



•ALMA
• Alberta Livestock & Meat Agency Ltd.



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

Government of Alberta

•Canadian Bovine Genomics Workshop

•September 14, 2009

•Calgary, Alberta



Alta

Create Value ▲ Build Trust ▲ Deliver Results

Canadian Bovine Genomics Workshop

Panel #2



Alta

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Facilitating Use And Development of Genomic Tools to Increase Value

- **Increased coordination**
 - Need a concerted bovine approach
 - Need clear goals and objectives
 - Genome Alberta
- **Increased Funding**
 - Government, industry, producers
 - Need to re-allocate from other programs
 - Hard to find new funds
- **Increased Education**
 - Need more global buy-in
 - Need to maximize return from investment

Facilitating Use And Development of Genomic Tools to Increase Value

- **Increased collaboration**
 - Across beef breeds and across dairy
 - Across government, university, industry, producers
 - Drive to patent limits global progress
- **Decreased genotyping costs**
 - Leads to more users of this technology
 - Leads to more animals genotyped
 - Main driver in increasing accuracy and value
 - Low-density SNP panels
 - Improved SNP technology



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Current Genomic Projects

Dairy

- **Genomics has revolutionized genetic selection**
 - Canada and USA are leaders in this technology
 - Europe and Oceania is not far behind
 - 50K SNP chip is used around the world
- **All selection is based on genomic evaluations**
 - Accuracy on young animals has increased 100%
 - 30+ traits included
 - 30,000 animals genotyped in CAN/USA
 - More animals genotyped = more accuracy

Current Genomic Projects

Dairy

- Genetic progress will increase **SIGNIFICANTLY**
 - Much greater than in the past
- Do we share or protect our genomic advantage?
 - Sharing increases global implementation and gain
 - Protection provides short-term revenue boost



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Current Genomic Projects

Beef

- Access to same bovine genome info as dairy
 - Yet lagging in implementation
 - Due to less funding, coordination, data
 - More private development
- Access to phenotypes is key to progress
 - Genotyping is not the limiting factor
- Currently evaluating potential partners in development

Future Genomic Investments

- **Development of low-density SNP panels**
 - Significantly lower cost
 - Lower accuracy
 - eg. 50% of gain for 10% of cost
 - Tailored to specific breeding goals
 - Commercial population application
 - Significantly increase number of animals genotyped
- **Development of higher-density SNP panels**
 - From 50K to 1 million + SNPs
 - Similar cost to current 50K price
 - Accuracy approaching that of progeny testing?



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Future Genomic Investments

- Development of national databases
 - Genotypes
 - Phenotypes
- Additional research & education
 - End-users better understand genomics
 - End-users better utilize genomics