

UNIVERSITY OF NAIROBI

FACULTY OF VETERINARY MEDICINE

FOURTH ANNUAL INTERNATIONAL

SCIENTIFIC CONFERENCE 2026

Conference Programme and Book of Abstracts

CONFERENCE THEME

Research and Innovations for a Sustainable Animal Resource Sector

21–23 OCTOBER 2026

Wangari Maathai Institute
Upper Kabete Campus, University of Nairobi

Hybrid conference via Zoom

Community CSR activity • 24 October 2026

CONFERENCE PARTNERS

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About the conference



The Faculty of Veterinary Medicine (FVM), University of Nairobi, will host the 4th Annual International Scientific Conference and Exhibition 2026, as part of the University of Nairobi Research Week 2026. The conference will be held from 21–23 October 2026 at the Wangari Maathai Institute (WMI), Upper Kabete Campus, under the theme: "Research and Innovations for a Sustainable Animal Resource Sector."

The conference provides a multidisciplinary platform for researchers, academics, veterinary and animal-health professionals, students, policymakers, industry players, farmers, innovators, development partners and other stakeholders to share knowledge, present research findings, showcase innovations and explore opportunities for collaboration.

The conference will focus on translating research and innovation into practical solutions for emerging challenges in animal health and production, wildlife, fisheries and aquaculture, food safety, public health, environmental sustainability and related areas. Through keynote presentations, oral and poster sessions, exhibitions and stakeholder engagement, the conference seeks to strengthen the link between science, policy, industry and practice.

A key feature of the 2026 conference will be the Stakeholder Sensitization, Farmers' Exhibition Days, and Corporate Social Responsibility (CSR) Activity, providing an opportunity to connect scientific knowledge and innovations with farmers, industry players, communities and other end-users. Both activities are open to all and offered free of charge. The Farmers' exhibition will bring together farmers, researchers, innovators, industry partners, students, and development partners to showcase technologies, products, innovations, and practical solutions aimed at advancing sustainable agriculture, livestock production, veterinary medicine, wildlife conservation, and fisheries management. The CSR activity will focus on a community-wide spay and neuter campaign and rabies vaccination targeting both free-roaming and owned dogs and cats. This initiative reflects our commitment to animal welfare, responsible pet ownership, disease prevention , and the promotion of public health within communities.

The conference will also provide opportunities for networking, knowledge exchange, research partnerships, mentorship and dissemination of scientific outputs, including publication of selected papers subject to the applicable peer-review processes.

Through this conference, FVM seeks to contribute to a more innovative, resilient, productive and sustainable animal-resource sector, while strengthening partnerships that advance research, education, practice and societal impact.

The success of this conference and its associated activities would not have been possible without the dedication, sacrifice and commitment of the Organizing and Planning Committee, the Faculty, University Management, the participants, and our valued sponsors. I sincerely thank and deeply appreciate each one of you for your time, effort, support, and unwavering commitment. Your collective contribution has made this conference possible, and I remain truly grateful and indebted to you all.

Prof. Muchane Muchai
Conference Convenor

Welcome remarks

Dean Faculty of Veterinary Medicine



Ladies and Gentlemen, on behalf of the Faculty of Veterinary Medicine, University of Nairobi, I take this opportunity to welcome you all to the Faculty of Veterinary medicine 4th Annual International Scientific Conference and Corporate Social Responsibility. Please allow me to thank each one of you for finding it necessary to join us in this important event. This international Scientific conference is among the many conferences organized by the University of Nairobi to mark the annual research week that allows the University to dedicated time to showcase its research activities and also learn from other scientists from various institutions. It brings together researchers, veterinarians, wildlife and fisheries professionals, policy makers, industry leaders, and other stakeholders to discuss and share knowledge, innovations and experiences relevant to sustainable animal resources. It is also an opportunity for the scientists to learn advances and innovative products that are offered by industry players.

The theme of this year's conference "Research and Innovation for a Sustainable Animal Resource Sector". resonates well with the current needs of the country of ensuring food security through sustainable animal resource sector. Over 40 scientific papers touching on various subthemes will be presented in this conference by various researchers, students and guest speakers who I must thank profusely for their dedication to prepare papers specifically for this conference. Their effort is what has made this conference a success. I am therefore confident that the presentations will enrich your scientific knowledge that will go a long way to developing a sustainable animal resource sector. The Faculty of Veterinary Medicine is therefore committed to generation and dissemination of new knowledge and innovation for advancement of the animal resource sector through research..

In addition to the Scientific conference, the faculty has organized a corporate social responsibility activity to interact with farmers and pet owners around this campus to create awareness of the activities of the faculty. I wish to invite participants to join us in this equally important activity.

I recognize the support of our dedicated partners that has enabled us to organize this important event. I take this opportunity to thank you most sincerely for the generous support. I invite participants to visit the stands mounted by our partners for valuable information of their products and activities and to explore possible areas for collaboration

With those few remarks, I wish you fruitful deliberations and productive engagement.

Thank you and welcome once again.

Prof. Jackson N. Ombui

Acting Dean, Faculty of Veterinary Medicine

Conference organizing committee

SNO.	NAME OF STAFF MEMBER	ROLE
1	Prof. Jackson Nyarongi. Ombui	Ag. Dean, FVM
2	Prof. Samuel Maina Githigia	Assoc. Dean/Faculty Convenor
3	Prof. Samuel Muchane Muchai	Coordinator, Research & Innovation, & Conference Convenor
4	Dr. Felix Matura Kibegwa	Coordinator, Research & Innovation, & Co-Conference Convenor
5	Prof Gabriel Aboge	Chair, Scientific and Innovation Sub-Committee
6	Dr. Daniel Wambua Muasya	Co-Chair, Scientific and Innovation Sub-Committee
7	Prof . George K. Gitau	Member, Scientific and Innovation Sub-Committee
8	Dr. Christine Mbindyo	Member, Scientific and Innovation Sub-Committee
9	Dr. Callen Nyangate Onura	Member, Scientific and Innovation Sub-Committee
10	Dr. Albert Nyongesa	Member, Scientific and Innovation Sub-Committee
11	Prof. Lucy Wanjiru Njagi	Member, Scientific and Innovation Sub-Committee
12	Dr. Dominic Omosa Ochwangi	Member, Scientific and Innovation Sub-Committee
13	Prof. Joshua Orungo Onono	Chair, Resource Mobilization Sub-Committee
14	Dr. Rawlyce Bett	Member, Resource Mobilization Sub-Committee
15	Dr. Ambrose Kipyegon Ng'eno	Member, Resource Mobilization Sub-Committee
16	Dr. Isaac Ole Mapenay	Member, Resource Mobilization Sub-Committee
17	Dr. James Gathumbi	Member, Resource Mobilization Sub-Committee
18	Dr. Joel Winyo Ochieng	Member, Resource Mobilization Sub-Committee
19	Ms. Evaline Mongare	Faculty Accountant & Member, Resource Mobilization Sub-Committee
20	Dr. Tequiero Abuom Okumu	Chair, CSR & Partnerships Sub-Committee
21	Dr. Catherine Kaluwa	Member CSR & Partnerships Sub-Committee
22	Dr. Sharon N. Mbindyo	Member, CSR & Partnerships Sub-Committee
23	Dr. Peter Kimeli	Member, CSR & Partnerships Sub-Committee
24	Mr. Issa Shamir	Snr. Administrative Assistant, Secretariat
25	Ms. Esther Winaina	Snr. Administrative Assistant, Secretariat
26	Mr. Stephen Gikami	Snr. Administrative Assistant, Secretariat
27	Mr. Japheth Nyamoko	Administrative Assistant, Secretariat
28	Mr. Martin Kinuthia Waringa	Website Officer, Upper Kabete Campus
29	Mr. George Machiri Karimi	ICT Officer, Upper Kabete Campus
30	Ms. Hellen Waithera Waweru	ICT Support, Upper Kabete Campus
31	Mr. Ephantus Murimi Nyaga	Web Champion, FVM
32	Mr. Stanley Thuo	Procurement Officer, FVM
33	Mr. James Murithi Ireri	Faculty Registrar/Secretary

FVM Conference Programme

FVM 4TH ANNUAL INTERNATIONAL SCIENTIFIC CONFERENCE 2026

Faculty of Veterinary Medicine • University of Nairobi
21–23 October 2026 • All times East Africa Time (EAT, UTC+3)

Wangari Maathai Institute for Peace and Environmental Studies (WMI), Upper Kabete Campus

