What I Heard

BIF 2023

Calgary, AB

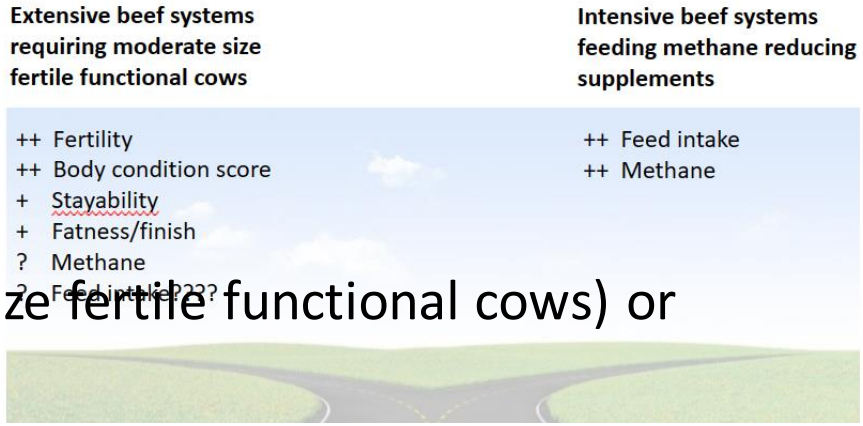
John Crowley

AbacusBio

Plenary

Precision Breeding opportunities in an evolving breeding objective landscape – **Dr. Peter Amer**

- Road trip....and the fork in the road
- The value of growth rate for packers, feedlots and cow-calf producers
- Mature weight needs focus, keep the scales but need more recording on ERTs (careful while skiing)
    - Wearable technology for cattle will provide an opportunity to gather more phenotypes to produce low-cost functional animals
- Yield maximisers vs cost minimizers
- Emissions intensity goal and gross emissions goal.
    - FI and CH_4 at the same time
    - Choice between extensive beef systems (moderate size fertile functional cows) or intensive (methane reducing supplements.)



