

# **Mzima Cow Theory of Change Workshop**

**18 & 19 January 2017  
ILRI, Nairobi, Kenya**

*Translating from Genetic Research in Africa  
to Adoption and Social Value*

**Genetics for Africa – Strategies and Opportunities**

The Genetics for Africa – Strategies and Opportunities project is investigating the extent to which genetic research in and for Africa has a direct relevance to social and economic development, and furthermore what the mechanisms might be to strengthen this research to encourage better uptake, including the extent to which improved communication can assist in public understanding, acceptance and uptake of the research outcomes and to more appropriate regulation.

This workshop is being organised in a collaboration between the Genetics for Africa project and the International Livestock Research Institute in Nairobi, Kenya.

JOHN TEMPLETON  
FOUNDATION

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Cover photo: "Tumaini", ILRI's cloned bull, Dr Claudia Canales 2015

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# Workshop Programme

## Wednesday 18<sup>th</sup> January 2017

|             |   |   |
|-------------|---|---|
| Day 1<br>AM | <b>Introduction</b>   |   |
| 09:00       | Welcome From ILRI   | ILRI  |
| 09:10       | Welcome from Genetics for Africa (G4A)  | Bernie Jones  |
| 09:20       | Workshop Logistics & Setting the Scene  | Nick Manson   |
| 09:35       | Introductions   | Nick Manson   |
|             | <b>Social/Scientific Perspectives</b>   |   |
| 10:00       | <b>Some Perspectives on the Burden of Trypanosomiasis</b><br>1. Burden on human health/zoonosis<br>2. Burden on Society, gender issues<br>3. Current state of interventions - successes and challenges  | Eric Fevre<br>Isabelle Baltenweck<br>Gift Wiseman Wanda       |
| 10:45       | <b>Table Exercise 1:</b><br>Burden of Trypanosomiasis – Your perspectives   | All   |
| 11:15       | <b>BREAK: Tea &amp; Coffee</b>  |   |
|             | <b>Mzima Cow Project , the Science &amp; Alternate Approaches</b>   |   |
| 11:30       | 4. History of the Project & Current Position<br>5. Tryp. resistance & transgenesis – Overview<br>6. An alternate means of combatting Trypanosomiasis  | Steve Kemp & Jayne Raper<br>Joseph Verdi<br>Dr Silas Obukosia |
| 12:20       | Review of Morning, Questions, What's coming up  | Bernie Jones & Nick Manson                                    |
| 12:45-13:30 | <b>LUNCH</b>  |   |
| DAY 1<br>PM | <b>Theory of Change</b>   |   |
| 13:30       | About Theory of Change  | Nick Manson   |
| 13:45       | <b>Table Exercise 2: Contexts &amp; Stakeholders</b><br>a) What are the 'contexts' into which these cattle may be introduced ?<br>b) Who are the stakeholders in these contexts?<br>c) Who are the stakeholders in common across contexts?<br>d) Who do we want to benefit? | All   |
| 15:15       | <b>BREAK: Coffee &amp; Tea</b>  |   |

|       |   |  |
|-------|---|--|
|       | <b>Cross-cutting issues – Communications &amp; Regulation</b>   |  |
| 15:30 | 1. Learning from G4FA & G4A<br>2. Biosafety in Africa: NEPAD-ABNE<br>3. Good practice in communications | Bernie Jones<br>Diran Makinde<br>Susan Macmillan |
| 16:30 | Review & Discussion   | Discussant                                       |
| 17:00 | <b>End of Session</b>   |  |
|       | Drinks  |  |
| 18:00 | Workshop Dinner   | ILRI   |
|       | After Dinner talk   | ???  |

### Thursday 19<sup>th</sup> January 2017

|             |   |              |
|-------------|---|--------------|
| Day 2<br>AM | <b>Theory of Change</b>                                   |              |
| 08:00       | ILRI Tour   |              |
| 09:00       | Recap Day 1 & Questions                                   | Bernie Jones |
| 09:15       | <b>Table Exercise 3:</b> Potential impact of these cattle | All          |
| 10:45       | Break: Tea & Coffee                                       |              |
| 11:15       | A Series of Short Talks on Related Topics                 | Speakers     |
| 12:45       | Lunch   |              |
| Day 2<br>PM | <b>Theory of Change - Implementation</b>                  |              |
| 13:30       | <b>Table Exercise 4:</b> Moving forward                   | All          |
| 14:30       | Coalesce Ideas and Discussion                             | Discussants  |
| 14:45       | What now?   | Bernie Jones |
| 15:00       | <b>Close</b>  |              |