Time	Presentation or activity	Presenter
DAY 1 Wednesday 21 October 2026		
7:30–8:30 am	Arrival and registration	
8:30–9:00 am	Housekeeping	
9:00–11:00 am	Opening ceremony • Welcome remarks by the Dean, FVM • Guest of Honour: Prof. John Demesi Mande, DVC-AA, University of Nairobi	
11:00–11:30 am	**Health break**	
Session 1 One Health and Climate Change		
Chair: Dr. Tequiero Abuom Okumu | Rapporteur: Dr. Dominic Omosa Ochwang'i		
11:30–11:50 am	From Research to Policy and Practice: Strengthening Animal Resource Governance for a Sustainable and Competitive Sector	Dr. Allan Azegele
11:50 am–12:05 pm	Ethical Issues in Desert Locust Control Research During Emergencies: A One Health Perspective from Marsabit County, Kenya	Galgallo Golicha Huka
12:05–12:20 pm	Mifugo Watch: Turning a Decade of Validated Satellite Data into Life-Saving Action for Kenya's Pastoralists	ExcelRose Majimbo
12:20–12:35 pm	Ethical Challenges in Antimicrobial Stewardship: Perspectives of Healthcare Providers at Kenyatta National Hospital	Ian Itolondo
12:35–1:00 pm	**Plenary Q&A**	
1:00–2:00 pm	**Lunch break**	
Session 2 Natural Products and Pharmacognosy		
Chair: Prof. Joshua Onono | Rapporteur: Dr. Christine Mbindyo		
2:00–2:20 pm	Brooke East Africa presentation	Dr. Raphael Kinoti
2:20–2:35 pm	Antimicrobial Activity and Phytochemical Screening of 50% Hydro-Ethanolic Extracts of Mondia whitei (Hook.f.) Skeels (Apocynaceae)	Hagari Robert William
2:35–2:50 pm	Antimicrobial Activity, Toxicity and Phytochemical Composition of *Senna didymobotrya* (Fresen.) H.S. Irwin and Barneby Crude Leaf Extracts	Daniel Yonah Munyala
2:50–3:05 pm	*Carissa spinarum* L. Aqueous Root Extracts Ameliorate Oxidative Stress-Induced Infertility in Adult Male Wistar Rats	Martin Ouma

Time	Presentation or activity	Presenter
3:05–3:20 pm	Ameliorative Effects of Moringa oleifera Aqueous Leaf Extract on Ornidazole-Induced Infertility in Male New Zealand White Rabbits	Esther Maluki
3:20–3:35 pm	In Vitro Antioxidant Activity and In Silico Molecular Docking of Bioactive Compounds of Hibiscus acetosella Leaf Extracts	Willy Nzulu Kisoi
3:35–3:50 pm	Phytochemical Profile and Safety Studies of Hydro-Ethanolic Leaf Extract of *Oxygonum sinuatum* (Meisn.) Dammer	Millicent Gathoni
3:50–4:00 pm	CEVA presentation	Dr. Ngugi. J.N.
4:00–4:30 pm	**Plenary Q&A**	
4:30–4:50 pm	**Health break**	
DAY 2 Thursday 22 October 2026		
7:45–8:20 am	Registration of participants	
Session 3 Epidemiological Studies of Animal Diseases		
Chair: Prof. Lucy Wanjiru Njagi | Rapporteur: Dr. Ambrose Kipyegon Ng'eno		
8:30–8:50 am	Blending New Technologies with Established Knowledge: Pathways to Sustainable Control of Tropical Livestock Diseases	Dr. Musa Mulongo
8:50–9:05 am	Veterinary Capacities in Pastoral Devolved Governance Units in Kenya: A Participatory Case Study of Marsabit County	Elia Lolem Ekitela
9:05–9:20 am	Livestock Disease Response as the Weakest Link in Disease Control in the Pastoral Northern Kenya	Elia Lolem Ekitela
9:20–9:35 am	Seroprevalence and Factors Associated with Canine Leishmaniasis in Baringo County, Kenya: Implications for Integrated One Health Surveillance	Dr. Hellen Njeri Maingi
9:35–9:50 am	Acute Generalised Lymphadenitis (AGL) as an Emerging Priority Camel Health Condition in the Pastoral Northern Kenya	Ahmed Mohamed Abdallah
9:50–10:05 am	Effects of Spirulina- and Redworm-Based Hatchery Nutrition on Growth, Nutrient Utilization and Survival of African Catfish Fingerlings	Dr. Callen N. Onura
10:05–10:30 am	**Plenary Q&A**	
10:30–11:00 am	**Health break**	
Session 4 Fisheries, Aquaculture, Comparative Bioscience and Diagnostics		
Chair: Dr. Rawlyce C. Bett | Rapporteur: Dr. Callen Nyangate Onura		
11:00–11:20 am	Recent Advances in Research and Management of the Coastal and Marine Fisheries in Kenya: Towards an Ecosystem Approach to Fisheries Management	Prof. Cosmas Munga
11:20–11:35 am	Tech Driven Aquaculture and Fish Welfare	John Nyambane

Time	Presentation or activity	Presenter
11:35–11:50 am	Their Nose on Their Toes? Understanding Olfactory Function and Future of Tick Repellent Technology	Daniella Naserian
11:50 am–12:05 pm	What Will it Take to Heal Chronic Wounds Perfectly? Lessons from Deomyine Rodents	John M. Kimani
12:05–12:25 pm	Host Lipidomics for Tuberculosis Biomarker Discovery: A Scoping Review and Translational Agenda	Joash Odhalo Gombe
12:25–12:45 pm	Detection of Mycoplasma Species from Vaccine Cell Cultures and Laboratory Environment in Nairobi, Kenya	Wilfred Saidimu
12:45–1:00 pm	**Plenary Q&A**	
1:00–2:00 pm	**Lunch break**	
Session 5 Wildlife, Animal Welfare and Community Engagement		
Chair: Dr. Catherine Kaluwa | Rapporteur: Dr. Joel Winyo Ochieng		
2:00–2:20 pm	Economics of Conservation and Sustainable Financing	Dr. Tuqa Jirmo
2:20–2:35 pm	A Review of Bird Conservation Approaches and Methods and Their Impacts on Kenya's Avian Biodiversity Status	Prof. Muchane S. Muchai
2:35–2:50 pm	Annual Patterns of Breeding and Moult in Common Bulbuls (*Pycnonotus barbatus*) Across Nigeria, Zambia and Kenya	Salma Thoya
2:50–3:05 pm	Status of Macrofungi and Arbuscular Mycorrhiza Fungi in One-Year Old Forest Gardens in Lake Victoria Watershed Ecosystem	Dr. Mary Muchane
3:05–3:20 pm	Foraging Ecology of the Vulturine Guineafowl (*Acryllium vulturinum*) at Mpala Ranch, Laikipia, Kenya	Sikenykeny Kennedy
3:20–3:40 pm	Using Tri-Axial Accelerometers to Evaluate the Lying Time of Working Donkeys in Mwea Subcounty, Kenya	Dr. Wilson Kuria Kimani
3:40–3:55 pm	Contribution of the University of Nairobi Veterinary Outreach Programs to Animal Welfare in Ndumbu-ini, Kiambu County, Kenya	Muchiri Tiffany Wambaire
3:55–4:15 pm	Animal Welfare and Occurrence of Subclinical Mastitis in Smallholder Dairy Cows in Njoro Sub-County, Kenya	Collins Kevin Ouma
4:15–4:40 pm	**Plenary Q&A**	
4:45–5:00 pm	**Health break and close for the day**	
DAY 3 Friday 23 October 2026		
7:45–8:20 am	Registration of participants	
Session 6 Drug Discovery and Development, AMR, and Basic and Applied Bioscience Research		
Chair: Dr. Davis Karanja | Rapporteur: Dr. Isaac Ole Mapenay		
8:30–8:45 am	Atlantis Life Science presentation	Dr. Geofrey Kaaria