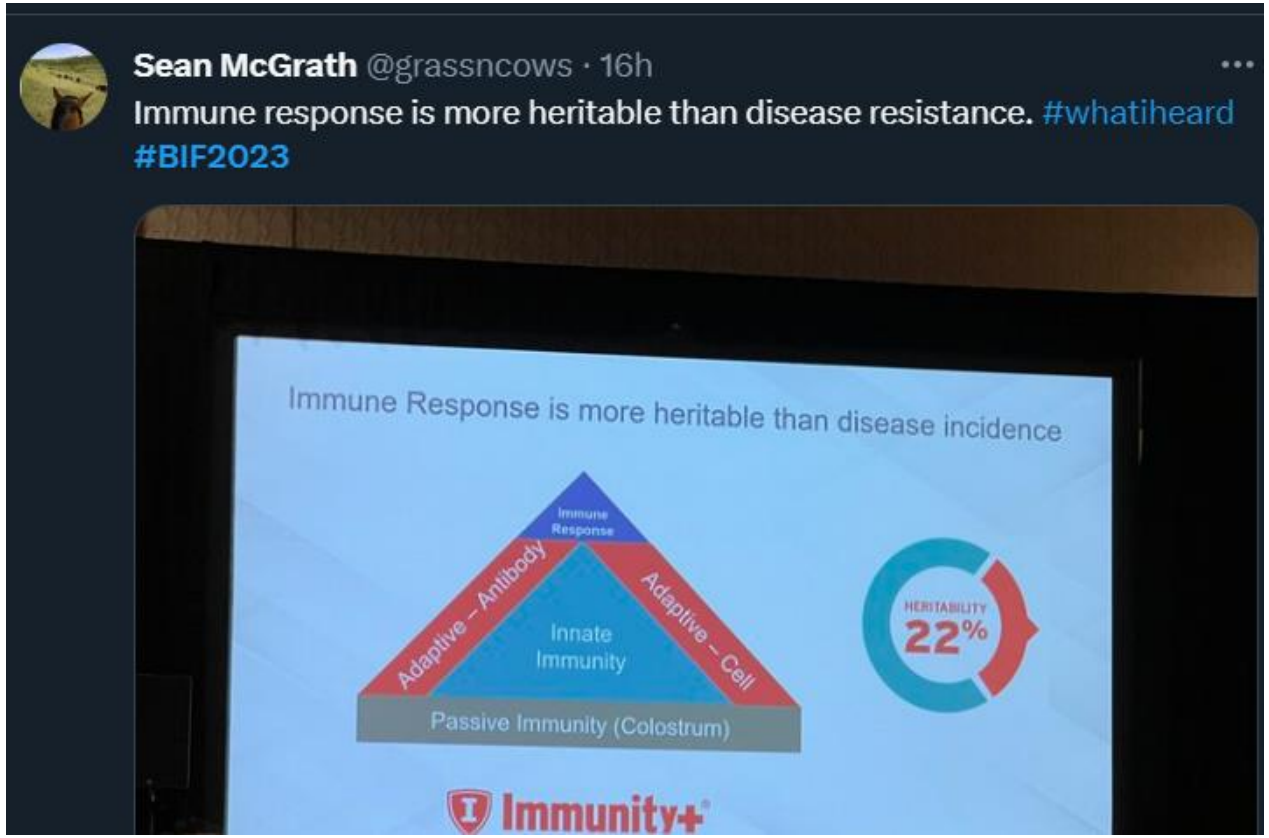
Plenary

Changing the narrative around animal agriculture using innovative genetic selection – **Dr. Mike Lohuis**

- Amer's fork in the road... "if you come to a fork in the road, take it.... YB"
- 6 positive messages to correct a negative one
- As per capita income increases, meat consumption also increases, therefore the impact of animal agriculture will also increase.
- Selection can help reduce methane. Important message to share, especially with consumers who enjoy beef and dairy products: the beef and dairy industries are reducing emissions.
- Technology is helping us manage cattle, helping identity and treat illness sooner.
- Breeding for disease resilience is being tested and studied. Immune response is heritable.
- Challenging the narrative around animal agriculture, but we as animal breeders possess the skills and tools to meet the expectations of both our industry and society. We need to tell this story.
    - Society is more open to how science and technology can provide solutions.

Plenary


Lucinda Corrigan @CorriganLucinda · 16h
#BIF2023 new index for breeding lower methane cows @BioBeef @Bovidiva @beefcentral Lactanet in Canadian dairy industry
Can this change the narrative?
Will farmers select on it?
BREEDING THE WAY TO
LOW METHANE COWS
Genomic Index April 2023
SEMEX


Sean McGrath @grassncows · 16h
Immune response is more heritable than disease resistance. #whatiheard
#BIF2023
Immune Response is more heritable than disease incidence
Immune Response
Adaptive – Antibody
Adaptive – Cell
Innate Immunity
Passive Immunity (Colostrum)
HERITABILITY
22%
Immunity+

Plenary

Erin Massender @ErinMassender · 16h

90% of dairy herds are using some level of beef semen in their breeding program (typically 20-40%).

BeefXDairy, done right, can produce similar end products to traditional beef breeds. - Dr. Mike Lohuis

#BIF2023 #whatiheard

3 10 392

Erin Massender @ErinMassender · 16h

Dr. Mike Lohuis explains you can't change narratives with facts. It takes about 6 positive stories to counter 1 negative narrative. #BIF2023 #whatiheard

1 8 145

Erin Massender @ErinMassender · 9h

"What EPD do we NOT have that we most NEED?"
1) Methane & Heart Health
2) Grazing Functionality Index - BCS, DMI, Feet and Legs etc. & Heifer Re-Breeding
3) Lifetime Sustained Profitability Index
#BIF2013 #whatiheard

Plenary

Genetic Selection tools that support dairy farmers of Canada achieve net-zero GHG Emissions by 2050 – **Dr. Filippo Miglior**

