An Alternative Solution for Supporting Beef on Dairy Genetic Selection Decisions

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Introduction

- In the dairy industry, on farm genetic strategies have seen a major shift over the past decade

- The perfect trifecta effect:
  1. Genomics increases the accuracy for ranking females in the herd
  2. Sexed semen used on the top half of the herd optimizes the genetic quality of future replacement heifers
  3. Beef sire semen to breed the remaining females increases the sale value of resulting calves

Beef on Dairy in Canada
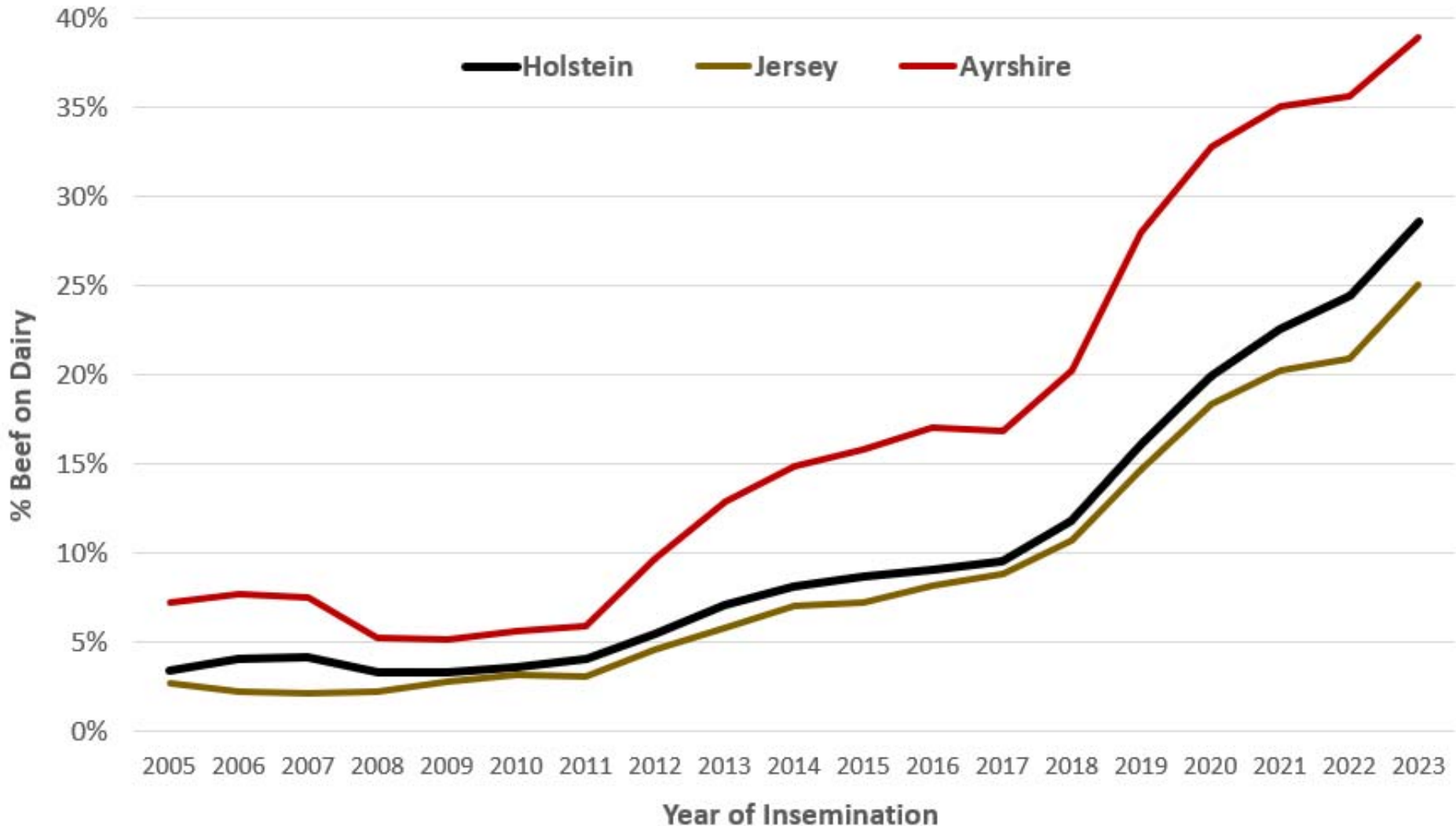
Lactanet Services

