

5TH ANNUAL CONFERENCE

THE GENOMICS OF PROFITABILITY: IMPLICATIONS FOR QUALITY, FEED, FORAGE AND SUSTAINABILITY EDMONTON, ALBERTA AUGUST 12-14, 2014

THIS THREE-DAY CONFERENCE FEATURES:

- SESSION ON FORAGE HOSTED BY ALBERTA AGRICULTURE AND RURAL DEVELOPMENT
- UPDATE ON THE ROLE OF GENOMICS IN THE LIVESTOCK SECTOR
- FIELD DAY AT THE ROY BERG KINSELLA RESEARCH STATION WITH
 - EDUCATIONAL TOURS
 - OPPORTUNITY TO SEE GENOMICS AT WORK
 - TRANSPORTATION AND BEEF BBQ



UNIVERSITY OF ALBERTA
FACULTY OF AGRICULTURAL,
LIFE & ENVIRONMENTAL SCIENCES



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Premier of Alberta

Office of the Premier, 307 Legislature Building, Edmonton, Alberta, Canada, T5K 2B6

**Message from Honourable Dave Hancock, QC
Premier of Alberta
Minister, Innovation and Advanced Education**

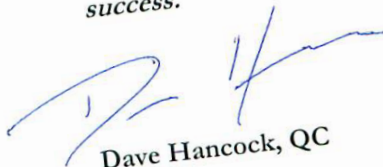
On behalf of the Government of Alberta, it is my pleasure to recognize the 5th Annual Livestock Gentec Conference.

This year's theme, The Genomics Of Profitability, is symbiotic as innovation is the key to opening the door to economic growth.

Collaborative events, such as this conference help ensure that resources, expertise, and ideas are shared, which will ultimately lead to new technologies and practical applications.

Alberta is a global leader in agriculture and livestock, and we are working hard to ensure that the world can access our products and services. With more than seven billion people around the globe, Alberta can help feed the growing world demand for high-quality food.

On behalf of the Government of Alberta, I would like to congratulate Livestock Gentec for organizing this year's conference, and I wish all of you ongoing success.



Dave Hancock, QC

August 12, 2014

Alberta



THE GENOMICS OF PROFITABILITY

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ALBERTA
AGRICULTURE AND RURAL DEVELOPMENT

*Office of the Minister
MLA, Wetaskiwin-Camrose*

As Minister of Agriculture and Rural Development, I am pleased to welcome you to the 5th annual Livestock Gentec Conference.

Every year, this event brings together leaders in the research and agricultural communities to discuss and share ideas about the latest developments in genomics and how we can further strengthen our livestock industry. Through this conference, a wealth of useful information is put in the hands of producers to help them make informed decisions about how to enhance and grow their operations. One of this year's highlights will undoubtedly be the Roy Berg Kinsella Research Station Field Day, which will allow conference participants to see firsthand how cutting edge research is being done to examine the links between genomics, efficiency of operations and the environment.

In today's competitive global marketplace, ingenuity is at the heart of our agriculture industry's ongoing success. We must continue to explore new and innovative approaches to agriculture to help ensure the industry evolves in a smart, responsible and sustainable manner.

Organizations like Livestock Gentec are important partners that support a thriving and leading-edge agricultural sector that is well-positioned to expand its reach into markets around the world. Thank-you for your ongoing work on behalf of our producers and best wishes on a successful and productive conference.

Verlyn Olson, QC
Minister

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MESSAGE FROM ALBERTA AGRICULTURE AND RURAL DEVELOPMENT



Welcome to the 5th annual Livestock Gentec conference and what has also become the 3rd annual Alberta Agriculture and Rural Development morning session.

ARD has partnered with Livestock Gentec to form a successful working relationship that contributes to scientific discoveries, and commits to extend those results to our industry groups, businesses and livestock producers—particularly those that are applicable on the ranch or in the field.

Forages are such an important component of the livestock industry that we have put together speakers who will discuss some past successes, current challenges and future direction of research for our forage-beef industry, including 356 day grazing, pasture feed efficiency and pasture systems.

What you will discover is that when researchers, academics, extension experts, agri-business and producers talk, the results of their efforts impact and improve animal performance, environmental sustainability and farm profitability.



