



SIMULOVINS

SHEEP FARMING

Planning, predicting, and scheduling sustainability



TECHNOLOGICAL INNOVATION FOR THE SHEEP FARMING INDUSTRY

To improve the management of Canadian sheep farms, two areas must be addressed: breeding management and production economics. Both technical and financial concerns must be considered.

Over past decades, great progress has been made in the study of complex production systems as a result of advances in computer simulation. Simulations allow large numbers of calculations to be made in short periods of time and maximize the number of factors and interactions that can be accounted for in a given system.

For about 10 years, the Université Laval Faculty of Agriculture and Food Sciences' Department of Animal Sciences has been studying flocks of sheep using computer simulations. That's how *Simulovins 1.0* was born. The software factors in all the production parameters for a flock of sheep and the various relationships that exist between those parameters. It is able to show the impact of a variety of livestock production changes (e.g., production systems, breeds, crossbreeding, feed, and more) and zootechnical performance on a flock's technical and economic results. *Simulovins 1.0* was developed in a research context where the primary goal was to study flock profitability factors on a macro level.

A team of specialists is now working on *Simulovins 2.0*, an updated version of the application that is aimed at agricultural consultants and cutting-edge producers. It will be more user-friendly and is designed for use on farms. *Simulovins 2.0* will help sheep farm managers choose strategic directions for the development of their flocks.

The software will allow farm managers to prioritize directions and interventions based on the specific characteristics of a given farm. It provides producers with a picture of the economic results of changes before they are made, considerably reducing the financial risks of such decisions.



François Castonguay
Professor, researcher,
innovator, and leader

François Castonguay has held the Université Laval Educational Leadership Chair in Sheep Production since 2014 and has been a professor and researcher in the Faculty of Agriculture and Food Sciences' Animal Science Department since 1997. His track record in terms of teaching, teaching innovation, and research is remarkable. He specializes in sheep breeding and reproduction and has worked in research and development in the sheep farming industry for over 25 years. During his career, he has completed over 50 projects, the vast majority of which have been collaborations with commercial enterprises.

Castonguay's reputation among all members of Quebec's sheep farming industry, his leadership, and his renown, have helped him build a solid team to develop *Simulovins 2.0*.

SHEEP FARMING AND SUSTAINABLE DEVELOPMENT

Sheep farming is recognized as being a form of agricultural production that is respectful of the environment and animal wellbeing, qualities which consumers are now demanding. Encouraging growth in the sheep farming industry is another step toward more sustainable agriculture in Canada.

GROWTH AND MARKET POTENTIAL IN THE CANADIAN SHEEP FARMING INDUSTRY

Revenues in the sheep farming industry have been on the rise for over 20 years. The growth is the result of increased demand for diverse agricultural products and a changing cultural context due to new immigrants, some of whom are big consumers of lamb. Yet Canadian lamb producers only produce about 45% of the lamb consumed in the country. Clearly, there's strong growth potential for sheep farming.

SHEEP PRODUCTION MANAGEMENT: PROFITABILITY IS KEY

Low profitability is currently compromising the sustainability of many sheep farms. To increase profitability, farms must be able to identify the factors and production parameters that have an impact on revenue and production costs. Sheep flocks, however, are very complex systems, and many parameters can influence their profitability. There are a number of ways to increase profitability and they can involve many areas of activity.

A TEAM OF EXPERTS

The development of *Simulovins 2.0* has involved specialists in breeding management, production economics, business management and financing, and information resource engineering. The team also includes 10 innovative sheep farmers who are collaborating closely on developing and evaluating the new version to make sure it meets the needs of future users.

SHARING KNOWLEDGE: FROM TECHNOLOGICAL TO PEDAGOGICAL INNOVATION

The current version of Simulovins is already being used to train agricultural and continuing education students at Université Laval. For them, Simulovins software is not only an outstanding technological advancement; it's also a powerful teaching innovation. It helps them see the big picture of how a flock functions, while more efficiently integrating the theoretical knowledge they have gained.

On an international level, the research team is collaborating with researchers at the University of Virginia to validate the feasibility of using the software in an American context.



« TESTIMONIALS

“Currently, we have to plan everything by hand. That means leaving out a number of productivity parameters and adding economic risk for our company. Access to a tool like Simulovins, which combines technical performance and economic data, is vital to the development of our farm and many other family-run sheep farms in Canada.”

Johanne Cameron and Martin Brodeur
Producers
Les Bergeries Marovine (MH) s.e.n.c.

“Because of its involvement in research and support for various players in the Canadian sheep farming industry, Centre d'expertise en production ovine du Québec is able to identify key tools that are lacking in the industry. At the top of the list is the dearth of reliable economic data, which makes it difficult for producers and their employees to make decisions effectively.”

Hélène Méthot, agr., M. Sc.
Executive Director
Centre d'expertise en production ovine du Québec

For more information about Simulovins, visit <http://ovins.fsa.ulaval.ca/>