

# Dr. Nabulindo Nakami Wilkister – CV

## Profile

I am an accomplished Veterinary Clinical Specialist and Theriogenologist with a Kenyan heritage, I hold a PhD in Veterinary Clinical Studies with specialized expertise in reproductive technologies, breeding and genome editing in livestock. I offer a rich background in veterinary medicine, complemented by a strong research portfolio in livestock genetics and breeding. My scholarly pursuits are marked by innovative research and contributions to sustainable livestock development, underscoring my commitment to advancing agricultural practices.

## Education Background

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| Oct 2018 to July 2022 | <b>University of Nairobi</b><br>Doctor of Philosophy (PhD) in Veterinary Clinical Studies<br><b>PhD thesis title</b> “Spermatogonial Stem Cells Culture, transfection, and Intratesticular Transplantation as a Preliminary Tool for Genetic Modification of the Galla Goat”   |
| Oct 2018 to Aug 2022  | <b>International Livestock Research Institute (ILRI)</b><br>PhD graduate fellow<br>Reproductive Technologies Laboratory.   |
| Oct 2014 to Dec 2016  | <b>University of Nairobi</b><br>Master of Veterinary Theriogenology/Animal Reproduction.<br><b>Master's thesis title</b> “Blood progesterone determination by lateral flow immunoassay diagnostic kit for assessment of the reproductive status of dairy cattle in Kenya (pregnancy and non-pregnancy diagnosis in cattle” |
| Oct 2009 to May 2014  | <b>University of Nairobi.</b><br>Bachelor of Veterinary Medicine (BVM)<br><b>Research project title:</b> “Prevalence of Gastrointestinal Parasites of Sheep and Goats in the Fora and Mona Populations during Drought Mitigation in Marsabit County of Kenya”  |

## Professional and Research experience

### Academic Contributions

- Lecturer, University of Nairobi, Faculty of Veterinary Medicine, Department of Clinical Studies Specialized in Theriogenology and Assisted Reproductive Biotechnologies.
- Developed and delivered comprehensive curricula for veterinary medicine students at undergraduate and postgraduate levels.
- Supervised research projects, practical sessions, clinical demonstrations, and ward rounds, enhancing the practical skills of over 80 postgraduate and undergraduate students annually.

### Clinical Practice and Community Outreach

- Provided extensive clinical services, disease management, and herd health consultation across Nairobi and rural Kenya.
- Facilitated extension services and outreach programs, directly impacting over 50 farming communities by improving livestock health and productivity.

### **Research Leadership and Innovation**

- Chief Scientific Investigator for field-based bovine pregnancy diagnostic kits, partnering with Diagnostic For All Company, USA. This led to a 30% increase in artificial insemination success rates in smallholder
- Secured two major research grants as the Chief Scientific Investigator from the International Atomic Energy Agency, focused on genomic tools for the selection of breeding herds to enhance dairy cattle and camel productivity in Kenya.

### **International Consultancy and Capacity Building**

- Served as an ad hoc consultant to the International Livestock Research Institute and AU-IBAR on reproductive technologies. The consultancies were mainly to implement and conduct projects to improve animal health and productivity using appropriate breeding systems, genetic selection of breeding animals and use of reproductive technologies such as estrus synchronization, artificial Insemination, in vitro embryo production and embryo transfer.
- Conducted capacity-building workshops in reproductive management and breeding of dairy cattle for Burundi's agricultural sector under the auspices of the International Atomic Energy Agency.

### **International Research Collaboration:**

- Collaborated with esteemed institutions such as Washington State University and the Roslin Institute, UK, on cutting-edge projects in-vitro embryo production, superovulation in goats, gene editing of embryos, laparoscopic embryo in goats, animal cloning and generation of genetically edited surrogate male livestock.

### **Publication, Grant Writing and Funding Acquisition:**

- Demonstrated expertise in proposal writing, evidenced by successful grant applications supporting innovative livestock productivity research.
- Published seven scientific papers in high-impact scientific journals - see section below.

### **Publications**

1. **Nabulindo, W.N.**, Nguhiu-Mwangi, J., Kipyegon, A.N., et al. (2022). "Culture of Kenyan Goat (Capri-circus) Undifferentiated Spermatogonia in Feeder-Free Conditions." *Frontiers in Veterinary Science*, section Animal Reproduction - Theriogenology, 9: 894075.
2. **Nabulindo, W.N.**, Nguhiu-Mwangi, J., Kipyegon, A.N., et al. (2022). "Comparative Efficiency for In Vitro Transfection of Goat Spermatogonial Stem Cells Using Lipofectamine Reagents and Electroporation." *Stem Cells and Cloning: Advances and Applications*, 15, 11-20.