- Multiple Lactanet activities touch the Beef on Dairy trend
- For the Canadian dairy industry, Lactanet is the leading provider of:
  - Data collection services
  - Herd management software
  - Dairy cattle traceability
  - Knowledge mobilization
  - Genetic/Genomic evaluation services (>100 traits across 7 dairy breeds)
- Website used by dairy farmers across the country and internationally
  - >30,000 unique users/month for genetics query tools

Genetic Evaluations for Beef on Dairy

Pedigree

Performance

Genotypes

Genetic Evaluations
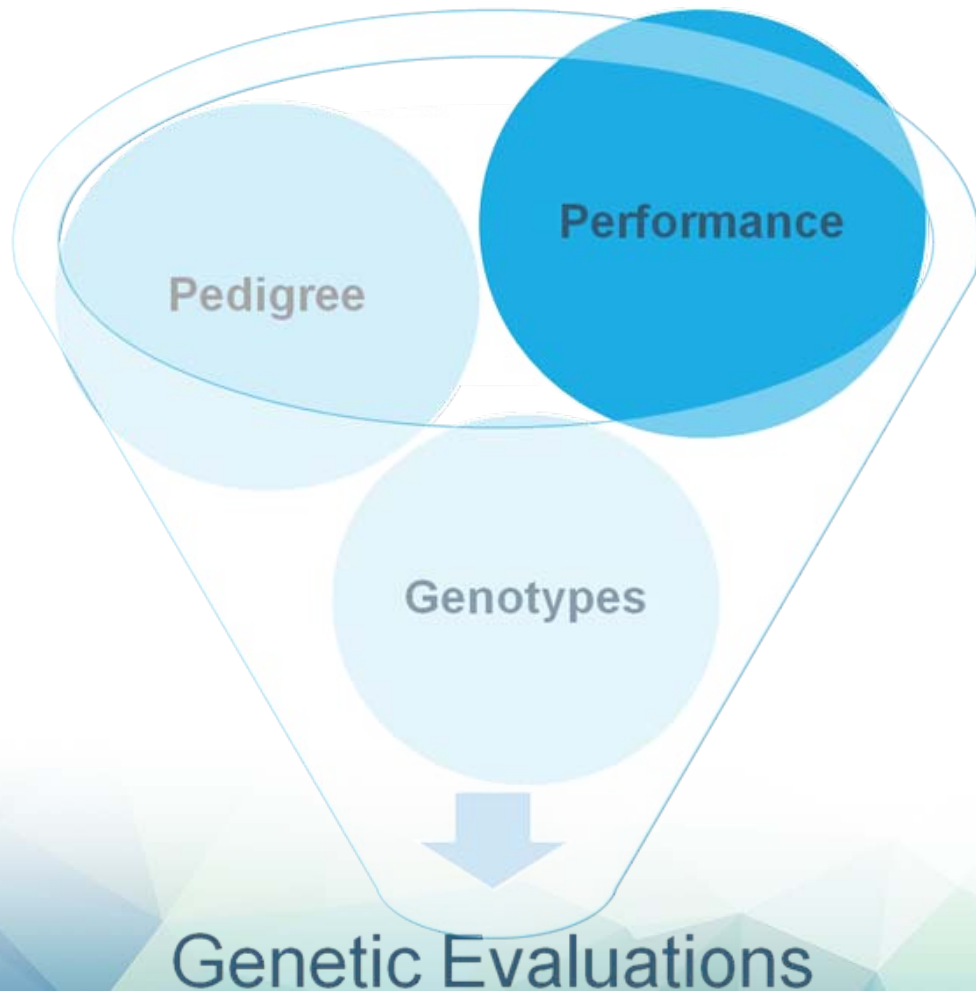
- Performance data includes:
  - Calving ease and birth weight
  - Growth traits
  - Carcass yield and quality traits
  - Dry Matter Intake / Feed efficiency