## Delegates



### **Dr Isabelle Baltenweck**

Agricultural economist, Deputy Program Leader, Policy, Value Chain and Livelihoods (from Jan 2017), ILRI  
i.baltenweck @cgiar.org

Isabelle is the deputy program leader of the Policy, Value Chain and Livelihoods program at the International Livestock Research Institute (ILRI). An agricultural economist, she has fifteen years of post-doctoral experience in various aspects of smallholder livestock farming in Africa, South and South-East Asia, working on innovative institutional mechanisms to enhance farm level competitiveness in inclusive value chain development initiatives. Most of her work has a strong focus on gender. In the current Livestock and Fish program, she coordinates activities on nutrition and value chain upgrading. She has a PhD in Development Economics from the Université d'Auvergne, an MSc in Development Economics from the Université d'Auvergne and a First Degree in Economics ("DEUG") from the Université de Strasbourg.

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### **Dr Claudia Canales-Holzeis**

Project Co-Leader for Genetics for Africa (G4A), Research Associate, Biosciences for Farming in Africa (B4FA)  
claudia.canales@gmail.com

Graduate of the University of Reading in Environmental Biology. Gained a DPhil in plant genetics at the University of Oxford, United Kingdom.

Her experience includes a near-decade of experience in plant genetics research and seven years experience in technology transfer and science communication initiatives in developing countries. Worked as Senior Project Officer for the International Service for the Acquisition of Agri-Biotech Applications (ISAAA), based in the Philippines.

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### **Joan Conrow**

Visiting Fellow, Cornell Alliance for Science  
joanconrow@gmail.com

Joan is a longtime journalist who has written extensively about agriculture, public sector biotechnology and the rise of the anti-GMO movement in Hawaii. She is a Visiting Fellow at the Cornell Alliance for Science and is a script writer, editor and producer on its multimedia team. Joan most recently produced a 30-minute documentary on the transgenic papaya for the Alliance.



**Jon Entine**

Founder & Executive Director, Genetic Literacy Project

Jon is an American author and journalist. He is a senior research fellow at the Institute for Food and Agricultural Literacy at the University of California, Davis and founder and executive director of the Genetic Literacy Project, a biotechnology and genetics outreach organization. After working as a network news writer and producer for NBC News and ABC News, Entine moved into scholarly research and print journalism. Entine has written seven books and is a contributing columnist to multiple newspapers and magazines; he is also a commentator on radio and television news programs.

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**Prof Eric Fevre**

Chair of Veterinary Infectious Diseases, Epidemiology and Population Health, ILRI & Liverpool  
eric.fevre@liverpool.ac.uk

Eric Fevre is a joint appointee at ILRI and Professor of Veterinary Infectious Diseases at the Institute of Infection and Global Health (IGH), University of Liverpool. He manages several field-orientated projects where he leads the research activity on neglected zoonoses on behalf of the CGIAR Research Program on Agriculture for Nutrition and Health. He leads a 25-strong team of epidemiologists, biologists, veterinarians and medical practitioners interested in the biology and control of (re-)emerging diseases, particularly zoonoses, with a focus on understanding the factors involved in emergence, risk, transmission, persistence, spread, and disease burden of pathogens in both human and animal populations. His team also has a strong interest in understanding the influence of the physical environment on pathogen transmission, and they conduct field studies to acquire a wider understanding of pathogen epidemiology, using this information to inform policy on optimal and cost-effective methods of disease control.

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**Professor Sir Brian Heap**

Project leader of B4FA (Biosciences for Farming in Africa)  
brianheap1@gmail.com

Based at Cambridge and formerly Master of St Edmund's College, Cambridge, Professor Sir Brian Heap is a Fellow of The Royal Society and was its Foreign Secretary and Vice-President. An Hon. Fellow of the Royal Agricultural Society, past Director of Research at the Biotechnology and Biological Sciences Research Council and Past President of the European Academies Science Advisory Council, Halle, Germany, he is actively engaged in science and sustainable development advice for policy makers.

