



SOCIÉTÉ DES ÉLEVEURS
DE CHÈVRES LAITIÈRES
DE RACE DU QUÉBEC



NEWS RELEASE

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Goat Genetic Improvement Opportunities Expand with Genomics Research

Improving herd productivity and health through the use of genomics

GUELPH, Ont.- Ontario Goat (OG), the Société des Éleveurs de Chèvres Laitières de Race du Québec (SECLRQ) and the Canadian Centre for Swine Improvement (CCSI) have received funding for their joint goat genetic improvement project *Goat Herd Improvement on Productivity and Health using Genomics*.

With approximately \$278,000 in funding, from the Conseil pour le Développement de l'Agriculture du Québec (CDAQ), the Agricultural Adaptation Council (AAC) and the Investment Agriculture Foundation of BC (IAFBC), goat industries country-wide have come together to collect data and analyze results in order to better utilize genomics as a management tool in the goat industry.

While genomics has become a popular genetic improvement tool in other livestock sectors, very little research has been done in the goat sector. With the recent development of the complete goat genome sequencing a 50K SNP (single nucleotide polymorphism) test for goats has now been created. However, in order to get to the more cost efficient 6K SNP test (or low density panel) that has become standard in the cattle industry, an international effort is underway to collect data and genetic information from a wide sample of goats. Part of the goal of this two-year project will also be to submit data as part of the international consortium of goat researchers.

"This goat genomics project is the first step in developing the future of genetic evaluations for the goat industry in Canada" stated Stéphanie Béliveau, SECLRQ Directrice. "The work that SECLRQ, OG and CCSI are doing today will ensure that all Canadian goat breeders have access to the latest tools and research to assist them in making informed reproduction and management decisions" she added.

The project will see a total of 1,000 goats genotyped using the new 50K SNP panel. Participating herds will be identified based on the availability of required information, which will include registration, milk recording, type classification and CAE results. Goat producers who participate will receive full genomic genetic evaluations of the animals sampled as part of the data being analyzed. Traditional genetic evaluations rely on the collection of on farm performance data such as milk recording, classification and the animal's pedigree information. Genomic values are calculated by relating the DNA profile to the traditional breeding value for several traits. This will calculate a predicted effect for each of 50,000 SNPs for each trait and when totaled will create their genomic value. Combining the genomic value with the traditional values will increase the accuracy of the predicting the goats genetic evaluation.

Data analysis for this project will be performed by CCSI, who also have extensive experience in producing traditional goat genetic evaluation data through the www.goatgenetics.ca database. "Genomics will increase the reliability and accuracy of the data compared to traditional genetic evaluations when looking at a goat's genetic potential" stated CCSI Chief Executive Officer Brian Sullivan. "Goat breeders will also be able to select doelings and young bucks at a much younger age, increasing the rate of genetic progress in the goat sector" he added.

Genomics is also a very promising tool for traits that are more difficult to measure, such as health traits. Using genomics, goat producers may have the ability to identify animals that are more resistant to certain production limiting diseases. Improving disease resistance in the goat herd could significantly improve the

income of goat farmers through increased productivity, lower mortality and overall herd health, as well as animal welfare and food safety.

“Caprine Arthritis Encephalitis (CAE) is a major health issue for goat producers and is a source of concern for genetic improvement and transfer of top genetics between herds. The use of genomics could help to identify animals in a producer’s herd that are more resistant to the disease. This would allow the preselection of breeding stock at a very young age and possibly the eventual eradication of the disease from the herd all together” stated Kevin Weaver, OG GoGen Project Coordinator.

Ontario and Quebec goat producers are being encouraged to participate in this ground breaking project.

Ontario Goat represents Ontario’s milk, meat and fibre goat farmers with a united voice. The Société des Éleveurs de Chèvres Laitières de Race du Québec represents Quebec dairy goat breeders. The Canadian Centre for Swine Improvement computes national genetic evaluations for Canadian dairy goats and manages GoatGenetics.ca.

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Investment in this project has been provided through Industry Councils from Ontario, Quebec and British Columbia, which deliver the Canadian Agricultural Adaptation Program (CAAP) on behalf of Agriculture and Agri-Food Canada.



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