3. **Nabulindo, W.N.**, and Tsuma, V. (2021). Assisted Reproductive Technologies for Decision Support in Reproductive Management of Dairy Cattle in Kenya: What are the Prospects? KAPS Study. *Journal of Agricultural Science and Food Technology*, 7 (1): 10-18.
4. **Nabulindo, W.N.**, Kipyegon, A.N., Nguhiu-Mwangi, J., et al. (2021). "Culture of Spermatogonial Stem Cells and Use of Surrogate Sires as a Breeding Technology to Propagate Superior Genetics in Livestock Production: A Systematic Review." *Veterinary World*, 14(12), 3235-3248.
5. Olum, M.O., Mungube, E., **Nakami, W.N.**, et al. (2020). "A Cross-sectional Study on Infertility and its Causes in Smallholder Dairy Cattle in Selected Counties of Kenya." *International Journal of Veterinary Science*, 9 (4):534 - 9
6. **Nabulindo, W.N.**, Tsuma, V.T., Milkey, K., et al. (2016). Lateral Flow Immunoassay for Whole Blood Progesterone Detection as a Tool for Assessment of Reproductive Status in Cattle. *International Journal of Veterinary Science*, 6(1), 19-25
7. Prevalence of Gastrointestinal Parasites of Sheep and Goats in the Fora and Mona Populations during Drought Mitigation in Marsabit County of Kenya, *The Journal of Agricultural Science*, 1(6): 84-87. 2015

## Professional Development and Training:

### Advanced Training Received:

- Participated in specialized training at prestigious institutions, including Washington State University, and International Livestock Research Institute, enhancing my expertise in cutting-edge livestock technologies such as genetic modification, stem cell technology, animal cloning, in vitro embryo production, and embryo transfer in cattle, pigs sheep and goats.
- Developed science communication skills for diverse audiences through comprehensive training programs with the International Service for the Acquisition of Agri-biotech Applications Africenter (ISAAA) and Alliance for Science, enabling effective dissemination of scientific knowledge to non-specialist groups.

### Training and Capacity Building Conducted:

- Led training sessions for Kenyan policymakers, consumers, and farmers on genetic modification technologies, significantly contributing to the national dialogue on

biotechnology and shaping informed decision-making processes.

- Conducted workshops for livestock service providers on estrus synchronization, artificial insemination, selection of locally adapted breeding animals, bovine in vitro embryo production and transfer, promoting the adoption of advanced reproductive technologies and enhancing service quality in the livestock sector.
- Led hands-on training for dairy farmers in optimal farm husbandry practices, aiding the transition to more productive dairy cattle breeds and improving livestock management in newly established dairy regions of Kenya.

## Grants, Awards and Achievements

### Research Excellence and Funding

- Awarded the Overall Best PhD Student at the International Livestock Research Institute Capacity Development, acknowledging my research acumen and potential among peers.
- Secured a competitive research grant for a pioneering project on the application of genomic tools in the genetic characterization and breeding of dairy camels in Kenya, enhancing the genetic potential and productivity of a key agricultural resource.
- Received a substantial research grant to implement the utilization of genomic tools for the evaluation and selection of dairy cattle, aimed at optimizing artificial insemination programs and promoting sustainable dairy productivity in Kenya.

### Scholarship and Advanced Research

- Awarded a fully funded scholarship to pursue a PhD in Veterinary Clinical Studies, including a comprehensive research component at the International Livestock Research Institute, enabling me to advance knowledge in the field of animal genetics and reproduction.
- Received a research grant for the evaluation of on-farm pregnancy diagnosis strips, a project poised to revolutionize pregnancy detection in dairy farming in Kenya through rapid and accessible technology.

### Research Pitching and Idea Validation

- Triumphed in the Grand Challenge Pitching Contest for upcoming researchers, receiving a \$1000 grant for presenting a compelling and innovative research proposal, emphasizing my skill in articulating, and pitching research concepts.

## Conference and workshop presentations

I have presented and attended several livestock issues-related conferences and workshops at both local and international forums.

## Professional memberships

**Kenya Veterinary Board (KVB):** Licensed practitioner upholding national veterinary standards and contributing to policy discussions on animal health and welfare.

**Foundation for Women Educationalists (FAWE):** Active member working towards the advancement and support of women's education in the biosciences across Africa.

**African Women for Biosciences (AWFB):** Engage in collaborative research and development initiatives aimed at empowering women in the biosciences field.

**Kenya Veterinary Association (KVA):** Participate in annual conferences and contribute to continuing education sessions for veterinary professionals.

**Kenya Women Veterinary Association (KWVA):** Advocate for the professional development of women in veterinary science and participate in mentorship programs for young female veterinarians.