**Dr Bernie Jones**

Project Co-leader, Genetics for Africa - Strategies & Opportunities, Media Programme Director, B4FA.

[bernie@b4fa.org](mailto:bernie@b4fa.org)

Based near Oxford, Bernie works as a consultant and project director, leading technical international development programmes – particularly ones with a communications and policy angle. Formerly Head of International Policy at The Royal Society, and Executive Director of European and then global networks of science academies, Dr Jones has particular interests in the harnessing of genetic science, energy and agricultural technologies to foster development, especially in rural areas.

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**Hellen Kajuju**

Biosafety Officer, National Biosafety Authority (NBA), Nairobi  
[hkajuju@biosafetykenya.go.ke](mailto:hkajuju@biosafetykenya.go.ke)

Hellen has an undergraduate degree in Microbiology and a Master's Degree in Molecular Biology both from Jomo Kenyatta University of Agriculture and Technology

Hellen works at the National Biosafety Authority (NBA) the role of which is to regulate research and commercial activities involving GMOs with a view to ensuring safety of human and animal health and provision of an adequate level of protection to the environment. Her role as a Biosafety Officer includes Sampling and clearance of foods and related items at Namanga (Kenya-Tanzania) border and checking compliance with the Biosafety Act, regulations and required standards. She undertakes general market surveillance of GMOs in Kajiado County and is involved in public awareness forums and outreach activities on matters of Biosafety. She also contributes to NBA oversight of GMO testing facilities and ensuring that testing protocols are compliant with NBA standards.

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**John Kamanga**

Director of South Rift Association of Land Owners (SORALO)  
[j.olekamanga@gmail.com](mailto:j.olekamanga@gmail.com)

John Kamanga has a background in rural development and has been involved in community development projects, including several community conservation initiatives across southern Kenya for over 10 years. Furthermore he is chairman of the Olkirimatian Group Ranch in the South Rift.

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**Carol Kamau**

Agricultural Marketing Specialist, USDA FAS (Nairobi)  
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**Samuel Kamoto**

Environmental Education & Extension Manager at African Parks Network, Malawi

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Samuel Kamoto is currently Program Manager for Extension and Environmental Education at African Parks - Majete. Before joining African Parks Network, Samuel worked with the Department of National Parks and Wildlife for 20 years on various management and Education positions. From Department of National Parks, he worked with the Wildlife and Environmental Society of Malawi (WESM), first as Director for Advocacy and Environmental Education Program and later as Executive Director.

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**Professor Steve Kemp**

Program Leader for Animal Biosciences & Professor in Tropical Genetics, ILRI & University of Edinburgh. Mzima Cow Project Founder.

[s.kemp@cgiar.org](mailto:s.kemp@cgiar.org)

Steve is program leader for animal biosciences at the International Livestock Research Institute (ILRI) and professor in tropical genetics at the University of Edinburgh. He has expertise in the genomics of tropical adaptation, particularly host-pathogen interactions and mechanisms of tolerance and resistance as well as informatics systems. He leads ILRI's cross-cutting LiveGene initiative and the Animal Biosciences Program.

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**Dr Michael Mukembo Kidoido**

Economist-Impact Assessment, ILRI

[M.Kidoido@cgiar.org](mailto:M.Kidoido@cgiar.org)

Kidoido is scientist (agricultural Economist) at the International Livestock Research Institute (ILRI). For the past four years, he has supported the Livestock and Fish CRP monitoring, evaluation and learning team and ILRI's overall impact assessment projects. His training and focus is in applying agricultural household models in solving resource use problems (technical and economic efficiency), technology adoption and analysing the welfare effects of technology adoption. He has a PhD in Agricultural Economics and an MS in Development Economics from The Ohio State University as well as an MSc in Agricultural Economics and a BSc Agriculture from Makerere University.

**Dr Naomi Kipuri**

Executive Director, Arid Lands Institute in Kenya  
[naomikipuri@gmail.com](mailto:naomikipuri@gmail.com)

Dr. Naomi Kipuri is a Maasai from the Kajiado District of Kenya. She is the Executive Director of the Arid Lands Institute in Kenya, an organization involved in research, documentation and networking on policy and human rights related to indigenous pastoralists and hunter-gatherers in Eastern Africa. She is a member of the Working Group of Indigenous Populations/Communities of the African Commission on Human and Peoples' Rights, and of many women's and pastoralist groupings and networks. She worked closely with the Kenya National Commission on Human Rights and also served on the Technical Advisory Council of the Land Policy formulation in Kenya. She holds her doctorate in anthropology from Temple University, USA.

