

4TH ANNUAL CONFERENCE

TURNING INFORMATION INTO APPLICATION

EDMONTON, ALBERTA

OCTOBER 22-23, 2013



THIS TWO-DAY CONFERENCE INCLUDES

- A HALF-DAY PRODUCER SESSION CO-HOSTED BY ALBERTA AGRICULTURE AND RURAL DEVELOPMENT
- PROMINENT KEYNOTE SPEAKERS
- AN UNFORGETTABLE DINING EXPERIENCE AT PAMPA BRAZILIAN STEAKHOUSE





ALBERTA
AGRICULTURE AND RURAL DEVELOPMENT

Office of the Minister
MLA, Wetaskiwin-Camrose

MESSAGE FROM THE MINISTER

As Minister of Agriculture and Rural Development, I am pleased to welcome you to the 4th Annual Livestock Gentec Conference.

The theme of this year's event, *Turning Information into Application*, reflects the importance of research and innovation to the ongoing success of our livestock sector and our entire agriculture industry. Alberta and Canada have a well-deserved reputation as a world-leader in premium livestock, genetics and agricultural products. The continued strength of our industry relies on our ability to adapt and evolve as we overcome challenges and explore new opportunities.

This conference is a tremendous opportunity to exchange ideas and learn more about new technologies and best practices that will help our industry remain competitive and sustainable. A wealth of information will be shared at this conference to provide producers with more tools to help them make informed decisions and grow their businesses.

Your government is committed to building Alberta and to supporting the long-term success of our agriculture sector, our province's largest renewable industry. Innovation and strong partnerships are essential to our province realizing its full potential.

On behalf of the Government of Alberta, congratulations to Livestock Gentec for organizing another terrific conference and I hope participants enjoy their time in Edmonton.

Verlyn Olson, Q.C.
Minister

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MESSAGE FROM LIVESTOCK GENTEC

Another year has gone by since Gentec's last conference. How time flies! Hardly surprising, however, when you think of the activity in the livestock industry this year. Two diverse examples are the horsemeat scandal in Europe and the livestock carbon-offset program in Alberta.

The amazing thing is that genomics can address these and other challenges in the livestock sector. The horsemeat issue demonstrated the need for traceability testing. We can do that. The carbon offset program requires livestock to produce less methane. We can select animals that consume less resources in the form of food and water, and belch less greenhouse gases. These are real solutions.

Meeting these challenges through genomics requires data—lots of it. So we're delighted to partner once again with Alberta Agriculture and Rural Development for a session that will help you figure out how to pull data together. In fact, we have designed all the sessions to provide you with the most current information to make your operation profitable through genomics. The sessions are interactive, practical, and will help you make the best decisions for success.

Thank you for attending, sharing and learning with us. Thank you to our sponsors for making this event possible. Thank you to our funders, partners and collaborators for your vision of a Canadian livestock industry that is the envy of the world.



Graham Plastow
CEO

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MESSAGE FROM ALBERTA AGRICULTURE AND RURAL DEVELOPMENT



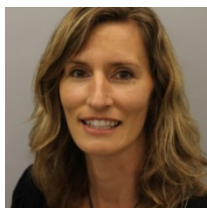
Alberta Agriculture and Rural Development is pleased to partner with Livestock Gentec to offer a session addressing the need to document and record changes in your beef operation that lower greenhouse gas emissions (GHGs). Cattle release two types of GHGs—methane and nitrous oxide—from the digestion of feed in the rumen and from manure. Cattle that use their feed more efficiently release less GHGs, and can be identified and propagated through selective breeding using a genetic marker for low residual feed intake (RFI).

Now is the time to position your operation and gather the necessary records to establish your current feed efficiency baseline (a three-year average of feed intake and ration data). Records that document management improvements from this baseline can be linked to science-based GHG reductions developed by experts such as Dr. John Basarab, using carbon offset protocols approved by the Government of Alberta. Selecting for low RFI cattle and reducing age at harvest and days in the feedlot may qualify as a carbon offset in Alberta, where regulated companies buy offsets to meet their legal reduction requirements.

Now is the time to gather the necessary records to establish your current feed efficiency baseline.

While the price of carbon offsets may be relatively low, it is worth becoming familiar with the record-keeping needed to access emerging environmental markets. Changes in the price of carbon offsets can make them very attractive in the future.

