

Anticipate, predict and plan with



By François Castonguay, PhD

Simulovins is a software program developed at Laval University that simulates the functioning of a sheep flock. Using a set of production parameters and taking into account the interactions between them, it demonstrates the effects of changes in a production system or performance level on the productivity and profitability of a sheep operation. Developed originally for research, Simulovins will be available for commercial use by sheep specialists and producers next year.

Sheep flocks are complex systems

To improve the profitability of sheep farms, it is necessary to identify the factors that have the largest effects on income and cost of production. However, the complexity of a sheep flock operation means there are several factors affecting profitability, and several potential methods to improve them; changes in one part of the system can affect outcomes in several other parts of the operation.

During the last decades, the study of complex systems of production has been facilitated by advances in computer simulations. Using modelling, we can perform multiple complex cal-

culations in a short time and account for interactions among all parts of the production system under observation.

A tool for strategic development

The functioning of a sheep flock has been studied with computer simulation at the Department of Animal Science of the Faculty of Agricultural & Food Sciences (FSAA) at Laval University for approximately 10 years. From this research, a software program known as Simulovins was born. The software was developed in a research context, in order to study the factors affecting profitability of typical sheep enterprises in Quebec.

Simulovins considers all the production parameters of a sheep flock and the interactions among them, enabling the user to demonstrate the impact of changes in management (breeding program, feeding program, etc.) or flock performance (prolificacy,

fertility, lamb mortality rates, etc.) on the productivity and profitability of a flock.

Articles published earlier in Ovin Québec (in French), have demonstrated the potential of Simulovins version 1.0. For example, we were able to calculate the positive impact of an increase in prolificacy or fertility on an average sheep farm.

Simulovins Version 2.0

It is interesting to analyze the parameters that affect sheep farms generally, but to have a more direct and concrete influence on their profitability, Simulovins must be used by individual producers in the specific context of their own enterprise. Each sheep farm is unique, with its own performance and constraints. Therefore, to increase the benefit of Simulovins to the industry, we have made it accessible to individual sheep enterprises, to help them

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The Canadian Sheep Federation is pleased to introduce the new Canadian Verified Sheep Program, an expansion of the Food Safe Farm Practices Program that includes chapters on Animal Care and Biosecurity.

The Canadian Verified Sheep Program has been developed to allow producers to demonstrate responsible management practices on their sheep farms, building off the Codes of Practice for the Care and Handling of Sheep and the National On-Farm Biosecurity Standard.

Contact the Canadian Sheep Federation for program materials. Take the training on-line at www.cansheep.ca.

This project has received funding under Growing Forward 2, a federal, provincial, territorial agreement.

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make better strategic decisions.

With the financial support of the AgriRisk Initiatives program of Agriculture and Agri-Food Canada, we have just finished a new, revised and improved version of the application, Simulovins 2.0, which is intended for sheep advisers and producers. This version will be available on the internet (with fast updates). It is bilingual and more user-friendly than the previous version of the software. It also features context-based tips, which facilitate its use. Like version 1.0, the new version produces technical-economic reports, but can also produce a financial review of the simulations, which take into account the enterprise's fixed and variable costs.

The new version can provide target goals and actions for specific enterprises, according to their particular production system (breeds/cross-breeds, feeding program, etc.) and performance (fertility rate, prolificacy, mortality, etc.), respecting the owners'

objectives (production level, markets, etc.). The software can be used for several purposes: starting up, estimating an expansion project, considering a change of breeds or crossbreeding, or estimating the effect of a change in the production system (e.g., number of breeding groups). The list of questions which Simulovins can help to answer is long! Using Simulovins can give you an idea of the economic results of a proposed change before actually carrying it out, considerably reducing the financial risk of strategic decisions taken by producers. Simulovins is a tool that intervenes directly in the decision-making of administrators when the time comes to choose strategic goals for development. So, in the end, we are convinced that Simulovins will help to improve the profitability and sustainability of sheep farms.

A convergence of experts and forward-thinking companies

The design of Simulovins 2.0 took

advantage of the expertise of numerous specialists in sheep management, economic production, enterprise financing and informative engineering resources. We also counted on the collaboration of 10 sheep producers who participated very closely in the development and evaluation of this new version.

Next steps

Simulovins will be available for commercial use by sheep specialists and producers during 2018, but access procedures are still to be specified. The software is hosted on one of Laval University's servers and our research team continues to develop it in collaboration with the Centre of Educational Resources of the FSAA. We wish to make the software accessible in a gradual way to assure that the tool will meet the users' needs. We know that the first experience that users have with Simulovins will determine whether they use it in the long term,



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and we don't want to lose users after their first experience with the software! But that is not the most important reason for the gradual launch of Simulovins. The use of this kind of software can be risky for a non-informed user. Garbage in, garbage out; if you enter the wrong data the result will also be wrong, with this as with other software programs. For the next year, we will be limiting access to specialists and producers who have advanced knowledge in the use of technical-economic management software.

We are already looking for financial resources to develop the next version, which would provide more elaborate analysis and validation in order to better serve users. Stay tuned!

For more information, visit the website of the Groupe de recherche sur les ovins at Laval University (<http://ovins.fsaa.ulaval.ca/>; in French) or contact the author at francois.castonguay@fsaa.ulaval.ca.

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François Castonguay is a professor and researcher in sheep production at the Department of Animal Science of Laval University in Quebec.

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