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**Susan Macmillan**

Team Leader, Communications, Awareness and Advocacy, ILRI  
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Susan is a writer and information designer who heads public awareness work at ILRI. She started her career at ILRI in 1988 as a science writer and moved to public awareness communications, including print, web, media and film, in 1995. Susan has a master's degree in English Literature from the University of California at Berkeley. Before moving to ILRI, she worked as Head of the ICIPE Science Press at Nairobi's International Centre of Insect Physiology and Ecology; as an editor for Stellagraphics, publishers of Kenya's Weekly Review magazine; as associate editor for Fine Print and University Publishing, two quarterly reviews, one for the arts of the book, based in San Francisco, and the other for university press books, based in Berkeley, USA. In the mid-1970s she taught English at Nyakach and Kapropita girls secondary schools, in Kenya's Nyanza and Baringo districts, respectively. Her interests lie at the interface of literary and biological writing, how each informs, and resonates in, the other, e.g., how cultural assumptions drive science and scientific paradigms infiltrate lay discourse.

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**Professor Diran Makinde**

Director, NEPAD Agency, South Africa  
[diranm@nepad.org](mailto:diranm@nepad.org)

Diran Makinde is Senior Advisor to NEPAD's CEO in Midrand, South Africa. Until 1st April 2016 he was the Director of NEPAD Planning and Coordinating Agency, African Biosafety Network of Expertise (ABNE) based in Ouagadougou, Burkina Faso. He is the past Director of the NEPAD West African Biosciences Network in

Dakar, Senegal. He earned the degrees of Doctor of Veterinary Medicine in 1976, Diploma in Neurophysiology 1981 and a PhD in Veterinary Physiology from the University of Ibadan, in 1986. Prior to his appointment at NEPAD, he was Professor of Animal Science at the University of Venda, South Africa where he also served a five-year term as Dean of the School of Agriculture, Rural Development and Forestry (1997-2001). In addition, he taught at the universities of Ibadan (Nigeria), 1977-1991 and Zimbabwe, 1989-1995.



### **Dr Nick Manson**

Mzima Cow Interim Programme Director & Director, Change Through Partnership Ltd.

[nick.manson@c-t-p.org](mailto:nick.manson@c-t-p.org)

A programme manager, strategist, business intelligence and knowledge specialist. Nick has a broad background in the health sector working with public and non-governmental organisations in a board-level management, specialist or consultative capacity.

He has worked internationally and at local, regional and national levels. Originally working in developing countries, Nick acquired experience of child health, programme evaluation and relief planning. He has held senior positions in health services in the UK, Australia and New Zealand and undertaken consultancies in many countries. Nick is an experienced and effective strategist, communicator and facilitator.



### **Dr Emma Naluyima**

Vet & Smallholder, Uganda

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A smallholder farmer and a private veterinarian focusing on clinical medicine and herd health. She has previously worked for the National Animal Genetic Resources Centre and Data Bank and as an officer in Entebbe in charge of a Livestock Environmental Station. She has also worked for the President of

the Republic of Uganda, H.E. Yoweri Kaguta Museveni, on his personal dairy farm to improve the genetics of his herd through artificial insemination. She has also served as the Chairman of Red Cross Mbarara. She earned a Bachelor of Science in Veterinary Medicine and Master's of Health Services Research from Makerere University in Kampala, Uganda.



### **Dr Harry Noyes**

Research Fellow: Functional and Comparative Genomics. Mzima Cow Project Scientific Adviser

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**Dr Silas Obukosia**

Operations Manager, ABNE-NEPAD - African Biosafety Network of Expertise

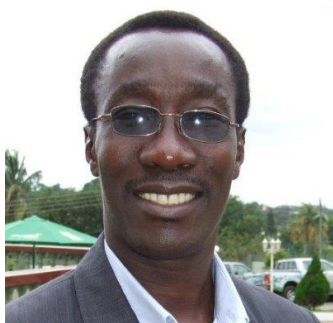
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Dr. Silas Obukosia is the Business Manager of NEPAD Agency ABNE. He holds a PhD in Molecular Genetics from Pennsylvania State University, USA; MSc. in Genetics and Plant Breeding, and BSc. in Agriculture from the University of Nairobi. He has attended several short courses in Biosafety and Intellectual

Property Rights at Michigan State University and in Kenya.