Time	Presentation or activity	Presenter
8:45–9:00 am	Knowledge, Attitude and Practice of Dairy Farmers Regarding Antibiotic Use and Resistance in Selected Regions of Eritrea	Redie Kidane
9:00–9:15 am	Antimicrobial Activity and Toxicity of Secondary Metabolites Produced by Extremophile Bacteria Isolated from Lake Magadi, Kenya	David Njenga
9:15–9:30 am	Effect of Black Soldier Fly Larvae on Bacterial Pathogens and Antimicrobial Resistance Genes in Dorper Sheep Manure	Dembede Steve
9:30–9:45 am	Antimicrobial Resistance Awareness in Local Languages: The Voicevigil AMR Language Champions Programme School Engagement Pathway in Kenya	Chemutai Caren
9:45–10:00 am	Morphology and Morphometry of the Olfactory Mucosa and Olfactory Bulb in the Muscovy Duck (*Cairina moschata*)	Peter Nyoike Njogu
10:00–10:30 am	**Plenary Q&A**	
10:30–11:00 am	**Health break**	
Session 7 Livestock Value Chains, Food and Feed Safety		
Chair: Prof. George Gitau | Rapporteur: Dr. Sharon N. Mbindyo		
11:00–11:10 am	Adenchem Stores Limited presentation	Dr. Joseph Wafula Mutunga
11:10–11:30 am	Alternative and Emerging Livestock Feed Resources in Kenya	Prof. Charles K. Gachuiri
11:30–11:45 am	Effects of Grass-Legume Intercropping on Rumen Microbial Composition and Metabolite Profiles in Boran Steers Fed Tropical Grasses	Immaculate Nkatha
11:45 am–12:00 pm	Goat Value Chain Modelling Shows Investment in Mosquito Control Creates Benefits Through Reduced Incidences of Rift Valley Fever in Human and Animal Populations	Dickson Machira Nyaguthii
12:00–12:15 pm	Histomorphometric Changes in Sheep Gut Following Nutritional Supplementation with Saccharomyces cerevisiae Fermentation Product	Milka Wanjohi
12:15–12:30 pm	Risk Factors Associated with Food-Borne Diseases Among Patients Diagnosed at Kenyatta National Hospital, Kenya	Dabodabo J.W.M.
12:30–1:00 pm	**Plenary Q&A**	
1:00–2:00 pm	**Lunch break**	
Session 8 Innovative and Smart Livestock Production Technologies and Advances in Clinical Veterinary Practice		
Chair: Prof. Samuel Githigia | Rapporteur: Dr. Peter Kimeli		
2:10–2:30 pm	COSMOS presentation	Dr. Paul Imo

Time	Presentation or activity	Presenter
2:30–2:45 pm	MastiSense: A Portable Multi-Parameter Smart Strip Cup for Early Mastitis Detection in Smallholder Dairy Herds	Barasa Samuel Simiyu
2:45–3:00 pm	In Silico Evaluation of Cytotoxicity, Drug-Induced Genetic Expressions, and ADMET Characterization of Selected Phytochemicals with Anticancer Activity Using AI and ML Techniques	Isaac M. Ole-Mapenay
3:00–3:15 pm	Locally Developed Animal Models for Clinical Skills Training: A Student-Led Approach to Advancing the Three Rs in Veterinary Education	Phosteen Wafula
3:15–3:35 pm	Flygene presentation	Dr. Rawlynce Cheruiyot Bett
3:35–3:55 pm	Assessment of Artificial Intelligence Adoption and Digital Preparedness Among Veterinary Students; University of Nairobi	Brian Ogalo
3:55–4:30 pm	**Plenary Q&A**	
4:30–5:10 pm	Closing ceremony and end of conference • Guest of Honour: Prof. M. Jesang Hutchinson, DVC-RIE, University of Nairobi	
ASSOCIATED ACTIVITIES		
21–23 October, 9:00 am–4:00 pm	Stakeholder sensitization and farmers' exhibition • Wangari Maathai Institute, Upper Kabete Campus	
Saturday 24 October, 9:00 am–4:00 pm	Community corporate social responsibility activity • Community-wide spay and neuter campaign and rabies vaccination for free-roaming and owned dogs and cats • Ndumbu-ini Chief's Camp, Kiambu County	

Keynote speaker profiles

Speaker	Profile
	PROF. COSMAS NZAKA MUNGA (PhD) Associate Professor in Marine and Fisheries Sciences, Department of Chemistry and Biological Sciences, Technical University of Mombasa (TUM), Kenya Email: ckamunga2014@tum.ac.ke Keynote Topic: Recent Advances in Research and Management of the Coastal and Marine Fisheries in Kenya: Towards an Ecosystem Approach to Fisheries Management

Prof. Cosmas Munga works at the Technical University of Mombasa (TUM) as an Associate Professor in marine and fisheries sciences. He is a distinguished marine and fisheries scientist with almost 20 years of experience in university teaching and research. His interest in research is contribution in the sustainability of the small-scale fisheries along the Kenya coast supported by sound scientific data and information.

Prof. Munga's extensive research work has focused on ecological and socio-ecological aspects of small-scale fisheries, semi-industrial bottom trawl prawn fisheries, and currently Prof. Munga has championed for the last two years since 2024, advancement of science to management through engagement of stakeholders in Western Indian Ocean estuarine systems. He has actively participated in various fisheries co-management initiatives, including the development of fisheries co-management plans and intervention portfolios to enhance marine priority fisheries along the Kenya coast. He has played a pivotal role in capacity building of fisheries managers and practitioners having served as the Training Coordinator for the World Bank KEMFSED Project in 2022. Prof. Munga's national, regional and international research collaborations have contributed immensely to science and capacity building. Currently, Prof. Munga is the Principal Investigator (PI) of the WIOMSA funded SCALABLE Project on advancing science to management of selected estuaries in Kenya, Tanzania, Mozambique and South Africa. He is the Local Team Lead of Sub-Project 2 of the VLIR UOS IUC Afya Moja Project on strengthening the blue economy by building capacity in local marine and fisheries sciences, and mariculture through education, research, and innovation. In this project, Prof. Munga is working in collaboration with three Belgian universities (Gent, Antwerp and Free University of Brussels). Prof. Munga also serves at TUM as the Local Coordinator of the Erasmus Mundus joint master of Science Degree in Tropical Biodiversity and Ecosystems (TROPIMUNDO), a unique EU funded MSc. program with a focus on tropical biodiversity and ecosystems.

Prof. Munga has supervised to completion a total of 3 PhD and 20 master students. He has made significant contributions in scientific knowledge having published over 60 scientific publications (https://scholar.google.com/citations?user=0TCNGlwAAAAJ&hl=en&oi=ao). Prof. Munga serves as the Chief Editor of the Multidisciplinary Journal of Technical University of Mombasa (http://journals.tum.ac.ke/) and a member of the editorial board of the Western Indian Ocean Journal of Marine Sciences (http://www.wiomsa.org/wio-journal-of-marinescience/).

Keynote speaker profiles continued

Speaker	Profile
	DR. MUSA MULONGO (PHD) Senior Scientist, Health Team Leader (a.i) Vaccines & Diagnostics |TAHSSL Platform Coordinator International Livestock Research Institute (ILRI), Nairobi, Kenya Email: m.m.mulongo@cgiar.org Keynote Topic: Blending New Technologies with Established Knowledge: Pathways to Sustainable Control of Tropical Livestock Diseases

Dr. Musa Mulongo is a Senior Scientist at ILRI and leads the Transforming Animal Health Services and Solutions for LMICs (TAHSSL) Platform. The TAHSSL Platform is an international animal health tripartite product development and commercialization partnership consisting of ILRI, GALVmed and ClinGlobal. From September 2023, Musa leads ILRI's Vaccines and Diagnostics work in the Health Program. Previously, he was a Senior Program Specialist with the multi-donor Livestock Vaccine Innovation Fund (LVIF) of the International Development and Research Centre (IDRC) in Ottawa Canada. In this role, he was responsible for the technical oversight of a multi-million-dollar portfolio of cutting-edge vaccine discovery and development projects with multiple international partnerships. Following completion of two post-doctoral research fellowships at Vaccine and Infectious Disease Organization - International Vaccine Centre (VIDO-InterVac) in Saskatchewan, Canada and the Wellcome Trust Research Program in Kenya. He holds a PhD in Immunology & Vaccinology from the Royal Veterinary College of the University of London (UK) and a Master of Science also in Immunology from Kenyatta University in Kenya.
https://www.ilri.org/people/musa-mulongo
https://www.linkedin.com/in/musa-mulongo-83a20320/

Speaker	Profile
	PROF. CHARLES K. GACHUIRI (PhD) Professor of animal science at the Department of Animal Production, Faculty of Veterinary Medicine, University of Nairobi. He holds a BVM and MSc (animal science) from University of Nairobi and PhD in Animal Nutrition from the University of California, Davis. Email: gachuiri@uonbi.ac.ke, ckgachuiri@gmail.com Keynote Topic: Alternative and Emerging Livestock Feed Resources in Kenya

Prof. Charles K. Gachuiri is a professor of animal science at the University of Nairobi focusing teaching, research, extension and consulting in livestock nutrition and feeding, feed resources, feed formulation and commercial feed manufacturing. He has over 40 years teaching experience both at under and post graduate level covering all aspects of different livestock value chains. He has extensive research experience in all areas of livestock production, focusing mainly of animal nutrition and improving the animal feed base. He has published widely in the area feeds resources in peer reviewed journals. He has also written several manuals in area of livestock production, dairy cattle production, feed formulation and manufacturing. He has trained many staff/groups in feed production (both fodder and commercial concentrates). He has consulted widely for different bodies (e.g. USAID, SNV, ILRI), Farmer cooperatives, private companies and county governments.