Susan Markus
Livestock Research and Extension Division



TUESDAY MORNING, AUGUST 12

All sessions held in Royal/Imperial Room

ALBERTA AGRICULTURE AND RURAL DEVELOPMENT PRESENTS:

Moderator: Susan Markus, AARD

- | | |
|---------------|--|
| 08:30 – 09:00 | Registration |
| 09:00 – 09:30 | Feed Efficiency on Pasture: 365 day Grazing
Vern Baron, AAFC |
| 09:30 – 10:00 | Optimized Pairing of Cattle and Forage
Vince McConnell, AARD |
| 10:00 – 10:30 | Coffee Break |
| 10:30 – 11:00 | Linking Pasture Systems to Optimize Beef Performance and Profit
Grant Lastiwka, AARD |
| 11:00 – 11:15 | Panel Q&A |
| 11:15 – 12:00 | BIXS 2.0: Seeking Benefits Through Traceability
Holly LaBrie, Canadian Cattlemen's Association |
| 12:00 – 13:00 | Lunch |



MESSAGE FROM LIVESTOCK GENTEC



Welcome to the fifth edition of the Livestock Gentec annual conference. How we have grown since our first offering in 2010! This year's event is sophisticated, full of variety—high-level learning, demonstration and tales from those who do—complete with your favourite activities (field trip and beef dinner).

As well as welcoming some old favourites we are also repeating the very successful partnership with Alberta Agriculture and Rural Development (AARD). This year, AARD's session on the first morning of the conference is on forage management. It will be followed in the next days by talks on many different aspects of genomics and how it can impact the chain. From research updates, through managing genetic abnormalities, a look at how consumers are viewing food and the opportunity for traceability, and on to sustainability and global issues. As usual, the sessions are intended to be interactive, practical, and will help you make the best decisions for success.

I also take this opportunity to explain why we moved the conference forward from October to August. The University of Alberta is honouring the legacy of Dr. Roy Berg by renaming the ranch that he was so instrumental in acquiring for the university, and where he conducted his best-known research. The dedication ceremony was set for August 2014 as a preliminary to our Faculty's centenary celebrations. Of course, we wanted to be part of that landmark event and to show you the technologies being developed at the ranch. So Day Two of the conference is the field trip I referred to earlier. It will be a memorable day.

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



TUESDAY AFTERNOON, AUGUST 12

LIVESTOCK GENTEC PRESENTS

Moderator: Geoff Brown, Lakeland College

- | | |
|---------------|---|
| 13:00 – 13:15 | Welcome, Introduction
Cornelia Kreplin, AI Bio |
| 13:15 – 13:30 | Application of Genomics to Improve Swine Health and Welfare: Update
Leluo Guan, Livestock Gentec |
| 13:30 – 13:45 | Canadian Cattle Genome Project: Update
Steve Moore, University of Queensland, Australia |
| 13:45 – 14:30 | It's Not Just The Cattle That Are Being Managed
William Torres, Cattleland Feedyards |
| 14:30 – 15:00 | Coffee Break |
| 15:00 – 15:45 | Genetic Abnormalities: The Tip of the Spear in Genomic Selection
Jon Beever, University of Illinois at Urbana-Champaign |
| 15:45 – 16:00 | Canadian Beef Breeds Council:
Promoting and Improving Canada's Genetics
John Crowley, CBBC |
| 16:00 – 16:45 | The Consumer's Evolving Expectations of Food
Tom Newitt, A&W Food Services of Canada Inc. |
| 16:45 – 17:00 | Wrap-up
Graham Plastow, Livestock Gentec |
| 17:00 | Poster Session, Cocktails and Hors d'oeuvres |



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.

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FOR MORE INFORMATION

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

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ALMA

Alberta Livestock
and Meat Agency Ltd.

ALMA is proud to support the Livestock Gentec Annual Conference and Roy Berg Kinsella Field Day. It promotes knowledge sharing, future industry collaboration and increased awareness of work by Livestock Gentec, Delta Genomics and their partners and collaborators.

As an industry catalyst, ALMA is committed to increasing industry use of genomics and genomic technology. This conference is a great opportunity to learn more about genomics' many benefits.