Prior to joining ABNE, he worked with Africa Harvest as Director of Regulatory Affairs in Africa Biofortified Sorghum Project funded by Bill Melinda Gates Foundation. Previously, he was the Biotechnology Advisor for United States Agency for International Development (USAID) to its Kenya Biotechnology Program encompassing Research, Biosafety and Communications. He also worked as a Senior Lecturer with the University of Nairobi he taught courses in biotechnology and molecular Biology.

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**Eric Amaning Okoree**

Chief Executive Officer, Ghana National Biosafety Authority (NBA)

Eric has been coordinating issues on biodiversity conservation and policy as well as the regulation of Genetically Modified Organisms (GMOs) since 1999. He serves as the National Focal Point for both the Biosafety Clear House (BCH) and the Biodiversity Clearing House Mechanism (CHM) for Ghana.

He serves as the Secretary to the Ghana National Biosafety Committee and as the Secretary to the Ghana National Biodiversity Committee. Ghana National Focal Point for the Cartagena Protocol on Biosafety. Currently he Co-Chairs Contact Group discussion on Synthetic Biology and Gene Drives at the 13th Conference of Parties to the U. N Convention on Biological Diversity held on Cancun, Mexico. He has special interests in science communication and administration.

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**Prof. Jayne Raper**

Professor of Biological Sciences, Hunter College, City University NY, USA.

Mzima Cow Project Founder

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Our laboratory works on trypanosome lytic factors (TLFs), which are antimicrobial high-density lipoproteins that contribute to primate innate immunity. TLFs are characterized by their ability to kill African trypanosomes, which are extracellular protozoon parasites. The unique protein components of TLF are hemoglobin binding protein, Haptoglobin-related protein (Hpr) and a pore forming protein, apolipoprotein L-I (apoL-I).



**Kimaren Riamit**

Executive Director, Indigenous Livelihoods Enhancement Partners (ILEPA), Kenya  
kimaren@yahoo.com

Kimaren completed his BSc degree at Egerton University, a Diploma at Catholic University, both in Kenya, and an MA in Anthropology at McGill University. He co-founded and directs the Indigenous Livelihoods Enhancement Partners (ILEPA), an NGO that works on human rights and development in Narok County, Kenya. He has overseen the implementation of numerous development projects supported by international development partners including in climate change, and human rights and governance. He has over ten years' experience in designing, implementing, monitoring and evaluating donor and community-driven development programs, and serves as Deputy Field director and instructor for the Field Study in Africa program administered by Utrecht University College in the Netherlands. Ole Riamit has conducted a number of research projects around indigenous knowledge systems and practices in the context of climate change. He is currently implementing a climate change adaptation project amongst indigenous Maasai women in southern Kenya.

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**Kevin Sage-EL**

Agricultural Counselor, USDA-FAS (Nairobi)  
Kevin.sage-el@fas.usda.gov

Served in the following posts as an agricultural attache. Philippines, 1998-2001 and Japan, 2002-2006, Seoul, Korea 2013-2016 and now in Nairobi, Kenya. At the above postings, he has been involved in trade policy, market development for U.S. products, market barrier advocacy for the U.S. industry and address overall improvements for two-way international trade.

Served in Washington from 2006 to 2012 as Branch Chief for Horticultural Crops in the Office of Trade Programs for the Foreign Agricultural Service. He had oversight for reviewing market promotion applications from more than 30 fresh produce trade associations primarily from California but, including the potato, citrus, apple and cranberry industries. From 1987 to 1990 he was a full time instructor in Economics and Statistics at South Carolina State University.

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**Hannah Smith Walker**

Digital Manager and Multimedia Producer. Cornell Alliance for Science  
hlw55@cornell.edu

Hannah manages the Alliance's digital communication tools and is part of the Multimedia team. She's a published scientist and a wildlife filmmaker with a MFA in Natural History Filmmaking & Communication, a BS in Biology, and a BA in Still Photography. She's studied and filmed topics ranging from microarthropods in cloud forest canopies, to the re-establishment of New Zealand sea lions

to the mainland, to an award-winning children's film called Why we don't ride zebras? She has a strong interest in the convergence of evidence-based science communication, education technology, and innovation.