Keynote speaker profiles continued

Speaker	Profile
	DR. TUQA JIRMO, (PhD) CEO/Founder - Conservation of Nature Through Enterprise (COONET) Email: thjirmo@gmail.com Ph.D. - Leiden, MSc – UON, BSc -Moi, DIP/ADV. DIP Mweka. Stellenbosch University - AWEI Research Associate - Wildlife & Blue Economy Keynote Topic: Economics of Conservation and Sustainable Financing

Dr. Tuqa Jirmo, Ph.D. is an African conservation biologist, wildlife economy researcher, natural-resource management specialist, and conservation practitioner with more than two decades of experience working at the intersection of biodiversity, communities, economies, governance, and sustainable development.

He holds a Ph.D. in Conservation Biology, an MSc in Biology of Conservation, and a BSc in Wildlife Management, complemented by professional qualifications in wildlife management. His career has taken him across protected areas, community conservancies, rangelands, and marine and coastal landscapes, where he has engaged with the complex relationship between ecological complexities, human wellbeing, and sustainable development.

Dr. Jirmo's areas of expertise include community-led conservation, wildlife economics, ecosystem valuation, conservation finance, protected-area management, human–wildlife conflict mitigation, ecological research, natural-resource governance, wildlife security, and the blue economy. He has worked with communities, governments, conservation institutions, researchers, development partners, and other stakeholders to advance practical and inclusive approaches to conservation.

Speaker	Profile
	Dr. Allan Azegele, OGW Director of Veterinary Services, Kenya Chairperson, Codex Alimentarius Commission Email: aazegele@kilimo.go.ke Keynote topic: From Research to Policy and Practice: Strengthening Animal Resource Governance for a Sustainable and Competitive Sector

Dr. Allan Azegele, is a Kenyan veterinarian and public-sector leader with over 30 years of experience in veterinary services, food safety policy, standards development, capacity building and official controls. He currently serves as Kenya's Director of Veterinary Services, providing strategic leadership and technical oversight of the country's veterinary services and regulatory framework. He has been actively engaged in Codex Alimentarius work since 2006 and has contributed to various Codex subsidiary bodies. In November 2024, he was elected by consensus as the 21st Chairperson of the Codex Alimentarius Commission, the joint FAO/WHO international food standards body and is serving his third term. As Chairperson, Dr. Azegele promotes science-based decision-making, inclusivity, transparency, consumer health protection and fair practices in international food trade, with a vision of keeping Codex as a foundation of the global food system.

Keynote Addresses

Economics of Conservation and Sustainable Financing

Dr. Tuqa Jirmo

As we all know biodiversity-finance has a major financing gap and there is an increasing interest in mechanisms such as ecosystem-service payments, biodiversity finance, impact investment and conservation funds. Conservation should no longer be treated only as financing from governments and donors.

Nature is an economic asset, communities are conservation investors, and sustainable financing must convert ecological value into durable local and national economic opportunity. In this regard communities should not merely be beneficiaries of conservation finance. They should be owners, entrepreneurs, service providers and investors in the conservation economy.

The future of conservation will not be secured by conservation budgets alone. It will be secured when society recognizes that nature is productive capital, when markets recognize ecological value, when governments create enabling institutions, when investors see conservation as an investment opportunity, and when communities become owners of the conservation economy. Our challenge is therefore not simply to find more money for conservation. Our challenge is to redesign the economic relationship between people, nature and finance.

Alternative and Emerging Livestock Feed Resources in Kenya

Prof. Charles K. Gachuiri

Highlights of Presentation

- Need for locally available alternative resources:
- Rising and highly volatile cost of commercial feeds in Kenya
- Most protein concentrates are imported thus availability not predictable
- Competition for energy concentrates (mostly maize) between feed and food
- Need for more circular economy
- Climate change affecting productivity

The presentation will cover the following topics

1. High-Protein Alternative Resources
2. High-Energy Alternative Resources
3. Smart & Climate-Resilient Fodder Systems

Recent Advances in Research and Management of the Coastal and Marine Fisheries in Kenya

Towards an Ecosystem Approach to Fisheries Management

Prof. Cosmas Nzaka Munga

In this keynote address, I will highlight the recent advances in research and management of the coastal and marine fisheries in Kenya. The coastal and marine fisheries sub-sector in Kenya has undergone transformative research and management advancements from the year 2000. This has been possible with support from the government and development partners in the sub-sector. Historically, this sub-sector has been a major source of socio-economic support and livelihood for the local communities, as well as a historical source of revenue for the government. The full potential of this sub-sector still remains untapped calling for continued investment in research and management. For so long before 2000, the sub-sector faced inadequate scientific research data and information to inform fisheries management. Additionally, the inadequate enforcement of the existing fisheries regulations has been a threat to fisheries management for a long time. Some of the recent advances in research initiatives (2000 – 2025) in contributing to ecosystem approach to fisheries (EAF) management through development partners will be presented in this keynote address. The presentations will include: (i) bridging data gaps in Kenya's coastal and marine fisheries; (ii) status and management effectiveness of Kenya's demersal reef fisheries; (iii) recent scientific bottom trawl surveys; (iv) experimental longline electronic catch monitoring; (v) a shift from conventional fisheries management to a collaborative approach; (vi) progress in the development of gear- and area-based fisheries management plans, and (vii) successes in the development of fisheries legislations and enforcement. Since the year 2007, the Kenya coastal and marine fisheries have been undergoing a paradigm shift of bottom-top management with a high success of management compliance through fisheries co-management initiatives at both national and community levels. Therefore, this keynote address aims to highlight the major research and management interventions in addressing the coastal and marine fisheries challenges as a prospective blue economy sub-sector.

Session 1 One Health and Climate Change

Session 1 | Abstract 015

ETHICAL ISSUES IN DESERT LOCUST CONTROL RESEARCH DURING EMERGENCIES: A ONE HEALTH PERSPECTIVE FROM MARSABIT COUNTY, KENYA

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Background: The 2020–2021 desert locust invasion threatened food security and livelihoods in Marsabit County, Kenya, prompting emergency surveillance, locust-control operations, and related environmental health research activities. Emergency responses may create ethical tensions between the need for rapid action and the protection of community rights, environmental stewardship, and research integrity.

Objective: This study examined ethical governance and community-related ethical considerations associated with desert locust-control research and evidence-generation activities undertaken during the 2020–2021 emergency response in Marsabit County. For this study, locust control refers to documented measures undertaken to monitor and manage the locust threat, including surveillance, operational control activities, community sensitisation, and safety-oriented measures.

Methods: A qualitative retrospective document review was conducted using purposively selected county reports, surveillance records, inter-agency coordination documents, public health reports, and relevant regulatory and ethical guidelines. Documents were reviewed for evidence concerning ethical oversight, governance, community engagement, consent, privacy and data protection, dissemination of findings, and operational safety. The available documentary evidence was analysed using thematic content analysis. Findings were based on ethical and governance information explicitly documented in the reviewed materials.

Results: The review identified limited documentation of formal ethical oversight and governance arrangements, as well as limited documented evidence of participatory community engagement, explicit consent procedures, data-protection measures, and dissemination of findings to affected communities. Community engagement described in the reviewed documents was predominantly informational, with sensitisation often facilitated through local leadership structures. Positive practices documented included community sensitisation and safety-oriented operational measures. However, the absence, incompleteness, or limited detail of documentation does not necessarily establish that particular ethical practices were not undertaken or that implementation was inadequate. The findings therefore represent documented evidence of ethical governance processes rather than a definitive assessment of the overall performance of locust-control operations.

Conclusion: The review indicates gaps and inconsistencies in the documentation of ethical governance during the emergency locust response. The available evidence does not permit definitive conclusions about the extent to which undocumented ethical practices were implemented. Future One Health emergency environmental health responses should incorporate rapid ethics review mechanisms, participatory community engagement, stronger data-governance procedures, and systematic documentation of ethical processes, accountability, and dissemination to affected communities.

Keywords: Desert locust,ethical governance, one health, community engagement.