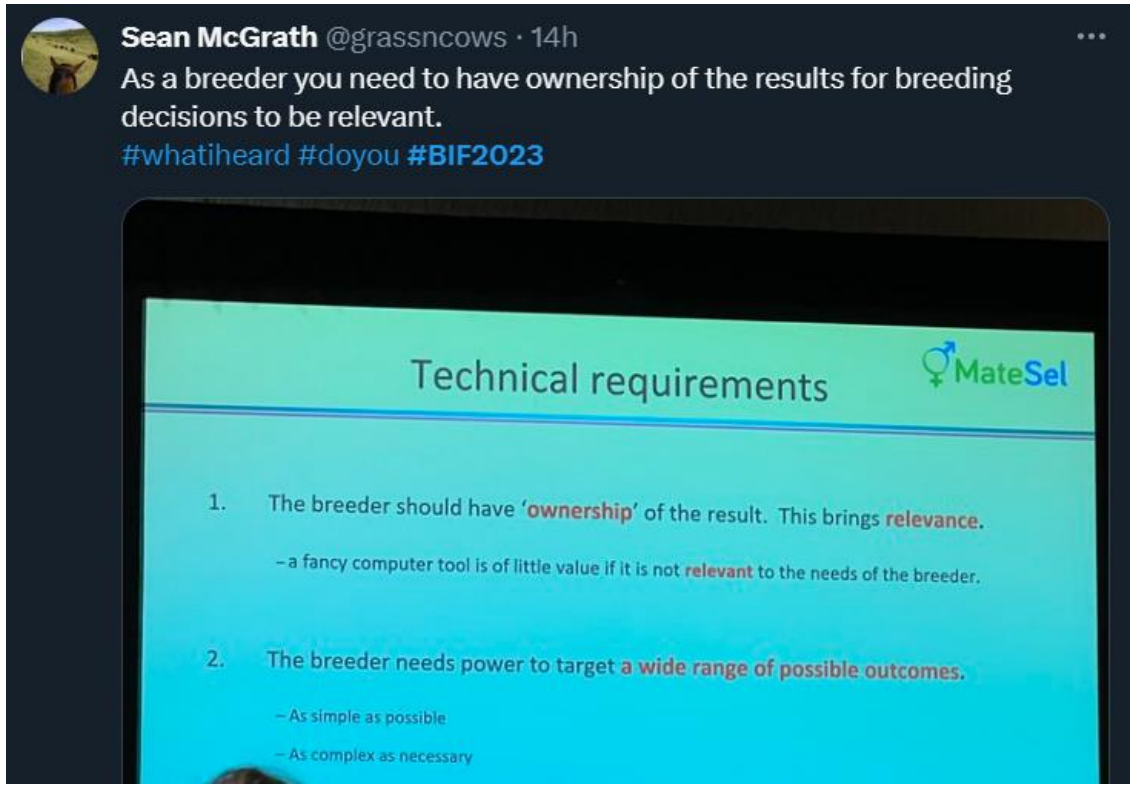
- We have the tools, machines and knowledge to achieve emission reductions.
- The goal is to achieve net-zero emissions in Canadian dairy cattle by 2050.
- An incredible amount of data has been collected, allowing for the development of genetic evaluation for methane efficiency.
- Road maps will be customizable for each operation, accounting for both genetics and nutrition.
- A substantial return on investment is anticipated, in GHG emissions reduction, improved production efficiency, animal welfare, and more.

Plenary

Precision matching of objectives and technologies in the implementation of breeding programs – **Dr. Brian Kinghorn**

- New and old technologies bring opportunities. Which ones you pursue depend on your objectives.
- Heritability, genetic correlation and economics can all be taken into consideration
- You need to have a view of your long-term outcomes in closed breeding programs.
- There can be a short window of time for breeding, but don't be tempted to use your best semen quickly, basing future decisions on past experience. Don't forget to account for future opportunities.
- Conclusion: The wide value of precision
  - A system that brings PRECISION in predicting the impact of decisions
  - Can also bring POWER TO DISCOVER a wide range of alternative directions.
  - This gives more CONTROL AND CONFIDENCE in chosen directions.

Plenary


Sean McGrath @grassncows · 14h
As a breeder you need to have ownership of the results for breeding decisions to be relevant.
#whatiheard #doyou #BIF2023
Technical requirements
MateSel
1. The breeder should have 'ownership' of the result. This brings relevance.
– a fancy computer tool is of little value if it is not relevant to the needs of the breeder.
2. The breeder needs power to target a wide range of possible outcomes.
– As simple as possible
– As complex as necessary


Sean McGrath @grassncows · 11h
Self explanatory. #whatiheard #BIF2023
The bull purchase is one of the riskiest decisions that a commercial cattle operation makes
UTCVM

Breakouts

Kuehn

- Sustainability, tenderness, calving ease examples of future traits
- Breed differences for traits like retail case shelf life (color stability), feed intake and test gain, mature weight and BCS and so on.
- BIF is offering iGENDEC so EPDs for these novel traits can be offered and updated.
- Differences in breeds may not be consistent in all environments for all traits. The 'Grand Challenge' project is trying to address some of these breed productivity differences.

- Question: How are sires selected... "representative as possible so ask BAssocs top used sires in the last 3-5 years....then choose high accuracy and balance EPDs to be representative of where the breed trend is going, and breed mean"
    - Purebreds were initially purebreds but have an exception is Chi-Angus and coming to a point where the composites are now having a large number of sires and we need to think about the best way to look at those next and see if the breed differences hold up

Breakouts

Miglior;

- Rate of increase rather than the absolute is more relevant
- Pedigree and Genomic inbreeding... Inbreeding is mostly unavoidable
- Need to balance the genetic gain with inbreeding
- It's hard-to-find outcross sires of high genetic merit. Two important decision points when maintaining genetic diversity in a pop'n 1) genetic diversity of bulls purchased by breeding companies 2) the selection of sires when mating females in your herd.
- Genomics has aided in the discovery of genetic recessives in dairy breeds. But, by the time we see it in the pop'n, it can already be prevalent. Lactanet is looking at mechanisms to manage reporting of such occurrences in the future.
- Question: Outcross hasn't got traction in AI industry... deleterious alleles more of a problem.... So if we mange that, is inbreeding really a problem?