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### **Dr Neil Stahl**

Executive Vice President, Research and Development, Regeneron  
& Mzima Cow Project Scientific Advisor  
neilstahl@earthlink.net

Neil Stahl, PhD, is Executive Vice President, Research and Development. Dr. Stahl started his career at Regeneron as a Staff Scientist in Discovery Research in 1991, working on cytokine receptor signaling. He spearheaded the invention and development of Regeneron's Trap Technology, which provided the basis of Regeneron's first three approved drugs. He also built the pre-clinical and clinical development team for the company and has overseen IND-enabling activities of over 19 therapeutic candidates. Dr. Stahl received his PhD in Biochemistry from Brandeis University, and then conducted post-doctoral research at the University of California, San Francisco before joining the company.

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### **Joseph Verdi**

PhD Student, Hunter College, City University NY, USA  
Mzima Cow Project Team Member  
joseph.verdi05@gmail.com

Joseph is researching how primate immunity to trypanosome infection, mediated by a gene called Apolipoprotein L-1, can be transferred to other mammals such as mice and cattle via genetic engineering. His work is based in New York at the City University of New York, in close collaboration with researchers in Nairobi.

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### **Dr Gift Wiseman Wanda**

Senior Policy Officer, PATTEC: Pan African Tsetse and Trypanosomiasis Eradication Campaign

Dr. Gift Wiseman Wanda joined PATTEC in 2011. Dr. Wanda is a veterinarian and a holder of a MSc. Degree in Applied Veterinary Epidemiology and Economics from the University of Reading, United Kingdom. He worked as Deputy Director in the Directorate of Veterinary Services in Malawi responsible for Veterinary Research and Investigation (2000-2005), Regional Coordinator in the Support Programme to Integrated National Action Plans for Avian and Human Influenza (SPINAP-AHI) overseeing national projects in 11 Southern African countries (April 2009 to December 2010) in SADC, Animal Health Expert at the African Union Inter African Bureau for Animal Resources (AU-IBAR) among others.



**Professor Sue Welburn**

Chair of Medical and Veterinary Molecular Epidemiology, University of Edinburgh

Sue.Welburn@ed.ac.uk

Professor Welburn's research has focused on the interactions between parasites and their vectors and hosts that lead to transmission of human sleeping sickness. This has involved a dissection of the mechanisms of innate resistance of vectors to parasite infections and the complex interactions between host, vector and parasite that result in parasite differentiation, disease transmission and epidemiology and control. Professor Welburn graduated with a BSc from the University of the West of England in 1984, and gained a PhD at University of Bristol in 1991. She started her academic career at the Tsetse Research Laboratories in Bristol, and worked for several years at the University of Glasgow, before joining the University of Edinburgh in 2000. She currently has projects in Uganda, Kenya, Nigeria, Zambia and Tanzania, focusing on interventions for disease control.

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**Dr Nakami Wilkister Nabulindo**

wilkisterkelly@gmail.com

Dr. Nakami is a Veterinarian/Theriogenologist with a specialty in bovine reproduction. Nakami has a background in large animal reproduction and Animal welfare. She has a vast knowledge and hands on experience in livestock production systems in Kenya. She has participated in several livestock projects at the University of Nairobi and in Kenya in general aimed at improving productivity through assisted reproductive technologies for instance multiple ovulations and embryo transfer, estrus synchronization, goat and pig artificial insemination amongst others. For her Master's thesis she worked on a project determining blood progesterone levels by whole blood lateral flow Immunoassay for assessment of reproductive status in dairy cattle in Kenya. She is keen to pursue her PhD in the field of reproductive biotechnology and animal genomics, an area she's passionate about and thinks it is the future for improved livelihoods through improved productivity of livestock in developing countries.

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**Dr Diane Wray-Cahen**

Senior Science Advisor, Foreign Agricultural Service, USDA

diane.wray-cahen@fas.usda.gov

The Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture (USDA) works to improve foreign market access for U.S. agricultural products. As senior science advisor for animal biotechnologies, I work to promote the international acceptance of new technologies (e.g., genetic engineering, cloning) and to encourage science-based standards and regulations globally, including with capacity building activities. I also coordinate efforts on innovative agricultural technologies with representatives from like-minded countries in the world.



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