Session 1 | Abstract 012

Mifugo Watch: Turning a Decade of Validated Satellite Data into Life-Saving Action for Kenya's Pastoralists

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Background Information: Pastoralism sustains millions of livelihoods across Kenya's arid and semi-arid lands, yet recurrent droughts continue to cause catastrophic livestock losses — an estimated 2.5 million or more livestock deaths during the 2021–2023 drought alone. Satellite-derived vegetation data (NDVI) has been validated for over a decade through ILRI's Index-Based Livestock Insurance (IBLI) programme, yet it has been used almost exclusively to trigger retrospective insurance payouts. A critical last-mile gap has therefore persisted: proven satellite risk data has not been translated into real-time, practical guidance that pastoralists and veterinary authorities can act on early.
Aims and Objectives: Mifugo Watch aims to: (i) build a satellite data pipeline integrating NDVI, soil moisture, and rainfall indicators for grazing-zone-level drought monitoring; (ii) translate these indicators into plain-language, actionable SMS alerts on herd-movement timing, early destocking, and veterinary disease-surveillance priorities; (iii) embed a veterinary epidemiological layer linking drought-driven herd congestion and malnutrition to disease-outbreak risk; and (iv) field-test the system in Marsabit County.
Methods: Mifugo Watch has been developed as an operational cloud pipeline drawing on Earth Observation data: Sentinel-2 NDVI (Google Earth Engine), NASA SMAP soil moisture, and CHIRPS rainfall estimates, benchmarked against ILRI's validated IBLI NDVI-mortality methodology. A rule-based risk-scoring model combines a pasture-stress threshold with a veterinary disease-risk multiplier reflecting herd concentration and nutritional stress. Alerts are pushed weekly by SMS gateway (Africa's Talking) to pastoralist herders, with a parallel dashboard for county veterinary/livestock departments and the National Drought Management Authority (NDMA). The system is undergoing field pilot deployment in Marsabit County, benchmarked against NDMA drought bulletins and mortality events.
Results: Internal validation against over a decade of historical Marsabit drought and livestock mortality records shows the model consistently flags periods of documented pasture stress and mortality spikes, confirming the predictive reliability established by ILRI's NDVI methodology. Field deployment is further validating alert accuracy, delivery reliability, and herder responsiveness, and complete pilot findings will be shared at the conference.
Conclusions and Recommendations
Mifugo Watch addresses a specific gap in Kenya's pastoralist drought-response landscape: proven satellite risk data exists, but had not been translated into real-time, actionable guidance. Embedding a veterinary disease-risk perspective within an Earth Observation early-warning tool is a novel, One Health-aligned contribution at the intersection of climate change, animal health, and smart livestock technology. Scale-up is recommended through collaboration with county veterinary departments and a complementary relationship with ILRI's IBLI programme, extending to other arid and semi-arid counties.

Keywords: Earth Observation; NDVI; drought early warning; pastoralist livestock; One Health

Session 1 | Abstract 016

Ethical Challenges in Antimicrobial Stewardship: Perspectives of Healthcare Providers at Kenyatta National Hospital

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Introduction: Antimicrobial Resistance (AMR) is a global health concern, particularly in low- and middle-income countries (LMICs), leading to increased mortality, prolonged hospital stays, and strained healthcare resources. Although antimicrobial stewardship is critical in combating resistant pathogens, ethical issues surrounding stewardship, particularly in resource-constrained settings such as Kenya, are understudied. Autonomy, justice, and non-maleficence are frequently overlooked, resulting in ethical lapses and possible harm to patients. Aim: This study investigated ethical challenges in antimicrobial stewardship at Kenyatta National Hospital (KNH) and developed context-specific recommendations to improve ethical oversight in LMICs. Methods: A descriptive phenomenology design and purposive sampling were used. Eighteen in-depth semi-structured interviews were conducted among healthcare professionals at KNH. Data were transcribed and analyzed using ATLAS.ti software, following Colaizzi's method of phenomenological data analysis. Results: The study involved 18 key informants (27.8% male, 72.2% female). Eight themes emerged: systemic and institutional barriers, privacy and confidentiality, conflict of interest, equity and inclusivity, capacity building, autonomy, multidisciplinary collaboration, and risk-benefit analysis. These themes revealed ethical challenges that hindered antimicrobial stewardship efforts at KNH. Conclusion: Ethical principles such as autonomy, justice, and non-maleficence were often compromised due to resource constraints, power imbalances, and external influences. Specific moral dilemmas included surrogate consent for incapacitated patients and failure to adhere to antimicrobial stewardship guidelines. These challenges required urgent reforms and ethical frameworks to prioritize patient rights, collaboration, and equity in antimicrobial stewardship.

Session 2 Natural Products and Pharmacognosy

Session 2 | Abstract 004

ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL SCREENING OF 50% HYDRO-ETHANOLIC EXTRACTS OF *MONDIA WHITEI* (Hook.F.) SKEELS (APOCYNACEAE).

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Background: Antimicrobial resistance is compromising the effectiveness of life-saving treatments, making common infections difficult to manage. Numerous studies have explored the ethno-pharmacological, toxicological, and phytochemical properties of Mondia whitei, but there remains a significant gap in the literature regarding its properties when a hydro-ethanolic extract is used. This is a critical omission, as hydro-ethanolic extracts are often superior to either aqueous or alcoholic extracts alone in terms of efficacy or the diversity of compounds they can isolate. Objective: This study assessed the antimicrobial activity of Mondia whitei roots and leaves as well as their specific secondary metabolites, using a 50% hydro-ethanolic extraction method. Materials and Methods: The plant extract mixed with specific reagents was used to determine phytochemical components qualitatively in both extracts. Four agar-wells of 6mm diameter, infused with 100µL of the extracts. The dose ranges for the plant extracts for agar well diffusion ranged from 800 to 100 mg/ml via successive doubling dilutions. Results: Phytochemical screening revealed the presence of saponins, anthraquinones, steroids, terpenoids, alkaloids, flavonoids, and tannins in both roots and leaves, with the roots showing more intense color change. Both extracts exhibited significant dose-dependent antimicrobial activity at 800 mg/mL against Staphylococcus aureus and Bacillus cereus. The minimum inhibitory concentration (MIC) and minimum bactericidal/fungicidal concentration (MBC/MFC) values for the root extract against Gram-positive bacteria and Candida albicans ranged from 25 to 200 mg/ml, while the leaf extract required concentrations between 25 and 400 mg/ml. For Gram-negative bacteria, both MIC and MBC values exceeded 400 mg/ml, indicating a high level of resistance. Conclusion: Overall, this study confirms that Mondia whitei extracts, particularly those derived from the roots, possess potent, dose-dependent activity against Gram-positive pathogens. However, higher concentrations are required compared to standard antibiotics, and the extracts show limited efficacy against Gram-negative bacteria and fungal strains. These findings validate the ethnobotanical use of M. whitei for specific bacterial infections and suggest that the root system is the primary reservoir for potent bioactive secondary metabolites.

Keywords: M. whitei, phytochemical analysis, Agar-well diffusion.

Session 2 | Abstract 003

Antimicrobial activity, toxicity and phytochemical composition of *Senna didymobotrya* (Fresen.) H.S. Irwin and Barneby crude leaf extracts

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Background: Increasing antimicrobial resistance has intensified the search for new antimicrobial agents from plant biodiversity. Senna didymobotrya (Fresen.) H.S. Irwin and Barneby (Fabaceae) is widely used in East African traditional medicine for infectious diseases, yet its pharmacology and toxicology remain incompletely characterised. This study investigated the qualitative phytochemistry, acute oral toxicity and antimicrobial activity of acetone, 50% ethanolic and aqueous leaf extracts of S. didymobotrya.
Methods: Leaves from Iriani ward, Othaya sub-county, Nyeri County were authenticated at the East African Herbarium, National Museums of Kenya (voucher no. NMK/BOT/CTX/2/11/2026), extracted with acetone, 50% ethanol and distilled water, and screened qualitatively for major phytochemical classes. Acute oral toxicity was assessed per OECD Test Guideline No. 423 in female Wistar rats (n = 3/group) given a single limit dose of 2000 mg/kg against a distilled-water control, with clinical signs monitored for 14 days and body weight, organ weights, haematology, biochemistry and histopathology assessed. Antimicrobial activity (125–1000 mg/mL) was assessed by agar well diffusion against Bacillus cereus, Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa and Candida albicans, followed by minimum inhibitory and bactericidal/fungicidal concentrations. Data were analysed by one-way ANOVA with Tukey's HSD; $p<0.05$ was considered significant.
Key Results: Extraction yields were 16.60% (ethanolic), 13.16% (aqueous) and 8.63% (acetone). Alkaloids, tannins, saponins, phenolics, triterpenoids and anthraquinones occurred in all extracts; flavonoids and hydrolysable anthraquinones occurred only in the ethanolic and aqueous extracts. No mortality occurred at 2000 mg/kg; transient signs resolved by 6 h, with diarrhoea only in the ethanolic group, placing all extracts in GHS Category 5 or unclassified (LD50 > 2000 mg/kg). Body weight, organ weights and haematology did not differ from control ($p>0.05$); serum creatinine differed among groups ($p=0.0086$) but no treated group differed from control. Histopathology showed normal liver and kidney architecture, with splenic congestion in all groups including controls. Acetone gave the largest zones of inhibition (30.1±0.5 mm against B. cereus; 26.2±1.7 mm against S. aureus at 1000 mg/mL), exceeding the aqueous extract against B. cereus ($p=0.0116$) but not S. aureus ($p>0.05$), whereas the ethanolic extract had the lowest MIC (125 mg/mL) against both. All extracts were less potent than their positive controls throughout ($p<0.05$), and none were active against P. aeruginosa.
Conclusion: S. didymobotrya leaf extracts, particularly the acetone fraction, show antimicrobial activity consistent with traditional use and a favourable acute oral safety profile, supporting further isolation of the bioactive constituents.