Breakouts

Sequencing Strategies to enhance the next generation of genetic evaluations – **Dr. Troy Rowan**

- Sequencing is only getting cheaper and the technology, in a genetic prediction context, is increasing

Why should commercial cattlemen be interested in genomics? **– Dr. Troy Rowan**

- Once we have removed environmental variation from contemporary groups, we need to determine which genetics an animal received from its parents. That's where genomics comes into play.
- Mendelian sampling accounts for 50% of genetic variation in a trait. Dr. Rowan explains: getting the best from both parents requires a great degree of luck.

Breakouts

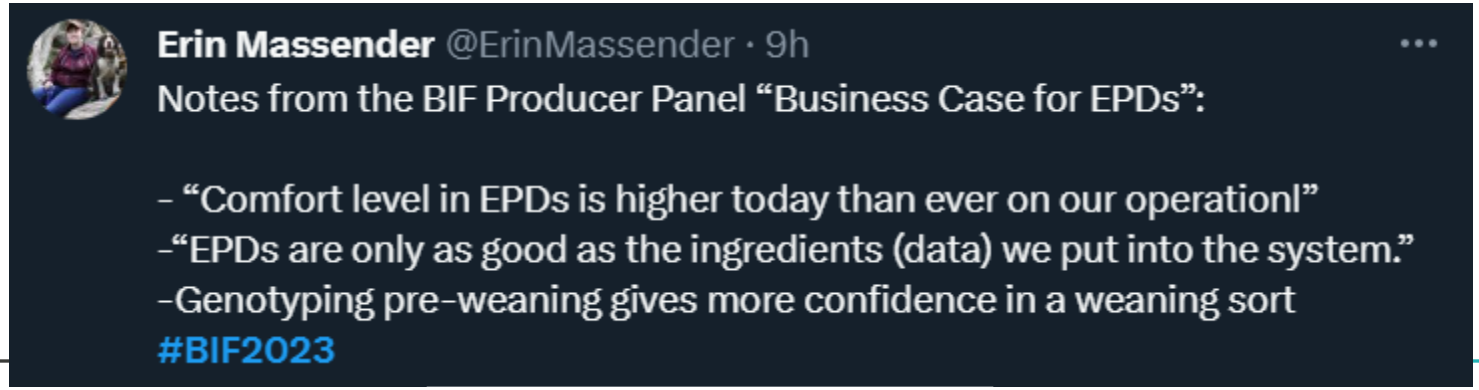
VBP+: How sustainability and genetics fit together – **Shannon Argent**

- Stakeholders from producers to retailers to conservation organizations come together in Canada to develop strategy for sustainability in the beef industry.
- VBP Canada can use on-farm data collected during audits to help inform policy and stakeholders with an accurate representation of what's really going on at the farm level
- Roughly 1.76 million head are under the management of VBP Canada certified operations. Those operations also account for about 6.4 million acres.

Breakouts

Panel Discussion: A business case for using EPDs – **Sean McGrath, Harold Bayes, Paul Bennett and Donnell Brown**

- It's Important to be mindful of information overload when presenting EPDs and phenotypic data to customers. Knoll Crest Farm adapts to what their customers want and need.
- On Sean McGrath's operation, EPDs are a toll to select the cattle that are going to thrive in their context on the resources they are willing to put in. "It's really important to understand your context."
- Donnell Brown believes EPDs have 3 purposes; Selection, Marketing, Risk Management



Breakouts

Methane, feed intake and maintenance energy – **Dr. Megan Rolf**

- Methane intensity has decreased 15% from 1990 to 2021.
- Methane emissions increased (gross)
- Protocols should include a number of spot samples as opposed to a test duration.

Pulmonary Hypertension: Feedlot heart failure and high-altitude disease – **Dr. Tim Holt**

- Cattle and humans with hypertension have the same mechanism. It is almost impossible to tell them apart when studying data.
- Heart scoring has potential economic impact. More research is needed for h^2

Feedlot heart disease: Perspectives from a vertically integrated production chain – **Dr. Justin Buchannan**

- Seeing seasonality in feedlot cardiac mortality.
- Research indicates breed and crossbreeding may play a role in the frequency of disease.
- Will use the data and information in bull selection.

Breakouts

Genetics of heart score and relationships with performance – **Dr. Scott Speidel**

- Relationship between cardiovascular health and performance traits.
- 4 key objectives in this study, development of metrics to identify cattle predisposed to feedlot heart failure.
    - Quantify the relationship between pulmonary arterial pressure measured in fattened cattle and heart scores collected at slaughter.
    - Examining potential factors indicated in feedlot heart disease including the role of genetics in disease incidence.
    - Determine the effect of heart remodeling during the feeding period on feedlot and carcass performance.
    - Development of selection tools in the form of epds for feedlot heart disease resistance.
- Heritability is 0.28 – animals with heavier carcasses tend to have higher heart scores.

Thank you