



2017 BHEARD Scholar
Pascal Nyabinwa

Profile

Country of Study:	Kenya
University:	Egerton
Department:	Animal Science
Student Position:	Graduate Research Assistant—Ph.D.
Home Country:	Kigali, Rwanda
Home Institution:	Rwanda Agriculture Board
Home Position:	Ag. Girinka Program Specialist
Mentored By:	Dr. T. Musaya and Dr. D.K. Ngeno

Research Area: *Endometritis and its Effect on Fertility of Dairy Cattle*

BHEARD PROGRAM START DATE: August 2017

UNDERGRADUATE EDUCATION: DVM, Doctorate of Veterinary & Medicine, Inter-States School of Veterinary Sciences and Medicine (EISMV), Cheikh Anta Diop University of Dakar, Senegal.

GRADUATE EDUCATION: MSc., Animal Production and Sustainable Development, Inter-States School of Veterinary Sciences and Medicine (EISMV), Cheikh Anta Diop University of Dakar, Senegal.

RESEARCH INTERESTS: In Rwanda, Livestock, particularly dairy cattle, has historically been an integral part of the production systems in Rwanda. Dairy is a strategic commodity for Rwanda and the dairy subsector is important to the economic development of Rwanda. Agriculture contributes 40% of GDP, employs more than 90 percent of the rural poor, and provides 80 percent of the export earnings of Rwanda. The livestock industry contributes 7 percent of the GDP. Customarily, Rwandans use cattle (milk and meat) products for food with a huge desire. A number of different estimates have been made for the consumption of milk and meat in Rwanda. All the reported values are the per capita milk and meat consumption thresholds of 220 liters and 50 kg that FAO/WHO recommends for milk and meat respectively.

This gives the cattle industry a very important role to play towards food security and livelihood of most Rwandans. However, Rwanda does not produce adequate cattle products to satisfy the market, though Rwanda has over 2 014 892 herds of cattle.

Their numbers were increased by national and international programs such as Girinka program (one cow per poor family), Heifer International, Bothar/MSAADA, all aimed to enhance nutritional and food security through milk production and consumption.

In the context of the development of the dairy sector in Rwanda and cognizant of the above limitations on milk production, the government of Rwanda has adopted policies aimed at increasing yields through importation of improved breeds' and adoption of assisted reproductive technologies, such as artificial insemination (AI). AI program is still the most widely used and the Government through Girinka program has rightly chosen the option of artificial insemination, because each donated heifer to a poor family must be artificially inseminated.

Unfortunately, the analysis of the results of artificial insemination in Rwanda has shown a low rate of success rates remained below 55% (RAB, 2015). A number of factors are reported to affect the success of AI, including incomplete control of cow's reproductive parameters, lack of experience in organizing AI campaign, nutrition, breeding season, environmental conditions, parity, breed, and farm, depth of semen deposition, extender composition, hormone treatment and reproductive disorders especially the uterine diseases.

The key for an optimal fertility in dairy herds is a healthy uterine environment, optimal estrus detection efficiency and ideal timing for breeding.

A healthy uterus is the basis for high submission and conception rates. The uterine diseases can be classified as metritis and endometritis. The endometritis in its two forms (clinical and subclinical) is one of the most common uterine disorders/disease in dairy cows, causing decreased fertility and high economic losses. The disease is highly prevalent in high producing dairy cows. In fact, the cows with endometritis have been associated with decreased pregnancy per AI, more services per conception; economic losses, had lower conception to first service rate and longer calving interval, and more animals were culled for infertility. The significant waste of sperm and the retarded increase of young stock are also important contributors to a significant loss of income.

Some forms of endometritis such as subclinical endometritis do not present visible diagnostic signs and thus, tend to be present in many dairy cows and are difficult for dairy farmers to detect and recognize. Infected cows by any form of endometritis can be a source of infection to other dairy cows in the herd which result in economic loss due to reduced productivity, early culling, lack of human capacity skills and high costs of treatments.

To minimize the effect of endometritis on fertility of dairy cows first it needs to know about the causes and predisposing factors of clinical and subclinical endometrits. There are many infectious causes of endometritis and subclinical endometritis, which need to be diagnosed and corrected for successful reproduction performance of dairy cows.

However, efficient veterinary supports and research on uterine diseases such as endometritis, which threaten the life of dairy cows and decrease considerably the fertility and productivity, are to my knowledge most inexistent under Rwanda field conditions. In this regards, evaluation of prevalence of endometritis and its effect on the fertility of dairy cattle would be a good starting point for a good policy of increasing milk production for ending hunger, achieve food security and improve nutrition and promote sustainable agriculture in Pascal's country. It is in line with these issues therefore that he proposes and wishes to pursue a PhD study in animal sciences especially in animal physiology as area of specialization at Egerton University in the Department of Animal Sciences.

PERSONAL STATEMENT: Through research, trainings, cooperation and consultancy, Pascal would like to contribute to the establishment of a more advanced research and development program on the use and efficiency of animal reproductive technologies and thus foster the modernization of animal farming in Rwanda; and support in the development of sustainable livestock production strategies hence hampering the overall growth of the sector.

WHEN I AM NOT WORKING I ENJOY: Pascal likes friendship (spending time with friends), swimming, reading, movies and music.