Keywords: *Senna didymobotrya*; acute oral toxicity; antimicrobial activity; qualitative phytochemistry; Wistar rats.

Session 2 | Abstract 036

Carissa spinarum L. aqueous root extracts ameliorate oxidative stress-induced infertility in adult male Wistar rats

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Carissa spinarum L. is a medicinal plant that grows in several regions of Kenya and has been used to treat several diseases, including male infertility among the Marakwet and Pokot communities, without reported toxicological effects. However, scientific validation of its use in managing male infertility, as claimed by herbalists, remains limited. Oxidative stress is known to cause cellular damage and disrupt several developmental stages of sperm cells, as well as the structural network supporting male reproduction. This study evaluated the phytochemical profile and in vivo protective activities of C. spinarum extracts against oxidative stress-induced infertility in adult male Wistar rats. Root and leaf samples were extracted with solvents of varying polarity, and the resulting extracts were analyzed for phytochemicals and antioxidant activity. For in vivo studies, male Wistar rats were divided into six groups (n = 5). Group 1 (control), group 2 (metronidazole), group 3 (metronidazole and 250 mg/kg aqueous root extract), group 4 (metronidazole and 500 mg/kg aqueous root extract), group 5 (metronidazole and 1000 mg/kg aqueous root extract), and group 6 (metronidazole + vitamin E + Sustanon). The epididymis was harvested for sperm characteristics, and the testes for histology and biochemical assays. Phytochemicals and antioxidant activities in the leaves were significantly higher ($p < 0.05$) than in the roots across all solvents tested, except hexane. In vivo, rats fed aqueous root extracts at 500 mg/kg body weight (BW) showed a significant ($p < 0.05$) increase in testicular weight index (0.98%), sperm count (37.28 × 10^6/mL), normal sperm morphology (60.50%), catalase (14.56 × 10-2 nmol g-1 testis tissue), and reduced lipid peroxidation (1.38 ± 0.14 nmoles/g tissue) and malondialdehyde content. Extracts at low and high doses showed a significant increase in viable sperm cells (88.50%) and peroxidase activity, respectively. The extracts at 250 and 500 mg/kg BW ameliorated the effects of metronidazole on testicular histology. The study affirms the potential of C. spinarum aqueous root extracts for the management of male infertility caused by oxidative stress-inducing agents, such as chemicals drugs (metronidazole).

Keywords: Oxidative stress. Sperm cells, testicular, metronidazole

Session 2 | Abstract 037

AMELIORATIVE EFFECTS OF *MORINGA OLEIFERA* AQUEOUS LEAF EXTRACT ON ORNIDAZOLE – INDUCED INFERTILITY IN MALE NEW ZEALAND WHITE RABBITS

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Ornidazole – induced oxidative stress causes testicular damage and impaired spermatogenesis. *Moringa oleifera* aqueous leaf extract (MOALE) contains antioxidant phytochemicals whose efficacy in restoration of testicular toxicity arising from oxidative damage is unreported. This study investigated the effects of escalating doses of MOALE on serum testosterone levels, sperm parameters and accompanying changes in testicular histology in ornidazole- induced infertile male New Zealand white rabbits. Thirty adult male New Zealand white rabbits (2.1-2.3kg) were randomly assigned six groups (n=5); Normal control (0.9% NaCl), negative control (Ornidazole 200mg/kg/day), positive control (Ornidazole 200mg/kg + Tamoxifen 0.3 mg/kg + vitamin E 400mg) daily. Low, Medium and High dose (Ornidazole + MOALE at 200 mg/kg, 400 mg/kg and 800mg/kg) respectively. All treatments were administered by oral gavage daily immediately after taking body weights for 10 weeks. All animals were kept in individual cages under housing conditions of 12-hr light/dark cycle, temperature 18-250C and relative humidity 60 ± 5%. At the end of 10th week of experimental period, serum testosterone levels were determined after which animals were euthanized to analyze sperm parameters and testicular histology. Quantitative data were analyzed by one – way ANOVA with Tukey's post-hoc test for comparison of means among groups. Low dose MOALE was protective by restoring seminiferous tubule architecture with intact basement membrane, reduced vacuolation and increased testosterone levels (7.46± 4.87ng/mL compared to 4.34±1.32ng/mL in negative control) and viable sperm count (57.3±6.09% compared to 44.2±4.07% in negative control). Medium dose MOALE showed intermediate effect with testosterone levels (7.18±4.08 ng/mL) and viable sperm count (59.2±1.93) but persistent alterations in testicular histology. High dose MOALE showed alterations in testicular histology and with sperm analysis revealing increased structural defects of spermatozoa such as absence of head and tail as well as low sperm count (55.0±1.30). Testosterone levels were lowest among the MOALE – treated groups (5.20±1.84 ng/mL) but the differences were not statistically significant (p=0.946). This demonstrates a dose- dependent biphasic response of MOALE in a rabbit model of drug-induced infertility, addresses the critical knowledge gap in natural products for male reproductive health and also establishes a therapeutic window at low dose against high-dose phytotherapy. As MOALE was administered orally, potential gastrointestinal effects were not assessed and present a limitation to be addressed in future work. Larger sample size and direct oxidative stress endpoints are required to confirm the antioxidant mechanism.

Keywords: *Moringa oleifera*; Ornidazole; testicular toxicity; oxidative stress

Session 2 | Abstract 002

IN VITRO ANTIOXIDANT ACTIVITY AND IN SILICO MOLECULAR DOCKING OF BIOACTIVE COMPOUNDS OF *HIBISCUS ACETOSELLA* LEAF EXTRACTS

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Background: Oxidative stress results from an imbalance between reactive oxygen species (ROS) generation and antioxidant defence, and it is implicated in several disease processes and cellular damage. Natural products rich in bioactive compounds may provide potential sources of antioxidant agents. Objective: This study evaluated the in vitro antioxidant activity of ethanolic and aqueous leaf extracts of Hibiscus acetosella. The study further investigated the potential interactions of identified phytochemical compounds with oxidative-stress-related protein targets using molecular docking. Methods: In vitro antioxidant activity was evaluated using 2,2-diphenyl-1-picrylhydrazyl (DPPH), phosphomolybdenum and ferric chloride (FeCl3) reducing assays. Phytochemical constituents were identified using gas chromatography-mass spectrometry (GCMS). Identified phytochemicals were docked against nuclear factor erythroid 2-related factor 2 (Nrf2), T-state haemoglobin and methemoglobin. Results: Ethanolic extracts exhibited significantly higher DPPH radical-scavenging activity ($p < 0.001$), total antioxidant capacity in the phosphomolybdenum assay ($p = 0.001$) and FeCl3-reducing activity ($p = 0.002$) than the aqueous extracts. Molecular docking revealed that N-[4-methoxy-3-methoxycarbonyl) benzoyloxy]succininide from the aqueous extracts of H. acetosella exhibited binding energies ranging from -4.4 to -7.7 kcal/mol across the investigated protein targets. Beta-amyrone from the ethanolic extracts exhibited binding energies ranging from -7.6 kcal/mol to -11.3 kcal/mol. Conclusion: The ethanolic extracts demonstrated greater in vitro antioxidant capacity than the aqueous extracts. Molecular docking indicated favourable predicted interactions between the H. acetosella phytochemicals and proteins associated with oxidative stress and erythrocyte function. These findings provide a basis for further investigation of H. acetosella as a potential source of plant-derived antioxidant compounds that may contribute to the development of affordable natural products to address oxidative stress-related conditions.

Keywords: *Hibiscus acetosella*, Leaf Extract, Molecular Docking, Oxidative Stress

Session 2 | Abstract 005

PHYTOCHEMICAL PROFILE AND SAFETY STUDIES OF HYDRO-ETHANOLIC LEAF EXTRACT OF *Oxygonum sinuatum* (Meisn.) Dammer

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Background: Medicinal plants are widely used where conventional medicines are costly, inaccessible or associated with adverse effects and are often assumed to be safe. The use of these medicinal plants is mainly based on claims and assumptions that they are cheap, easily available and less toxic. However, despite widespread use of these medicinal plants including Oxygonum sinuatum (Meisn.) Dammer, limited information exists regarding their phytochemical composition and safety.

Aim: To determine the phytochemical composition and evaluate acute oral toxicity of Oxygonum sinuatum (Meisn.) Dammer leaf extract.

Methods: Leaves were collected and the plant authenticated at the National Museums of Kenya. This was followed by extraction using 50% ethanol through cold maceration. Preliminary phytochemical screening was done using standard qualitative methods to determine the presence or absence of major bioactive constituents. Acute oral toxicity was evaluated according to OECD Guideline 423 using the up-and-down procedure. Experimental animals were dosed with the extract at doses 175, 550, and 2000 mg/kg body weight while control groups were dosed with normal saline. Monitoring for clinical signs of toxicity, behavioral changes, and mortality was done after 30 minutes, 4 hours, and on a daily basis for 14 days.