Alberta is the first jurisdiction in North America to have science-based protocols that provide an opportunity to reward management that lowers GHGs through the sale of carbon offsets. Livestock producers need to stay informed by identifying management practices that improve efficiencies and reduce the environmental impact of forage-beef production without affecting production and profitability. The session will alert all types of livestock producers to the challenges of the current beef/carbon protocols.



Susan Markus
Livestock Research and Extension Division



Sheilah Nolan
Environmental Stewardship Division



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Globally, the livestock industry is changing. Demand for animal products is increasing due to population growth and the rising number of middle class around the world. Despite this growth, there are several challenges facing the Canadian livestock industry including increasing production costs, a changing climate, and intensifying global competition. It is more important than ever to continue to innovate in the Canadian livestock industry by enabling the adoption of tools that can support this vital economic sector. Genomic technologies can help the Canadian livestock industry maintain its global reputation as a leader in high quality, efficient, and safe animal protein.



Who we are

Delta Genomics Centre is a national, not-for-profit DNA service facility and the first full DNA lab specializing in livestock in Canada. Delta was created as the service arm of Livestock Gentec at the University of Alberta to facilitate the transfer of innovative technologies to the livestock industry. We offer biobanking, genotyping, and next generation sequencing, combined with contract research services to provide a complete genomics solution.

Our goal

To increase the profitability, competitiveness, and sustainability of the Canadian livestock industry.

What we do

Biobanking: We offer the storage and distribution of samples for all livestock species.

Genotyping: We perform low-density and high-density genotyping for all the commercially available genotyping panels. We also provide the custom GeneSeek Genome Profiler™ array of products.

Sequencing: We provide next generation sequencing and bioinformatics for both DNA and RNA analysis.

Contract Research: We can provide validation, demonstration, and consultation services for all livestock genomic applications.

www.deltagenomics.com

info@deltagenomics.com

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Alberta Innovates Bio Solutions leads science and innovation to grow prosperity in Alberta's agriculture, food and forestry sectors.

We are a publicly funded board-governed corporation that works with partners to identify, coordinate, fund and perform research projects designed to help solve industry challenges with solutions that deliver economic, environmental and social benefits.

We aim to help create new knowledge, technologies and products for Alberta in the areas of: sustainable production, bioeconomy, food innovation, ecosystem services and prion diseases.

Partner with us.

FOR MORE INFORMATION

Call 780-427-1956 or email BIO@albertainnovates.ca

bio.albertainnovates.ca



Funded by the Government of Alberta



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TUESDAY MORNING, OCTOBER 22

All sessions held in the Valley Ballroom

ALBERTA AGRICULTURE AND RURAL DEVELOPMENT PRESENTS:

- 08:00 – 09:00 **Coffee and Registration**
Valley Ballroom
- 09:00 – 09:05 **Welcome and Introduction**
Reynold Bergen, Canadian Cattlemen's Association
- 09:05 – 09:20 **AI Bio Presents...**
Stan Blade, Alberta Innovates Bio Solutions
- 09:20 – 10:05 **Genomics Tools for Whole-herd Improvement**
John Crowley, Beefbooster and Livestock Gentec
- 10:05 – 10:20 **Disrupting an Industry**
Colin Coros, Delta Genomics
- 10:20 – 10:40 **Coffee Break**
- 10:40 – 11:10 **How to Interpret and Apply Genomics Tools for Whole-herd Improvement**
John Crowley, Beefbooster and Livestock Gentec
- 11:10 – 12:10 **Understanding the Carbon Market in Alberta: Preparing to take advantage of changes in carbon pricing**
Karen Haugen-Kozyra, The Prasino Group Inc.
- 12:10 – 13:10 **Lunch: sponsored by**



IT'S ALL IN THE GENES

Producing the best cattle and the best beef — is achieved
with Canadian purebred genetics

Whether you're breeding for **performance traits** including birth weight, growth and feed efficiency, or **carcass traits** such as marbling and cutability, or **maternal traits** like ease of calving or milking ability — one or several of Canada's purebred breeds has the genetics to enhance your herd, and your business success.

Ask CBBC to link you to the source of genetic results you seek. Read breed profiles and reach our national Breed Association members, 10,000 Canadian purebred producers, exporters and service providers, via our website.



Registered purebred stock... insist on it!

