaughter, for example, during off-loading, handling, holding in pen, and stunning.

**DFD** - dark, firm and dry meat, also known as dark cutters or “high pH” meat is darker and drier than normal and has a much firmer texture. This condition can be found in carcasses of cattle or sheep and sometimes pigs and turkeys soon after slaughter. When animals are exposed to chronic or long-term stress before slaughtering DFD meat can occur. DFD meat has been linked to a shorter shelf-life. Pre-slaughter stresses include: transportation, exhaustion, fear, climatic stress, aggressive behaviour with young bulls, hunger, mixing with unfamiliar animals, and extreme excitement.

**Bruising** - is a result of the breaking of blood vessels under the skin of the animal. This is caused by a physical blow by a stick or stone, an animal horn or metal projection, or an animal falling. Bruising can happen during handling, transport, penning, or stunning.

### Pre-slaughter Handling Procedures to Help Reduce PSE in Pigs

- Rest pigs for 2-4 hours prior to slaughter.
- Shower with cool mist during hot weather.
- Replace electric prods with other driving aids such as flags, panels or paddles.
- Handle gently in the stunning chute. Overexertion and excitement shortly prior to stunning increases PSE.
- Eliminate distractions which make pigs balk and refuse to move such as air drafts blowing in their faces, sparkling reflections on the floor, shadows, or small moving objects such as chains.

### DFD Meat Can be Reduced by:

- Gentle handling
- Keeping groups of unfamiliar animals separated
- Providing enough feed and rest for animals which have travelled long distances
- Avoiding getting the animal excited. It takes up to 30 minutes for an animal to calm down. Handlers should move with slow and deliberate movement and refrain from yelling.
- Installing solid sides on races and stunning boxes will help calm animals because they provide a barrier between the animal and people who approach too closely.
- Not overloading the crowd pen. Animals need room to turn. Avoid prodding an animal that has no space to move in.

### Ways to Reduce Bruising

- Animals that are fearful, excitable or agitated are more prone to injury. Following the above guidelines to keep an animal as calm as possible will help reduce injuries during pre-slaughter. Proper facility design and keeping pens clean to help the animal maintain good footing can also play a large role on the prevention of bruising.

Proper lighting in facilities can decrease stress and fear in animals during pre-slaughter, and a good training program for proper pre-slaughter handling for operators is important when considering the quality of meat.

#### References

1. Chambers, P.G., & Grandin, T. (2001). *Guidelines for Human Handling, Transport and Slaughter of Livestock*. Food and Agriculture Organization of the United Nations. Humane Society International.
2. Miller, M. (2007). *Dark, Firm and Dry Beef*. National Cattlemen's Beef Association. Texas Tech University.
3. Grandin, T. (2000). *Methods to Reduce PSE and Bloodsplash*. Allen D Leman Swine Conference; College of Veterinary Medicine. University of Minnesota. vol 21, 206-209

## LIVESTOCK WELFARE RESOURCES

If you have any questions concerning livestock welfare contact  
**Jeff Hill—780-638-4202**  
 Livestock Welfare Specialist

If you have any questions concerning Livestock Welfare Growing Forward 2 programs contact  
**Andy Van Biert—780-415-0771**  
 Growing Forward 2 Grant Administrator

**To call toll-free within Alberta, dial 310-0000**

## What is 'Food Safety Culture'?

**Culture** is the actions and beliefs characteristic of a group. In simple terms, it is what we think, feel and do as a group based on our values. So then, what is **Food Safety Culture**? Well, in the context of a food processing facility, it is the alignment of values and behaviours with respect to food safety; from management or owners through to frontline workers. The culture is led by management and it is driven down throughout the entire organization. It relies on a strong leadership team who has a solid vision of food safety.

When it comes to food safety culture, whether your food safety programs are formally developed and implemented is irrelevant because it is the overall approach that is important. In fact, establishing what your culture is and determining if it is the one you want may be the best place to start - even before the documentation of programs begin. It is important to note that you already have a food safety culture in your facility, even if you don't know it.

### Is 'Food Safety Culture' the same as commitment?

Now you may be saying to yourself: no problem, I wrote down my commitment to food safety, signed it and posted it on the wall and I've communicated to my staff how important it is. Well, that's just the easy part. Saying what is valued and important to a company with respect to food safety is a small part of the equation. How the leaders act is quite another, and all employees are watching in order to gauge how serious the management is with their words. If workers detect the slightest inconsistency between the words they hear and the actions they see, it will not take long before they lose confidence in their leaders' commitment to food safety and the culture becomes fragmented.

### Non-verbal Communication is key!

The words you say can have far less influence on the culture you wish to promote than your actions, and communication needs to go both ways. So to ensure that the team is united, communicate! Talk about food safety often. Listen to what your employees have to say about it, and read between the lines. Remember to walk the talk. Lead with confidence and...

**...Be the change in food safety culture that you want to see in your company.**

## UPCOMING EVENTS AND COURSES

### AFPA Food Safety Conference

March 18, 2014

Edmonton, Alberta

For details visit [www.afpa.com](http://www.afpa.com)



### AFAC 2014 Livestock Care Conference

For details visit [www.afac.ab.ca](http://www.afac.ab.ca)

March 26-27, 2014

Edmonton, Alberta



### NAIT Online Food Safety Course

For details visit [www.nait.ca](http://www.nait.ca)

March 31 - April 25, 2014

Online



### Industry Days and Meat Inspection Consultations May 2014



## FOOD SAFETY SUPPORT

Alberta Agriculture and Rural Development has a team of food safety specialists available to assist you to assess and improve your food safety programs.

Improving food safety programs is a good business decision as doing so can enhance food safety, quality and consumer confidence; reduce waste and recalls; and open doors to additional markets.

### CONTACT A FOOD SAFETY SPECIALIST

Edmonton: Son Nguyen 780-913-1444

Airdrie: Mark Miller 403-948-8534

Calgary: Janice Futz 403-422-0406

Lethbridge: Kevin Smith 403-892-0213

To call toll-free within Alberta, dial 310-0000