GoatGenetics.Ca
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Canadian Dairy Goat Genetic Improvement Program

July 27, 2021

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Key messages

1. Genetic improvement can save cost and increase revenue

2. National genetic evaluations for dairy goats are available at www.GoatGenetics.ca

3. Information on data recording programs is available from the Canadian Goat Society: www.goats.ca

1. How much difference can genetic improvement make?

- A 1% per year improvement in milk production is easily achievable for dairy goats (3% is theoretically possible)
  - If herd average is 1 000 kg per lactation, a 1% increase would add 10 kg each year, 50kg after 5 years, 100 kg after 10 years
  - In the past 50 years, milk yield in Canadian Holsteins has doubled from about 6 000 kg in 1970 to over 12 000 kg per lactation today
- Genetic gains are permanent and cumulative, and come with very little extra cost since goats will become more efficient at turning feed into milk
- Result is more milk to sell (higher revenue) or the same milk with fewer goats (lower cost)

Core Genetic Improvement Objectives

- Increase the volume of milk per goat
- Maintain or improve the % fat and % protein
- Maintain or improve conformation

Can add other traits, including for meat goats, if data is available

How can I get some of that genetic improvement?

Option A: Tap into genetic improvement of a breeder

- Purchase of bucks or semen will give 50% of the breeder's historical improvement in the first generation of replacement does; next generation will have 75% of the breeder's historical improvement; then 87.5%; and so on.
- Purchase of young does (or embryos) will give you 100% of the breeder's historical improvement in the first generation

How can I get some of that genetic improvement?

Option B: Participate in the genetic improvement program yourself

- Requires some investment, on-going costs and training
- Allows for rapid genetic gain and more control over traits
- Gives information for management (not just genetic improvement)
- Saves cost on purchasing breeding stock

How can I get some of that genetic improvement?

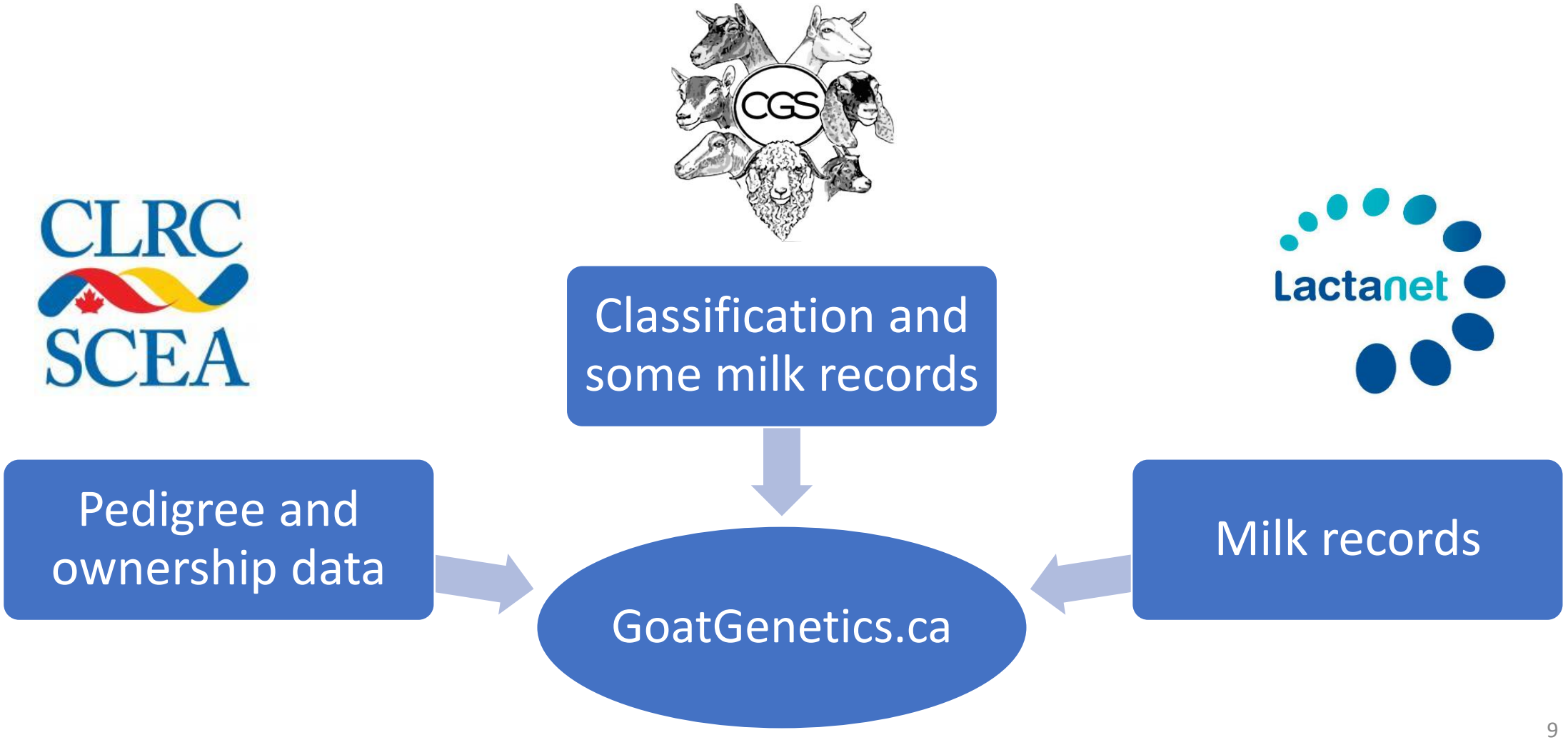
Option C: A combination of Options A and B