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Genetic Evaluations
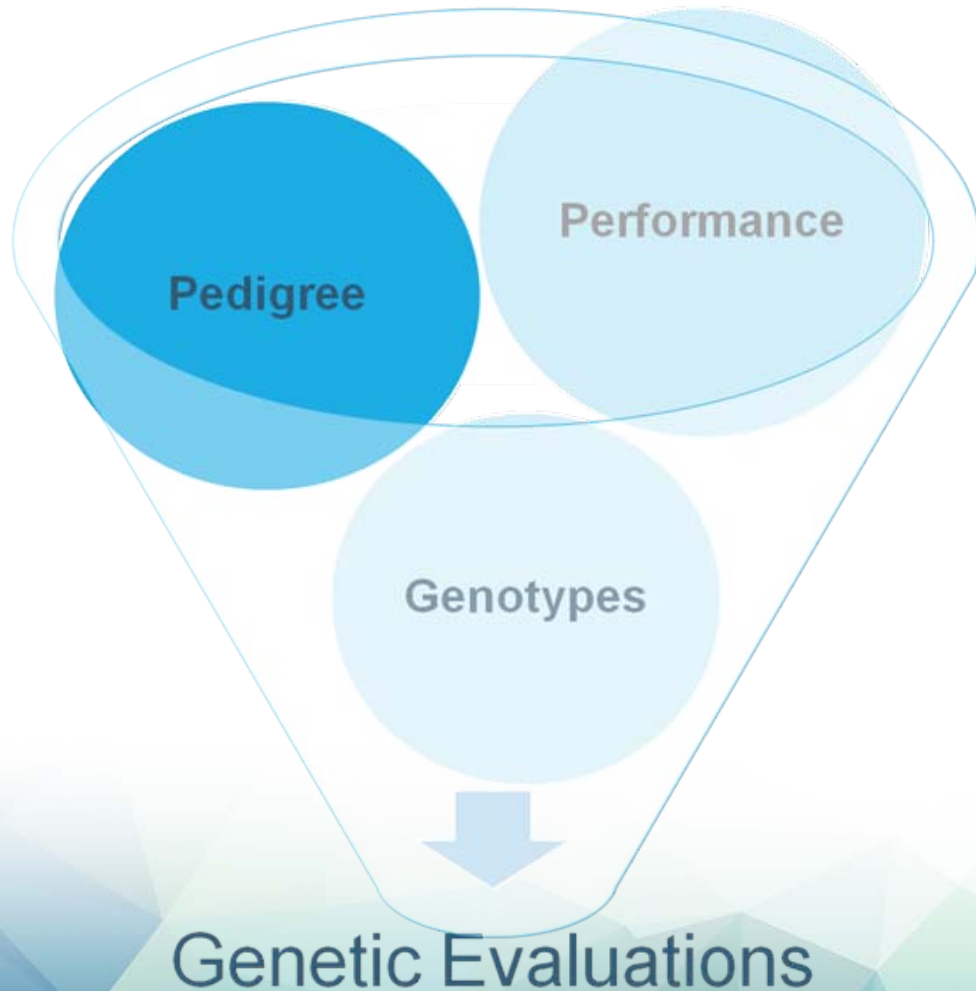
- Pedigree data includes:
  - Dams of the beef crossbred calves
  - Generations of pedigree data for the beef sires used in dairy herds