Results: Six of the 9 constituents screened were present: saponins, flavonoids, cardiac glycosides, alkaloids, phenols and tannins while steroids, terpenoids and anthraquinones were absent. The toxicity findings indicated the study extract to be safe up to 2000 mg/kg bw. No mortality was recorded throughout the study period. Similarly, no toxicity signs including nausea, vomiting, and abdominal pain were observed.

Conclusion: Oxygonum sinuatum (Meisn.) Dammer leaves are endowed with key phytochemicals reported to be essential in management of varied diseases. Similarly, the present phytochemicals are at excellent levels enhancing its safety to doses possibly more than 2000 mg/kg bw.

Keywords: Toxicity, Phytochemicals, Medicinal plants, *Oxygonum sinuatum*

Session 3 Epidemiological Studies of Animal Diseases

Session 3 | Abstract 019

VETERINARY CAPACITIES IN PASTORAL DEVOLVED GOVERNANCE UNITS IN KENYA: A PARTICIPATORY CASE STUDY OF MARSABIT COUNTY

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Introduction: In Kenya, before devolution, evaluation of Performance of Veterinary Services (PVS) was centralized and the World Organization for Animal Health (WOAH) benchmarks were used. With devolution, delivery of veterinary services has been transferred to county governments, with national government retaining the responsibility for policy, regulation, coordination, and transboundary animal disease management. So far, issues related to regulatory fragmentation, inconsistent funding, and poor collaboration and coordination between national and county levels have been reported, with impacts on performance of veterinary services and disease control. Yet, no systematic PVS has been conducted at county level.

Objective: To assess veterinary service capacities in Marsabit County relative to WOAH standards and identify gaps

Methods: The WOAH's PVS framework was used to evaluate the critical competencies on a scale of 1-5, using participatory likert, with a total of 8 FGDs (for pastoralists) and 39 key informant interviews. The scoring of competencies was primarily done with the national and county Director of Veterinary Services but particularly for disease surveillance and response, key informant interviews were also conducted with 9 other government veterinary workers, 16 Community Disease Reporters (CDRs), 6 Agrovet operators, and 6 NGOs. County veterinary data (2020-2025) for selected capabilities were also used.

Results: Capacity of Marsabit County veterinary services was generally weak (overall median score of 1.8). Except for interaction with stakeholders that performed well (median score=3), the other three fundamental PVS components performed far below the threshold (median score of 1.3 to 1.5). Furthermore, the county had a low staffing of 28-32 technical workers against an estimated requirement of 133 based on Tropical Livestock Units (TLUs), which translated into a high workload of between 16,908 to 83,547 Veterinary Livestock Units (VLUs) per staff member, exceeding the recommended 2,000–3,000 VLUs. The department received approximately 30% of its budget estimates, averaging Kshs. 33 million annually, equivalent to 0.3% of county allocations from the national exchequer – the expenditure per TLU/VLU was therefore USD 0.24–0.62, below the national average of USD 1.40 per TLU.

Conclusion: The capacity of the county veterinary services to implement the devolved functions is low.

Recommendations: The County government to enhance support to veterinary services through policy and legislation while strengthening collaboration with the private sector and the national government and building capacity of CDRs.

Keywords: devolution; veterinary governance; WOAH; veterinary services; Marsabit County; Kenya.

Session 3 | Abstract 018

LIVESTOCK DISEASE RESPONSE AS THE WEAKEST LINK IN DISEASE CONTROL IN THE PASTORAL NORTHERN KENYA.

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Introduction: Livestock disease surveillance and response are interdependent processes essential for effective disease control, particularly in pastoral systems where livestock mobility and limited veterinary access increase disease risks. Although the FAO Surveillance Evaluation Tool (SET), World Organisation for Animal Health (WOAH) Performance of Veterinary Services (PVS) Pathway, and Integrated Disease Surveillance and Response System (IDSRS) emphasize linking surveillance to timely response, gaps often remain between disease detection and containment.

Objective: To evaluate the functionality of livestock disease response relative to surveillance (reporting) in Marsabit County, northern Kenya.

Methods: Using a Participatory Epidemiology (PE) method called participatory likert scale, eight focus group discussions (8-12 people each) were conducted with Ariaal pastoralists in Laisamis Sub-County, Marsabit County and their information was triangulated with a total of 39 key informant interviews (KIIs) comprising of government veterinary workers (11), agrovets (6), community disease reporters (16), and NGOs (6). Data were analyzed using Statistical Package for Social Sciences (SPSS) and median scores were generated.

Results: Disease surveillance functioned relatively better (median = 2.0) than disease response (median = 1.5), although both were below the critical baseline threshold score of 3/5 set out by WOAH. Livestock keepers in particular rated both surveillance and response poorly (median = 0.5), citing inadequate vaccination, delayed or infrequent disease investigations, limited feedback, and poor access to veterinary inputs. Within response, curative services performed better (median = 3.0) than preventive services (2.5) and disease investigation and feedback (2.0). Disease response was primarily constrained by inadequate logistics, funding, and human resources (median rank = 1), and low community acceptance and compliance with control measures (median rank = 2). Although the government system has basic surveillance and reporting capacity through Kenya Animal health Bio-surveillance System (KABS), gaps in coverage, stakeholder participation, feedback, and system consistency weakened reporting and community trust.

Conclusion: Improvements in livestock disease surveillance are not fully matched with timely disease response, with potential impacts on disease control.

Recommendations: County and national veterinary services should bridge the gap between livestock disease surveillance and response through a commitment that connects information flow to operational triggers and resources.

Keywords: Disease surveillance; disease response; pastoral systems; livestock diseases; Marsabit County; Kenya

Session 3 | Abstract 030

SEROPREVALENCE AND FACTORS ASSOCIATED WITH CANINE LEISHMANIASIS IN BARINGO COUNTY, KENYA: IMPLICATIONS FOR INTEGRATED ONE HEALTH SURVEILLANCE

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Background: Leishmaniasis is a neglected tropical disease transmitted by infected female phlebotomine sand flies. Dogs are established reservoirs in zoonotic visceral leishmaniasis cycles, but their role in endemic Kenyan settings remains poorly characterized. Evidence of canine exposure in Baringo County could inform surveillance, although serological findings alone cannot establish parasite species, active infection, or reservoir competence.
Aim: This study estimated Leishmania seroprevalence and identified associated factors among dogs in Baringo County. Kenya.
Methods: A cross-sectional study enrolled 140 dogs from Rabai, Sabor, Mbechot, Kapkuikui, and Chemolingot. Blood samples were tested using a rapid diagnostic test (RDT) and enzyme-linked immunosorbent assay (ELISA); a questionnaire captured demographic characteristics, management practices, housing conditions, and clinical status. Associations between seropositivity and potential explanatory factors were assessed using Pearson's chi-square or Fisher's exact test. Stepwise logistic regression, with a significance threshold of $p < 0.20$, identified factors associated with seropositivity. Cohen's kappa assessed agreement between assays. RDT performance was evaluated relative to ELISA because an independent diagnostic gold standard was unavailable.
Results: RDT and ELISA detected Leishmania antibodies in 11/140 (7.86%) and 17/140 (12.14%) dogs, respectively. Multivariable analysis identified breed and clinical status as significant factors associated with seropositivity. Local-breed dogs had higher odds of seropositivity than mixed-breed dogs (OR = 11.92; 95% CI: 1.79–79.37; $p = 0.010$). Dogs without clinical signs had lower odds of ELISA seropositivity than dogs with clinical signs (OR = 0.06; 95% CI: 0.01–0.29; $p < 0.001$). Dogs with proper care and housing conditions had reduced risk of seropositivity compared with poorly managed dogs. Significant association with seropositivity was observed for sex, age, origin, and reason for keeping dogs, although none was identified as independent predictors in the multivariable analysis. Relative to ELISA, RDT sensitivity was 64.7%, while specificity and positive predictive value were 100%, and there was excellent agreement between the two assays. The lower RDT positivity reflected incomplete detection of ELISA-positive dogs, indicating that negative RDT results did not exclude ELISA-detectable antibodies.
Conclusions: Leishmania antibodies were detected in dogs in Baringo County, with higher odds of seropositivity among local-breed dogs and dogs exhibiting clinical signs. These findings support canine serological surveillance that considers breed and clinical status. ELISA detected more seropositive dogs than RDT, supporting further evaluation of testing approaches for surveillance. Molecular and parasitological investigations are needed to determine parasite identity and active infection before concluding dogs' contribution to human transmission in this endemic setting.

Keywords: Canine leishmaniasis; seroprevalence; associated factors; rapid diagnostic test; ELISA.

