Appendix 3
An Introduction to GenOvis

Good conformation is essential for optimal animal productivity; however, it is also important to evaluate the genetic potential of each animal. **Combining good conformation with high performing genetics will maximize farm productivity and profit.**

GenOvis is a genetic improvement program that is designed to:

- Assist sheep breeders (purebred and commercial) by offering on-farm genetic sheep testing
- Efficiently evaluate the genetic value of sires based on important economic factors
- Select breeding stock that will improve the farm's performance
- Compare the genetic value of animals based on several performance criteria, which can be used to compare flocks
- Maintain a large database of results for different breeds across Canada
- Track breed development/evolution

Costs and Service:

- Annual fee
- Data entry fee/lamb (free if entered online by producer)
- Certificate of participation
- Production report on lambs, ewes and rams
- Animal performance production certificate (upon request)
- Annual provincial report of performance/breed
- Flock evaluation report
- Phone consultation
- Newsletter (optional)
- Personal internet access to consult your genetic evaluation data

Data required for flock evaluation:

1. Permanent animal identification (tag/tattoos) and unique GenOvis flock letters

2. Lambing data:

• Sire • Dam • Parent breed • Foster	• Identification of lamb • Lamb's birth date • Sex of lamb • Number of lambs born • Number of lambs reared

3. Weight data:
   - Weight of lambs at birth (optional)
   - Weight at 50 (28-72) days
   - Weight at 100 (70-120) days

GenOvis is a highly efficient and affordable genetic evaluation program.
For more information, please visit the GenOvis website (www.genovis.ca), email (genovis@cepoq.com), or phone (418) 856-1200 ext. 226.

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How to use GenOvis? How does it work?
All information on animals (pedigree, sire, dam, daughters and sons, sisters …, birth weight, number of lambs born and raised, weight at 50 and 100 days, etc.) are integrated into the GenOvis genetic evaluation program and are used to produce **EPDs** and **INDEXES**. These EPDs and Indexes are genetic selection tools that allow breeders to choose animals on their potential to transmit their quality to their offspring.

What's an EPD?

An EPD (Estimated Progeny Difference) is an estimation of the genetic value that an animal will pass on to its progeny. An EPD uses all performance information on the relatives of the animal, as well as the animal's own performance. Animals with the best EPDs for a trait have the highest probability of producing exceptional progeny for that trait. The GenOvis program estimates EPDs for 15 important economic traits. The unit of an EPD relates to the trait evaluated. For example, if we are looking at EPD number born, then the unit of that EPD is the "number of lambs born". So, if we are looking to increase the number of lambs born, then we select a positive value for that trait. If we are looking at EPD 50 days, then we want to increase the weight at 50 days and the unit is kg of weight. We are looking for positive values for almost all EPDs, except for fat cover, lambing interval and age at first lambing, where we should select for negative values.

EPD? … How does it work?

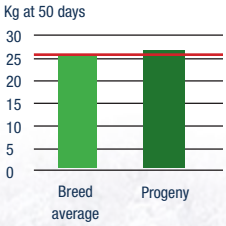
EPD 50 days = 1.20 kg

x

EPD 50 days = 0.20 kg

(1.20 + 0.20)

Performance estimated for the lambs of this mating = +1.40 Kg



Breed average for reference population: Suffolk breed (2010)

The lambs born from this breeding have the genetic ability to weigh, at 50 days, on average 1.40 kg more than the average 50 day weight of their breed.

What's an Index?

Genetic selection indexes are used to select for several traits at once. Each index is formulated to provide an average rate of progress that has been set for each trait. As great as it would be to increase a trait such as number born up to 5 lambs per lambing, what would be the point if only 1 of those lambs survives? By balancing traits into indexes, it is possible to select for several important traits at the same time with only one number: the genetic selection index. Six genetic selection indexes are now available and each of them has its own purpose and combines different EPDs.

Quick and easy: which animal is best, based on an EPD or Index?
Percentiles help with selection. Percentiles are produced for all EPDs and Genetic Indexes. The percentile is a number that reflects the position, so the ranking, of an animal within its breed. It allows a comparison of an animal's performance to those of all animals of the same breed that have been evaluated in GenOvis. For example, an animal with an 80th percentile for one trait indicates that 80% of animals within that breed are inferior to it for that trait, while 20% are superior. The 50th percentile represents the average of a trait within a breed. We consider that an animal is "improver" when its EPDs and Indexes are above the 50th percentile, so above the average of the breed. "Top animals" in a breed are in the 90th percentile and more.

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6 Selection Indexes to Help Breeders with Genetic Selection

Which Index do I look at when I select or buy an animal?

I Want To…

PRODUCE MARKET LAMBS

GAIN INDEX

Helps improve lamb survival and growth rate from birth to slaughter.

Example of use:
Your lambs are all marketed on live weight (stockyard).

I would like to increase carcass quality at the same time.

Animal evaluated with ultrasound*

CARCASS INDEX

Helps improve lamb survival, growth rate and carcass quality from birth to slaughter.

Example of use:
You are paid on your lamb's carcass quality. You want to improve ***carcass quality***.

INCREASE MATERNAL ABILITIES AND PROLIFICACY OF MY FEMALES

MATERNAL HIGHER PROLIFICACY INDEX

Helps improve prolificacy and maternal qualities of daughters.