- Theoretically best for maximizing the benefits of genetic improvement

2. What is the Canadian Dairy Goat Genetic Improvement Program?

- A combination of programs and services that take good quality data from farms across Canada and uses that data to calculate Estimated Breeding Values (EBVs)
- The EBV calculations are complicated, but the concept is *relatively* simple (pun intended)
  - They essentially combine *family* information on different traits
  - An animal's own record is most important
  - Other records are weighted based on how closely *related* they are to the animal e.g. progeny and parents 50%, grandparents and grand-progeny 25%
- Inputs are simple: pedigrees and trait measurements
- Outputs are simple: EBVs

Centralization, validation and storage of data at the national level



EBVs and Indexes

- 13 EBVs
  - 5 milk production traits
  - 8 conformation traits
- 3 Indexes
  - Production Index
  - Conformation or Type Index
  - Combined Index

Milk Production Traits

Accounting for effect of herd, breed, age, parity and stage of lactation

EBV	Trait
Milk	Kg of milk / lactation
Fat	Kg of fat / lactation
F%	Percentage of fat
Prot	Kg of protein / lactation
P%	Percentage of protein

Conformation Traits

Accounting for effect of herd, breed, age, parity and stage of lactation

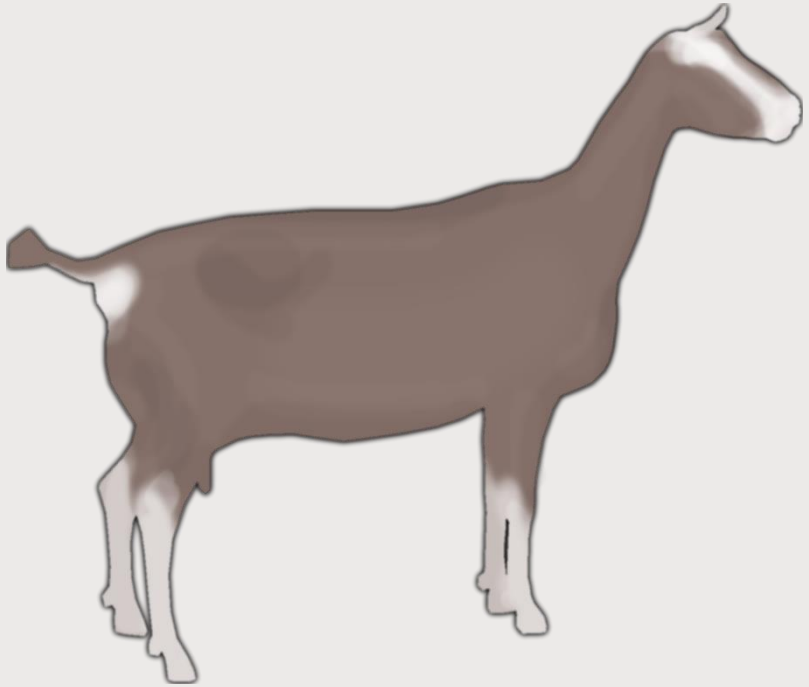


Image credit: CGS Classification manual (www.goats.ca)

EBV	Trait
GA	General Appearance
BC	Body Capacity
DC	Dairy Character
FL	Feet and Legs
SL	Medial Suspensory Ligament
FU	Fore Udder
RU	Rear Udder
TE	Teats

EBVs are available at www.GoatGenetics.ca

- EBV is an estimate of what can be passed on to progeny
  - Not the same as performance, which reflects both genetics and environment
  - The calculations adjust for many non-genetic factors (environment)
- EBVs are not perfect, but a much better tool than unadjusted performance
  - Adjusted records on all relatives are combined
  - The more relatives with records, the more accurate the EBVs
- Most important is lots of data

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Welcome

Bienvenue

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What is GoatGenetics.Ca?