Genetic Evaluations for Beef on Dairy

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Genetic Evaluations
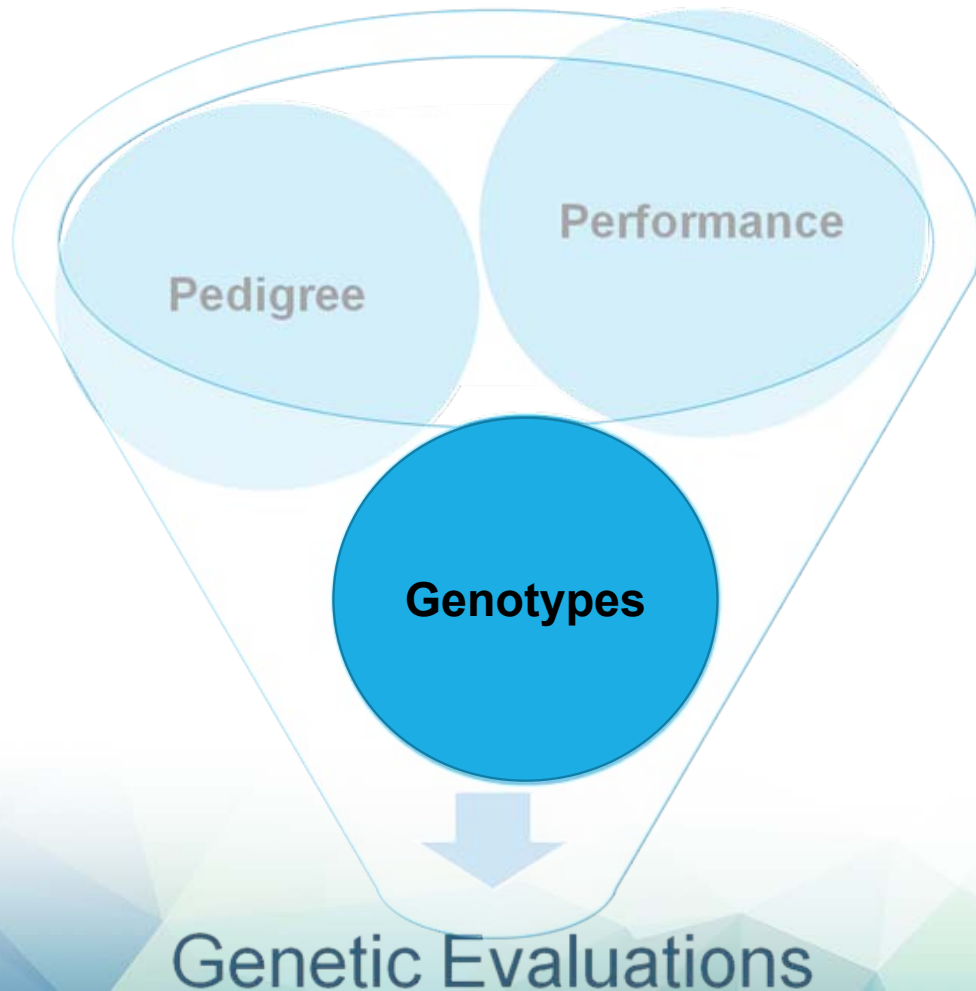
- Genotypes include:
  - Beef crossbred calves and ideally their dairy dams
  - Beef sires used in dairy herds

Genetic Evaluations for Beef on Dairy

Pedigree

Performance

Genotypes

Genetic Evaluations
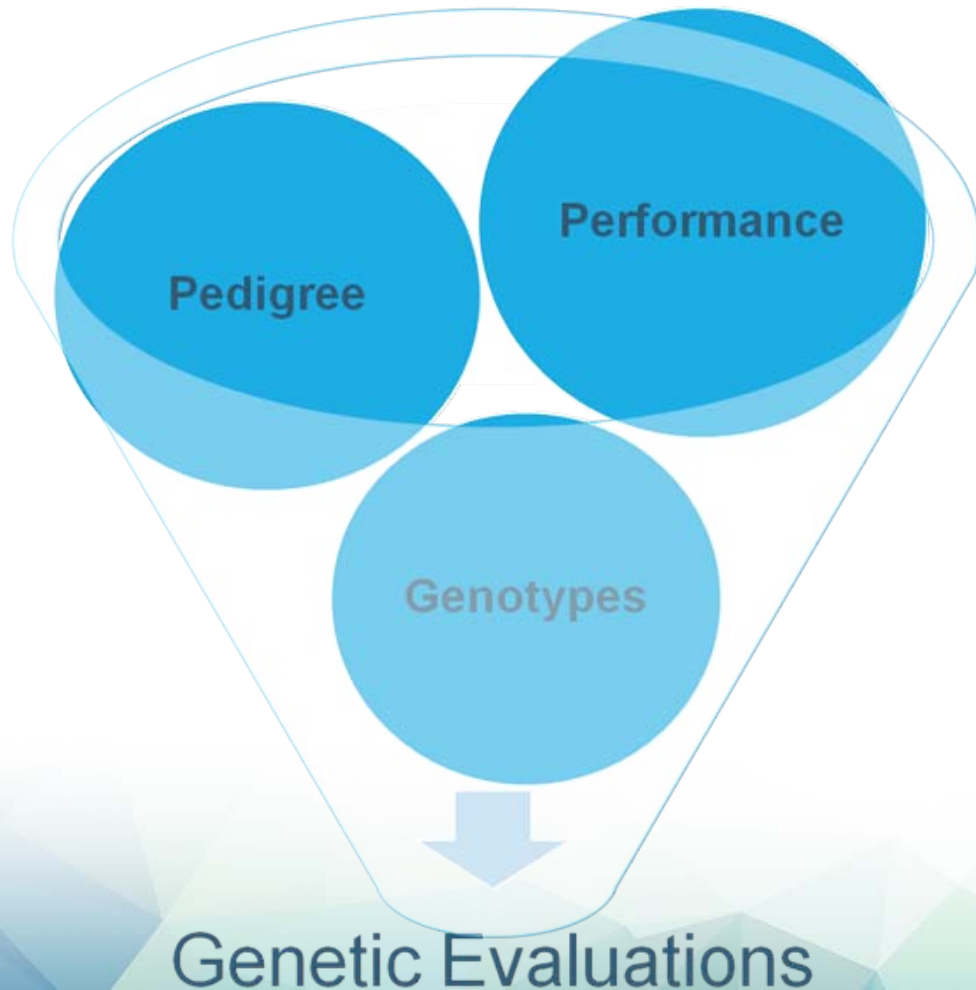
- Genetic evaluations include:
  - Development of a continuous data pipeline for access to phenotypes, pedigree and genotypes
  - Development of multiple single step genomic evaluation systems to cover the desired trait groups

