Opportunities for goat genetic improvement

The goat is a wonderful and interesting animal for many reasons, not the least of which is the great potential for genetic improvement. Research from the 1980s has suggested that goats have even more potential for improvement than other farmed animals such as dairy and beef cattle. This potential comes from the fact that they have a large amount of natural genetic variability, important traits have moderate to high heritability, and because goats have a relatively short generation interval. This means we can accurately evaluate genetically superior animals and producers can quickly turn the generations over for rapid genetic improvement. In partnership with various government, industry and producer associations, we are continuing to develop the Canadian goat genetic improvement program, building upon the Canadian dairy goat genetic evaluation program, which was initiated in 1987.

Principles of Genetic Improvement

For centuries, breeders have selected their livestock to make it more efficient and adapted to evolving markets and production environment. Methods and tools for evaluation and selection of elite animals have evolved with technology and new knowledge in genetics.

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Genetic evaluations for Canadian dairy goats have been available since 1987, based on research at the University of Guelph, supported by Semex Canada and Agriculture and Agri-Food Canada. The program allowed for identification of top bucks that were used across different herds in Canada, and laid the groundwork for more recent developments. Based on pedigree information available at CLRC, milk competition data from the Canadian Dairy Goat Society, type data collected by Holstein Canada and milk records from Canadian DHI, 11 traits are evaluated including milk, fat and protein yield as well as 8 type traits.

With support from the provincial governments in Quebec and Ontario, further work with goat producers in these provinces allowed to develop a juvenile selection program for dairy goats. With this program, producers will have access to genetic evaluations of bucks, does and kids within their own herd. Web-based tools are available to help make breeding and early selection decisions on young goats based on evaluations of their parents.

Application of these programs across Canada is expected to lead to effective and rapid genetic improvement of the national dairy goat population. The same principles could potentially be applied to goats for improved production of meat or fibre.

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