

MULTI-FUNDER INITIATIVE

Canadian International Food Security Research Fund (CIFSrf)

Single-dose vaccines save livestock and livelihoods in Sub-Saharan Africa

Researchers from South Africa and Canada have developed a novel vaccine that protects livestock from five deadly diseases in a single dose. Collaboration with regulatory bodies, agricultural ministries, professional associations, and vaccine producers will bring this much-needed innovation to farming families in South Africa, Kenya, and beyond.

No refrigeration required

Livestock production is a critical industry in Africa, providing food and animal products for local use and export. Unfortunately, infectious diseases kill up to a quarter of all livestock and can also spread to humans.

Vaccines are available for many livestock diseases, but their cost, delivery, and need for refrigeration often impede their widespread use, especially in isolated rural areas.

An inexpensive solution is close at hand. In Phase 1 of the project, researchers developed a heat-stable, single-shot vaccine that can protect sheep and goats from five common diseases. It is currently being fine-tuned for use with cattle.

A single-dose vaccine makes it easier for suppliers to streamline production, marketing, and distribution to reach farmers in rural areas. It is also good news for farmers, particularly women whose livelihoods depend on small livestock such as sheep and goats.

Moving toward commercialization

Researchers and vaccine companies will further develop and field test new vaccines. Early engagement with government agencies will facilitate regulatory approval prior to licensing and manufacturing.

The goal is to produce vaccines that can be tailor-made for use in specific regions. For example, one vaccine will offer protection against five diseases: lumpy skin disease, sheep pox, and goat pox, Rift Valley fever, and *peste de petits ruminants* (PPR). Another will protect against lumpy skin disease, sheep pox, goat pox, and Rift Valley fever — suitable for use in parts of Southern Africa where PPR is not present. A third vaccine targets African swine fever.

This vaccine technology allows for diseases to be added or eliminated, including those that emerge in the future.

The project will also train farmers in the use of vaccines, and collaborate with public and private sector partners on marketing strategies, pricing, distribution systems, and eventual expansion beyond South Africa and Kenya.

Improving the health of livestock and increasing its productivity supports the Africa Union's (2014) Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods.

Expected outcomes

- Prepare for the commercialization of three vaccines
- Inform government policies that encourage improved animal healthcare practices by farmers (including use of vaccines)
- Increase incomes of small-scale farmers thanks to reduced losses and healthier, more productive herds
- Reduce the spread of diseases to other countries, thereby increasing international trade in livestock
- Expand use of these vaccines to the Middle East and Asia

LEAD RESEARCHERS

David Wallace, Agricultural Research Council, South Africa
Lorne Babiuk, University of Alberta, Canada

Countries: Kenya, South Africa

Funding: CA\$5 million

Duration: October 2014 to March 2018

The **Canadian International Food Security Research Fund (CIFSrf)** is a program of Canada's International Development Research Centre (IDRC) undertaken with the financial support of the Government of Canada provided through Foreign Affairs, Trade and Development Canada (DFATD).



Foreign Affairs, Trade and
Development Canada

Affaires étrangères, Commerce
et Développement Canada



International Development Research Centre

PO Box 8500 Ottawa ON Canada K1G 3H9

Phone +1 613 236 6163 • Fax +1 613 236 7293

cifsrf@idrc.ca • www.idrc.ca/cifsrf