GoatGenetics.Ca is an information resource dedicated to the improvement and promotion of Canadian Goat Genetics. It aims at fostering the enhancement and expanded use of improvement programs for Canadian producers and breeders, as well as international promotion of our improvement systems and genetic products. Please explore GoatGenetics.Ca for general information about goat genetics in Canada.

The Members Services area offers secure access to genetic improvement tools to find detailed information on individual goats, for selection of the best goats, and to plan specific matings. Member services are available to breeders, producers and others interested in genetic improvement in Canada or around the world.

Visit the Member Services page to apply for an account or Contact Us for more information.

Thank you for visiting our site!

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Top Goats Report: Top 5 Alpine bucks for Combined Index

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Interested in Outstanding Genetics?

Index?	Breed?	Sex?		
Index for Production and Type	Alpine	Bucks	5	Go!

				Milk Production					Type Classification (if available)					
Comb'd Index*	Goat's Name / Goat's Owner	Sire#	Reg# / Dam#	Daus Herds	Milk (kg)	Fat (kg)	Prot (kg)	Prod'n Index	Daus Herds	S/R SL	DC FU	BC RU	FL TE	Type Index
151	PETITE-ANSE COLT ERCULES		CA145831		184	3.9	4.5	144		5.6	5.1	5.1	5.1	131
	Ed & Bonnie Franken	A132008	CA130430							5.2	5.1	5.2	5.0	
143	TRILYTE ADDED ATTRACTION		A129489	15	184	7.7	6.1	161		5.1	4.7	4.9	5.0	89
	Eastgen	A125111	A117902	3						4.9	4.8	5.0	4.8	
135	WEY SOUTH WSS EASY STREET		A145965	4	45	0.9	0.0	110	4	5.4	5.3	5.4	5.1	151
	Deep South Dairy Goats (DSD)	A124013	A136909	1					2	5.4	5.6	5.7	5.4	
133	PETITE-ANSE COLT DA VINCI		CA145825		206	3.3	4.6	144		5.2	4.9	4.8	4.9	96
	Ed & Bonnie Franken	A132008	CA134284							5.2	4.8	4.9	4.6	
128	YAMASKA VAZA SKYPE		CA143684		143	3.5	3.2	136		5.1	4.7	4.8	5.0	99
	Eastgen	[FRA]A4929304099	CA127391							5.3	4.8	5.2	4.8	

* To be included in this report a goat must be registered and less than two years old -or- be registered and have had progeny in the last two years -or- be an A.I. sire with semen available in Canada.

Want more information about what these numbers mean? Click Here.