Role of Lactanet

- Expand and improve the on-farm data collection for beef crossbred calves

- Grow our genetics expertise and knowledge transfer services in the area of genetic evaluations for beef traits

- **Not invest** in the development of genomic evaluations for the beef on dairy market segment

- Instead of creating new competition, establish a collaboration with existing beef evaluations service provider

Angus Genetics Inc.

- AGI is a globally recognized provider of the World Angus Evaluation for the Angus breed
  - www.angus.org/AGI/
  - Subsidiary of the American Angus Association

- Evaluations include data from United States, Canada and Australia
  - Key partner is the Canadian Angus Association (www.cdnangus.ca)
  - Weekly genomic updates

Angus Genetics Inc.

TRAIT	TRAIT
Calving Ease Direct	Pulmonary Arterial Pressure
Calving Ease Maternal	Hair Shed Score
Birth Weight	Heifer Pregnancy
Weaning Weight	Maternal Milk
Yearling Weight	Mature Weight
Yearling Height	Mature Height
Dry Matter Intake	Carcass Weight**
Scrotal Circumfrence	Marbling Score**
Docility	Ribeye Area**
Foot Claw Set	Backfat Thickness**
Foot Angle	

- AGI calculates and publishes *"Genomic Enhanced Expected Progeny Differences (EPD)"*

- Key trait groups of interest include:
  - Calving ease
  - Birth, weaning, yearling and mature body weights
  - Dry Matter Intake / Feed efficiency
  - Carcass yield and quality

- Beef on Dairy selection indexes:
  - **Angus-On-Holstein ($AxH)**
  - **Angus-On-Jersey ($AxJ)**

Benefits

For Lactanet	For AGI
- Low cost - Avoids duplication and competition - Timely implementation - Partnership with a global leader in genomic evaluations for beef traits - Allows for improvements and new traits over time - Angus represents over 75% of beef semen used in dairy herds, so helps with the largest market share	- Third party recognition - No cost - Wider scope of evaluation users - Example model for other dairy genetic evaluation centers - Potential for data on beef crossbred calves to be included in the future - Continuous assessment and improvement of $AxH and $AxJ selection indexes

Implementation

Animal Search

Group Search

Inbreeding Calculator

Beef-on-Dairy Search

BEEF ON DAIRY QUERY RESULTS

Note: The Genomic Enhanced Expected Progeny Differences (GE-EPDs) are calculated and provided by Angus Genetics Inc.

Modify Query

⬤ Convert EPDs to RBVs ❓

Show 100 entries

Bull Name	NAAB Code	Birth Year	Act.	Selection Indexes		Calving Ease Direct	Weight & Growth				Dry Matter Intake	Caracass Yield & Quality			
				$AxH	$AxJ		BW	WW	YW	RADG		CW	Marb	RE	Fat
Example A	xxxANxxxxx	2022	A	+230	+250	17	-1.6	65	123	0.29	1.29	50	0.96	0.59	0.003
Example B	xxxANxxxxx	2022	A	+220	+210	10	2.1	60	115	0.20	1.15	40	0.75	0.50	0.007
Example C	xxxANxxxxx	2023		Etc.											

Summary

- Growing trend towards beef on dairy, which is here to stay
- Dairy producers need tools to make good beef sire selection decisions
- Query tools on Lactanet website are widely used and can easily be expanded
- Building new genetic evaluation systems for this market requires a very significant investment
- Collaboration with key partners in the beef sector is logical and provides benefits to all parties involved

Lactanet is well-positioned to provide quality genetic information for Canadian dairy farmers to make selection decisions to optimize the value of beef crossbred calves for the beef value chain.