Canadian Angus Association
Canadian Blonde d'Aquitaine Association
Canadian Brown Swiss and Braunvieh Assoc
Canadian Charolais Association
Canadian Galloway Association
Canadian Gelbvieh Association
Canadian Hays Converter Association

Canadian Hereford Association
Canadian Highland Cattle Society
Canadian Limousin Association
Canadian Lowline Association
Canadian Luing Association
Canadian Maine Anjou Association
Canadian Murray Grey Association

Canadian Pinzgauer Association
Canadian Shorthorn Association
Canadian Simmental Association
Canadian South Devon Association
Canadian Speckle Park Association
Salers Association of Canada



The Canadian Beef Breeds Council (CBBC) represents the Canadian purebred cattle industry. Its members include national breed associations that in turn represent producers of breeding stock. Associate CBBC members are exporters and service providers. The Canadian Beef Breeds Council exists to represent & promote Canadian pedigreed beef cattle genetics domestically and internationally. The Canadian Beef Breeds Council is the recognized representative of Canadian seed stock producers by government and industry, while effectively promoting Canada as the source of quality beef cattle genetics.

www.canadianbeefbreeds.com



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TUESDAY AFTERNOON, OCTOBER 22

LIVESTOCK GENTEC PRESENTS:

- 13:10 – 14:10 **Agricultural Economics and Informed Decision-making Related to Livestock and Forage-based Beef Production**
Jon Biermacher, The Samuel Roberts Noble Foundation
- 14:10 – 14:40 **Livestock Gentec: The year in review, the year ahead**
Graham Plastow, Livestock Gentec
- 14:40 – 14:55 **Passionate People on a Mission: Where would you like to go with your animal's DNA?**
Michael Bishop, Illumina
- 14:55 – 15:25 **Coffee Break**
- 15:25 – 15:40 **From the Lab Bench to GE-EPDs: Completing the picture for breed improvement**
Elisa Marques, GeneSeek
- 15:40 – 16:40 **Brazilian Agriculture: Achievements, challenges and opportunities**
Fernando Antonio Pereira, Agrocere
- 16:40 – 16:50 **NSERC's Introduction to Student Posters**
Lisa Marquardson, NSERC
- 16:50 – 17:00 **Wrap-up and Posters**
- 17:00 – 18:30 **Poster Session/Cocktails: sponsored by**
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- 18:30 + **Dinner**
Pampa Brazilian Steakhouse

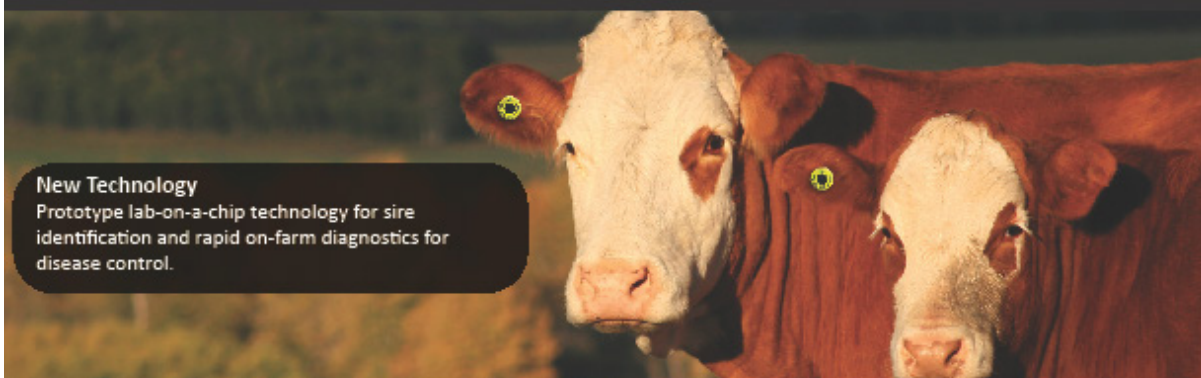
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IDEAS. INFORMATION. INVESTMENT.

New Technology

Prototype lab-on-a-chip technology for sire identification and rapid on-farm diagnostics for disease control.



Sustainability

Applying genomics to our meat industry to improve performance, taste and profitability.



Building Industry Capacity

Increased research and active recruitment of grad students to genomics.



ALMA
Alberta Livestock
and Meat Agency Ltd.

ALMA is designed to help the Alberta meat and livestock industry realize its full potential as a supplier of quality livestock and meat products. We are a catalyst for ideas, information and investment.

ALMA is proud to support research into livestock genomics. The livestock and meat industry benefits from a deeper understanding of the genomic potential to improve productivity, meat quality and animal health.