Ideas. Information Investment.
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The Canadian Angus Association

Working with Livestock Gentec and Delta Genomics to provide members with tools to improve genetics and performance in their herds

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THURSDAY, AUGUST 14

All sessions held in Royal/Imperial Room

LIVESTOCK GENTEC PRESENTS

Moderator: Tanya McDonald, Olds College

- | | |
|---------------|---|
| 07:30 – 09:00 | Breakfast |
| 09:00 – 09:15 | Welcome, Introduction
David Chalack, ALMA |
| 09:15 – 10:00 | The Role of Genomics at the Bill and Melinda Gates Foundation
Donald Nkrumah, Bill and Melinda Gates Foundation |
| 10:00 – 10:15 | Collaborative Cattle Health & Pathogen Genomics Research in Alberta
Jeroen De Buck, University of Calgary, University of Manitoba |
| 10:15 – 10:30 | Making It Happen
Colin Coros, Delta Genomics |
| 10:30 – 11:00 | COFFEE |
| 11:00 – 11:45 | ENOUGH... The Fight (and Opportunity) for a Food-Secure Tomorrow
Marta M. Haley, Elanco |
| 11:45 – 12:00 | The Utility of Genomics
Leigh Marquess, Quantum Genetics |
| 12:00 – 12:15 | Genomics and Feeding the Future
David Bailey, Genome Alberta |
| 12:15 – 12:45 | Knowing What I Know Now...
Thomas Lynch-Staunton, Livestock Gentec |
| 12:45 | Closing Remarks
Graham Plastow, Livestock Gentec |



GenomeAlberta



Helping the livestock industry increase profitability through custom DNA services and tools.

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 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.



What we have achieved so far

Since our launch in 2011, we have created an advanced operation that provides industry and researchers with specialized resources for the advancement of genomic technology adoption. We have helped enable the transition to a lower cost SNP parentage technology in the purebred Canadian beef industry. We have supported over 20 major genomics research projects representing 8 different livestock species. And along with Livestock Gentec, we have helped establish an innovation network that is enabling the adoption of genomic technologies across the Canadian livestock industry.

www.deltagenomics.com

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POSTERS

Analysis of rumen microbiome using metatranscriptomics

Li, F., Sun, X., Guan, L.L.

Transcriptome profiling of rumen epithelial tissues of beef cattle differing in residual feed intake

Kong, R.S., Liang, G., Guan, L.L.

Functional analyses of multiple SNPs in the promoter regions of bovine genes

M. Vinsky, X. Zhu, X. Zhang, C. Li

Genomic prediction of direct genomic breeding values for fatty acid concentrations in subcutaneous adipose and longissimus lumborum muscle of beef cattle

L. Chen, M. Vinsky, C. Ekine, J. Basarab, J. Aalhus, M. E.R. Dugan, J. Curtis, C. Fitzsimmons, P. Stothard, C. Li

A genetic diversity analysis and its effects on the results obtained from association studies in reference to the University of Alberta beef ranch at Kinsella, Canada.

Karisa, B. K., Plastow, G. S.

¹H NMR spectroscopy for the rapid determination of CLA levels in beef and omega-6:3 fatty acid ratios in cattle feed.

D. Prema, T. D. Turner, J. Jensen, J. L. Pilfold, J. S. Church, K. K. Donkor and B. Cinel

Genome-wide transcriptome analysis reveals mRNAs and microRNAs related to postnatal development of immune function in the bovine small intestine

Guanxiang Liang, Nilusha Malmuthuge, Hua Bao, Paul Stothard, Philip J. Griebel, Leluo Guan

Effects of linoleic acid on ruminal gas production, fermentation and proportion of fatty acids in vitro

D. Q. Wu, L. W. Xu, Z. L. Tan, L. L. Guan

Composition and function of rumen epimural bacteria and their segregation based on host feed efficiency

Ghoshal, B., Zhou, M., Sanabria, E.H., Guan, L.L. and Stothard, P.

Transcriptomic analysis of rectal-anal junction tissue from super-shedders vs cattle negative for E. coli O157:H7

Ou Wang, Tim McAllister, Graham Plastow, Brent Selinger, Victor Gannon, Kim Stanford, Leluo Guan

A key host defence mechanism against PRRSV: Strong stimulation of interferon- β transcription at late infected periods by IRF3 Nuclear translocation

Yuwei Ren, Faheem Ahmed Khan, Ishwari Kadariya, Xing Chen, Ao Zhou, ShuaiFeng Li, Leluo Guan, Shujun Zhang

Improving accuracy of genomic predictions for milk production and fertility traits in Canadian Holstein dairy cattle

Nayeri, S., Sargolzaei, M., Abo-Ismael, M.K., Miller, S., Moore, S.S., Schenkel, F., Stothard, P.

Methane emissions from beef cattle bred for low residual feed intake

Manafiazar, G., Plastow, G., Okine, E., Baron, V., Flesch, T., Wilson, J., Beauchemin, K.A., Huisma, C., Ominski, K., and Basarab, J

THE GENOMICS OF PROFITABILITY



PLATINUM



GOLD



Genome Alberta



SILVER