Want to see the same report with US index equivalents ? Click Here

Want to know more about the Genetic Evaluation Program for Canadian Dairy Goats? Visit us at www.GoatGenetics.Ca

Selection and mating tools in member services of www.GoatGenetics.ca

Search tool to find your goat and see all the data and pedigree details

Use EBVs and indexes on your goats based on the traits most of interest

Simulate possible buck X doe matings to predict progeny EBVs and inbreeding

Many other reports and tools to make this easier and more productive

Search Tool Example (Goats on the Web)

GoatGenetics.Ca
GénétiqueCaprine.Ca

Goats On The Web | Top Goats | Simulate a Mating

Evaluation Results For
WEY SOUTH CHECK ME OUT (AI)

Name: WEY SOUTH CHECK ME OUT **Sex:** F **Sire:** IRON-ROD STB L
CLRC Registration: A136909 **Breed:** Alpine (AI) **Dam:** WEY SOUTH ZAF
Tattoo: WEY 10C **Birth:** Mar-28-2015 **Herd:** Cam & Alice Stew

Trait	Index/EBV	Unit	Date
Combined Index	133	pts	Jun-21-2021
Production Index	114	pts	Jun-21-2021
Type Index	140	pts	Jun-21-2021
Milk	97.2	kg	Jun-21-2021
Fat Yield	0.10	kg	Jun-21-2021
Fat Percent	- 0.39	%	Jun-21-2021
Protein Yield	- 0.21	kg	Jun-21-2021
Protein Percent	- 0.16	%	Jun-21-2021
Teats	5.56	pts	Jun-21-2021
Fore Udder	5.64	pts	Jun-21-2021
Rear Udder	5.46	pts	Jun-21-2021
Suspensory Ligament	5.25	pts	Jun-21-2021
Dairy Character	5.45	pts	Jun-21-2021
General Appearance	5.13	pts	Jun-21-2021
Body Capacity	5.29	pts	Jun-21-2021
Feet and Legs	5.18	pts	Jun-21-2021

Simulated Mating Example

Maa-Maa-Life!

Mother		Father		
PETITE-ANSE WALLACE ZIRC	AI	TRILYTE ADDED ATTRACTION	AI	Go!

Welcome to Maa-Maa-Life.
This page calculates inbreeding coefficients for matings between a pair of goats.
Enter the registration numbers, tattoos or goat's names in the boxes and then click 'Go!'
Click this: picture to see an example....