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WEDNESDAY MORNING, OCTOBER 23

- 07:00 – 08:30 **Breakfast**
Glenora Room
- 08:45 – 08:50 **Welcome Back**
Travis Toews, Canadian Cattlemen's Association
- 08:50 – 09:00 **ALMA Presents...**
Dave Chalack, ALMA
- 09:00 – 10:00 **The Good, the Bad and the Ugly of Alberta Cattle Genetics: How we deal with what you got**
William Torres, Cattleland Feedyards
- 10:00 – 10:15 **Funding Opportunities in the Areas of Agri-Food and Food Safety**
David Bailey, Genome Alberta
- 10:15 – 10:45 **Coffee Break**
- 10:45 – 11:45 **Who Receives the Benefit of Genetic Improvement in Your Herd? A cost-benefit analysis of genomics focusing on the cow/calf and feedlot sectors**
Peter Fennessy, AbacusBio
- 11:45 – 12:00 **Northlands Programming in Support of Agriculture Innovation**
Lisa Dunn, Northlands
- 12:00 – 13:00 **Lunch: sponsored by**



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GenomeAlberta



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WEDNESDAY AFTERNOON, OCTOBER 23

- 13:00 – 13:15 **Applications in the Field: Next-generation genomics**
LuAnn Glaser, Affymetrix
- 13:15 – 13:30 **Project Update: Application of Genomics to Improve Swine Health and Welfare**
Jamie Wilkinson, Livestock Gentec
- 13:30 – 13:45 **Canadian Cattle Genome Project Update: Improving the Canadian cattle herd through the use of genomics**
Paul Stothard, Livestock Gentec
- 13:45 – 14:00 **Impact of the Canadian Purebred Industry**
Doug Fee, Canadian Beef Breeds Council
- 14:00 – 15:00 **The Importance of Continual Improvement in the Beef Industry**
Steve Whitmire, Brasstown Beef
- 15:00 – 15:15 **Poster Awards**
Alison Sunstrum, GrowSafe Systems Ltd.
- 15:15 – 15:30 **Message from the Minister**
The Hon. Verlyn Olson
Minister of Agriculture and Rural Development
Government of Alberta
- 15:30 – 15:45 **Wrap-up**
Graham Plastow, Livestock Gentec

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Genetic analysis solutions for animal breeding—
Design to delivery made easy



- **Discover** de novo genetic diversity through genetic analysis technologies
- **Associate** genetic markers correlated with desirable traits
- **Manage** and use genetic information to control desired outcomes

To learn more about Affymetrix' agrigenomics products, visit www.affymetrix.com/agrigenomics.

Bovine image courtesy of Select Sires and Frank Robinson

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POSTER TITLES

Transcriptional analysis in longissimus dorsi muscle and subcutaneous fat of the cattle fed diets with supplemental flaxseed

Expression of epidermal growth factor family members, BMP15 and GDF9 in bovine pre-ovulatory follicle exposed to different luteinizing hormone profiles

Shifts of rumen microbial metabolic pathways in relation to feed efficiency

Heritability of fatty acids in longissimus dorsi muscle and subcutaneous adipose tissue of beef cattle

A genome-wide association identifies two promising candidate genes on SSC2 affecting pork peak shear force

Investigating RFI interactions upon pregnancy diagnosis in Angus heifers

Reliability of molecular breeding values for Warner-Bratzler shear force and carcass traits of beef cattle

Genetic parameters for parasite resistance in Nellore cattle in Brazil

Analysis of rumen bacterial community structure through meta-transcriptome

Genome-wide identification of single nucleotide polymorphisms associated with fatty acids in beef cattle

Impact of antioxidants in the retention of conjugated linoleic acid in milk treated by high-pressure sterilization

Genetic relationships between performance with meat quality and carcass traits in crossbred pigs

Progressive changes in gut microbes, mucosal immune responses and barrier functions in dairy calves

Identifying biomarkers to select against Escherichia coli O157 super shedding cattle for improved food safety

Impact of maternal nutrition during gestation on fetal longissimus dorsi muscle transcriptome in beef cattle.

Imputation accuracy from 50k and 777k SNP panels to full sequence genotypes on BTA 27 of Holstein and Simmental cattle

Changes in proteomic profile of beef cattle adipose tissue during growth

Developing gene networks and pathways to increase accuracy of selection for economically important traits in dairy cattle

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PLATINUM



GOLD



SILVER