Example of use:
For non-prolific breeds (Dorset, North Country, Polypay, …). To increase prolificacy of the offspring (cross breed, F1 or purebred).

I would like to increase carcass quality at the same time.

Animal evaluated with ultrasound*

MATERNAL ULTRASOUND HIGHER PROLIFICACY

Helps improve prolificacy, maternal qualities and carcass quality of daughters.

Example of use:
Same as for Maternal Higher Prolificacy Indexm but this index improves ***carcass quality*** and prolificacy at the same time.

INCREASE MATERNAL ABILITIES, WITHOUT INCREASING PROLIFICACY

(My ewes are prolific enough!)

MATERNAL INDEX

Helps improve maternal qualities and weaning weight.

Example of use:
For highly profific breeds (Romanov, Rideau Arcott, …) when better growth and weaning weights are needed. When producing F1 with prolific ewes.

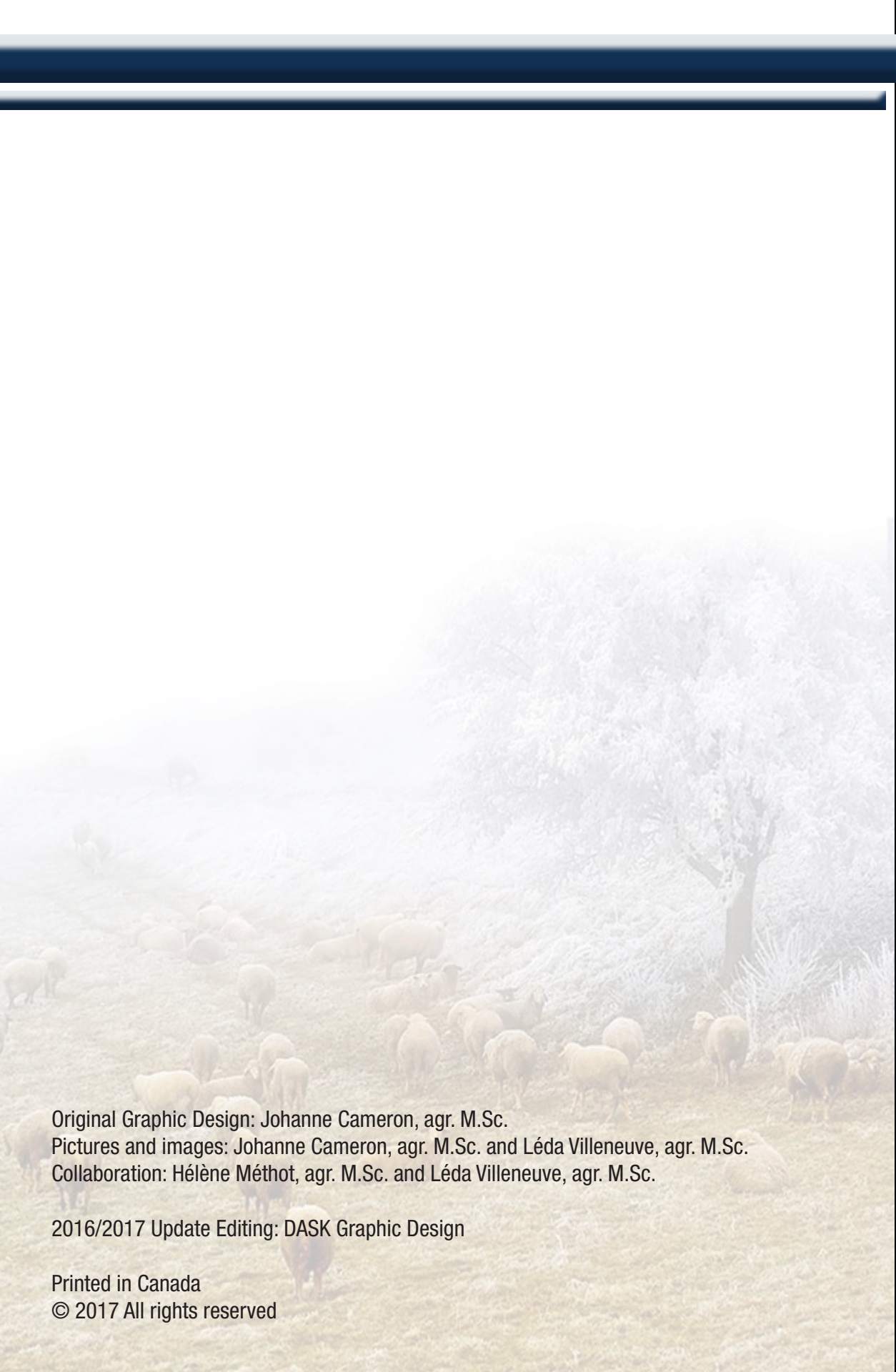
I would like to increase carcass quality at the same time.

Animal evaluated with ultrasound*

MATERNAL ULTRASOUND INDEX

Helps improve maternal qualities, weaning weight and carcass quality.

Example of use:
Same as for Maternal Index, but this index also improves carcass quality, maternal qualities and weaning weight, all at the same time.



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