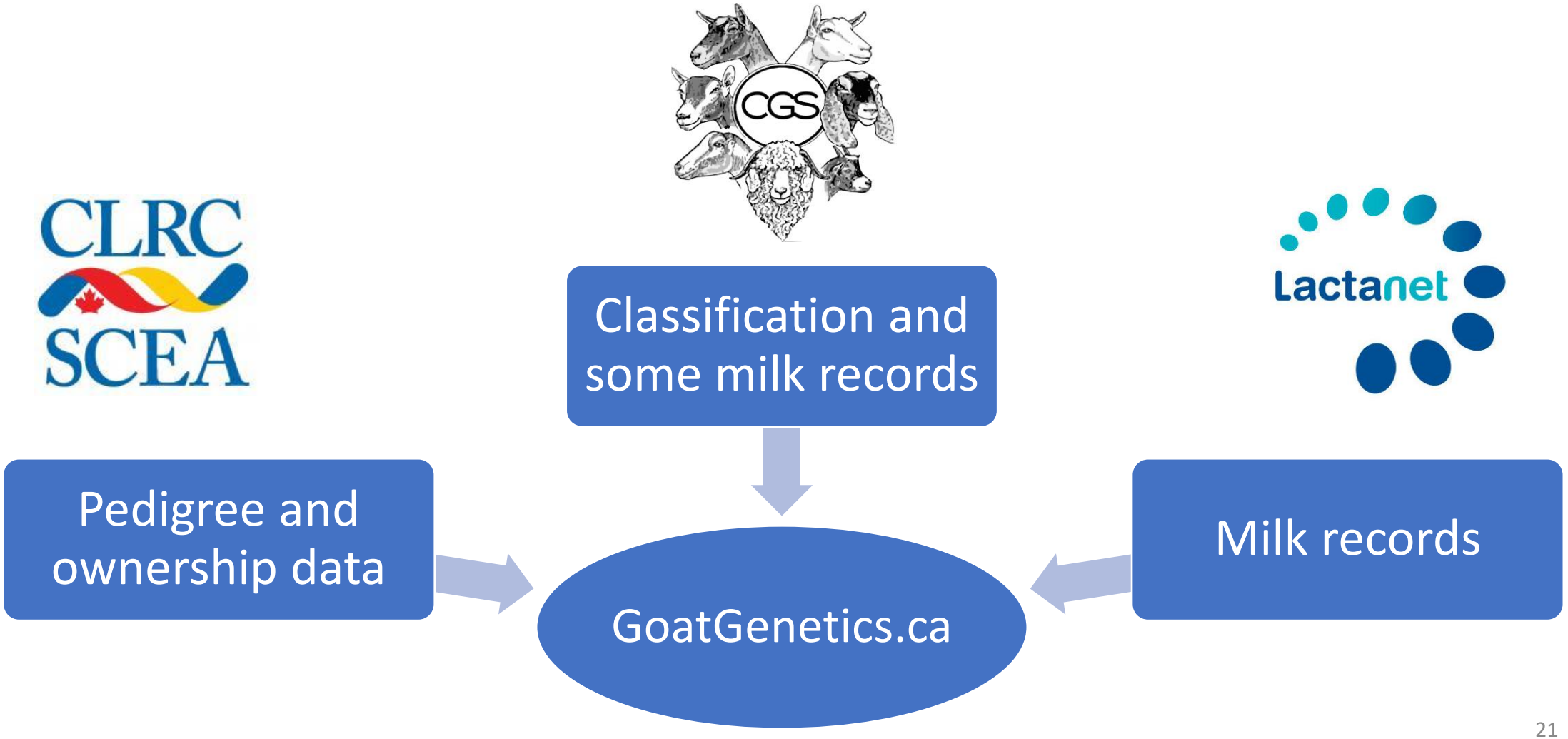
Predicted Goats:	
Inbreeding Coefficient	0.09%
Combined Index	155 (pts)
Production Index	156 (pts)
Type Index	120 (pts)
Milk	198.5 (kg)
Fat Yield	6.04 (kg)
Fat Percent	0.06 (%)
Protein Yield	5.87 (kg)
Protein Percent	0.02 (%)
Teats	4.94 (pts)
Fore Udder	5.01 (pts)
Rear Udder	5.12 (pts)
Suspensory Ligament	4.95 (pts)
Dairy Character	4.98 (pts)
Body Capacity	5.07 (pts)
General Appearance	5.53 (pts)
Feet and Legs	5.15 (pts)

3. Information on data recording programs

- Oversight provided by the Canadian Goat Society (CGS)
  - Animal identification and pedigree recording delivered by Canadian Livestock Records Corporation (CLRC)
  - Milk recording programs delivered by Lactanet and CGS also offers a one day milking program
  - Type classification (body conformation) delivered by CGS

- CGS is also working on more practical and affordable options in collaboration with meat goat and sheep organizations

Centralization, validation and storage of data at the national level



THE CANADIAN GOAT SOCIETY

The Canadian Goat Society(CGS) was incorporated on August 3rd, 1917 and is governed by the Animal Pedigree Act. CGS is dedicated to maintaining the integrity of its herdbooks, providing accurate evaluation programs for performance and type, and promoting the responsible and humane treatment of goats. It is managed by a Board of Directors elected from 6 Districts across Canada.

The Canadian Goat Society maintains the Herd books for nine purebred breeds of goats and a Special Registry for upgraded animals as specified under the animal pedigree act, which are: Alpine, Angora, La Mancha, Nigerian Dwarf, Nubian, Oberhasli, Pygmy, Saanen and Toggenburg.

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www.goats.ca

THE CANADIAN GOAT SOCIETY

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Key messages

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    - Contact Brianna via info@goatgenetics.ca for more information

3. Information on data recording programs is available from the Canadian Goat Society: www.goats.ca

    - Contact Russell via info@goats.ca for more information