Session 3 | Abstract 032

ACUTE GENERALISED LYMPHADENITIS (AGL) AS AN EMERGING PRIORITY CAMEL HEALTH CONDITION IN THE PASTORAL NORTHERN KENYA

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Introduction: Camels are the priority livestock in Marsabit county and contribute greatly to pastoral livelihoods. However, diseases remain a major threat, with disease patterns and priorities being reported to change due to high herd mobility and climate change.
Objective and methods: Using Participatory Epidemiology (PE) methods including simple ranking, pairwise ranking (to prioritize conditions), seasonal calendar (to assess seasonality) and matrix scoring (to assess causes and impacts), this study was conducted among the Ariaal pastoralists of Laisamis sub-county, Marsabit county to establish the camel disease status with regard to priority diseases, their causes, seasonality and impacts. 24 FGDs were conducted with a total of 67 pastoralists and their information was supplemented and triangulated with KIIs with 3 animal health workers.
Results: The results revealed AGL as the top priority camel disease (median rank=1) followed by camel pox, camel trypanosomiasis, camel cough, camel orf, camel mange and nutritional deficiency. Relative to the other diseases, AGL scored highly and was significantly ($W=0.431–0.807$; $P<0.001$) associated with most of the indicators listed by pastoralists and used to compare the different diseases, including being zoonotic (median score, MS=33), high mortality (MS=12), affecting vital body organs (MS=12), high morbidity (MS=11), causes psychosocial stress (MS=11), occurrence both in dry and wet season (MS=8), difficulty to treat (MS=8), sudden death (MS=8), and affecting multiple body parts (MS=7). County veterinary records showed a confirmed outbreak of AGL in Laisamis sub-county in 2024.
Conclusion and recommendation: AGL is emerging as a priority camel disease in Marsabit County and in such community with camel-dominated livelihoods, disease control efforts should prioritize it for sustainable livelihoods and resilience.

Keywords: Camel health; Acute Generalized Lymphadenitis; Participatory Epidemiology; Indigenous knowledge

Session 4 Fisheries Aquaculture and Comparative Bioscience and Diagnostics

Session 4 | Abstract 022

Tech Driven Aquaculture and Fish Welfare

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Fish farming in Kenya is expanding, but it's hard to properly monitor fish well-being on farms. Small scale tilapia farmers often find it hard to consistently check water quality, fish health, feeding, and behavior. This impacts how they can produce and if their farms can last long term. Digital tools have shown potential for managing animals better in other areas, but we don't have much real world data on how effective they are in African fish farming. This research examined how the Fish Welfare Initiative's (FWI) Tilapia Welfare Assessment System performed with smallholder farmers in Kenya. Using a mix of methods combining digital welfare checks with surveys, farm visits, and interviews with farmers, extension workers, and others in the industry, the study looked at environmental indicators, fish health, their actions, and feeding. The study also examined how easy technology was to use, if farmers actually started using it, and hindered the farmers. Findings indicated that digital welfare monitoring can be realistically integrated into fish farming. They also highlighted what influences if farmers can actually adopt the digital tools. The results suggest using digital assessments can lead to better decision making, higher standards welfare monitoring, and improved support from extension services, enhancing sustainable fish farming overall. The study provides practical advice for policymakers, researchers, development groups, and people working in the field who want to incorporate fish welfare into technology. This research adds to the ongoing discussions about digital farming, animal welfare, and the Blue Economy in Africa. While presenting a possible way to improve how smallholder farmers monitor the well-being of their fish.

Keywords: Fish welfare, Digital agriculture, Aquaculture, Tilapia, Sustainable Blue Economy, Kenya.

Session 4 | Abstract 031

THEIR NOSE ON THEIR TOES? - UNDERSTANDING OLFACTORY FUNCTION AND FUTURE OF TICK REPELLENT TECHNOLOGY

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Ticks are obligate hematophagous ectoparasites of significant veterinary and public health importance. Ticks are widely distributed and serve as vectors for a wide range of pathogens including protozoa and viruses, and are of significant economic impact. Geographical distribution and abundance of the ticks are strongly influenced by environmental factors, particularly temperature and humidity, with global warming and acaricide resistance favoring niche expansion of ticks beyond their known geographical boundaries. Host location is a vital step for survival, reproduction and pathogen transmission by the tick. To successfully locate hosts, ticks rely significantly on chemosensory cues perceived through a highly specialized olfactory system centered on Haller's organ, a unique sensory structure located on first pair of legs of the ticks. The organ is the primary organ responsible for olfaction and houses olfactory sensilla which generate and send nerve impulses to the synganglion, ticks' central nervous system. Through detection of host-derived semiochemicals, carbon dioxide, heat and other environmental signals, ticks identify suitable hosts, feeding sites and mates. Consequently, understanding mechanisms underlying tick olfaction and chemosensation is an important area of research, offering opportunities for development of novel attractants, repellents and behavior-based control strategies. Literature reviewed in this study were based on inclusion (obtained from Google Scholar, PubMed and Scopus, dating from 1999- 2026) and exclusion (non-peer reviewed studies and those without full text access) criteria. Publications relatively increased from 2015, reflecting growing interest in tick olfaction and alternative tick control methods. Olfaction in tick is central to host seeking. Consequently, understanding molecular mechanisms guiding host detection will inform evolution of next generation repellents for integrated vector management of acaricide resistance.

Keywords: Ticks, olfaction, haller's organ, olfactory receptors, repellents

Session 4 | Abstract 025

What Will It Take to Heal Chronic Wounds Perfectly? Lessons from Deomyine Rodents

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Chronic wounds arising from diverse causes represent a major clinical and economic burden, with substantial treatment costs and, in severe cases, life-threatening outcomes. Regenerative medicine offers a promising avenue for addressing this challenge, with current strategies including stem cell therapy and biomaterials such as collagen aiming to restore tissue integrity and support long-term healing and longevity. Using animal models to investigate the determinants of perfect wound healing, our team has found that Deomyine rodents (Acomys and Lophuromys spp.) are capable of healing wounds with complete regeneration, including the realignment of collagen and cartilage to match the structural and physiological architecture of unwounded tissue. Histological analysis of Deomyine rodents (Acomys and Lophuromys) revealed that this regenerative capacity correlates with a permissive adult dermal extracellular matrix, characterized by porous, planar, or parallel collagen fiber organization, in contrast to the basket-weave architecture observed in the closely related Mus musculus. Differences in immunological pathways further appear to support this perfect-healing phenotype. Together, these findings suggest that regenerative capacity may represent a conserved phylogenetic trait within the Deomyinae subfamily, offering a structural and evolutionary framework for the development of future regenerative therapies.

Session 4 | Abstract 039

Host Lipidomics for Tuberculosis Biomarker Discovery: A Scoping Review and Translational Agenda

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Background: Tuberculosis (TB) remains a leading infectious cause of death worldwide. Despite two decades of host lipidomics research generating technically sophisticated molecular signatures of active disease, no lipid-based biomarker has yet reached clinical deployment for TB diagnosis, treatment monitoring, or transmission assessment. Aims: To systematically map the evidence base for host lipidomics in TB biomarker discovery and to identify the structural gaps limiting its translation into clinical practice. Methods: A scoping review was conducted following PRISMA-ScR guidelines, prospectively registered on the Open Science Framework (DOI: 10.17605/OSF.IO/5EGMR). Forty-eight peer-reviewed primary studies (2005–2026) were identified across PubMed, Europe PMC, OpenAlex, and Google Scholar, and analysed descriptively across specimen type, analytical platform, lipid class, and research application. Results: Diagnostic discovery dominated the evidence base (64.6% of studies), while only 12.5% addressed treatment monitoring or prognosis. Most studies used LC-MS/MS platforms (77.1%) and blood-based matrices (72.9%), and 70.8% lacked independent cohort validation. Glycerophospholipids (66.7%) and sphingolipids (43.8%) were the most consistently reported markers of active disease. Low- and Middle-Income Countries generated 85.4% of the evidence base, with China, India, and South Africa as dominant hubs. No study linked host lipid profiles to direct aerobiologic measures of infectiousness, such as Cough Aerosol Culture (CAC) positivity. Conclusions: TB lipidomics has achieved technical maturity in diagnostic discovery but remains structurally unprepared for longitudinal patient monitoring and transmission-focused applications. Closing this gap requires prospective cohort designs, specimen matrix diversification, and standardised reporting frameworks. We argue that LMICs, as the primary generators of this evidence base, are positioned to lead the next translational phase, with prospective studies linking host lipid signatures to CAC-defined infectiousness representing a particularly consequential and unexplored research frontier with direct relevance to TB transmission interruption in high-burden settings.

Keywords: tuberculosis; lipidomics; biomarker discovery; scoping review; translational research; transmission biomarkers

Session 4 | Abstract 020

Detection of Mycoplasma Species from Vaccine Cell Cultures and Laboratory Environment in Nairobi, Kenya

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Mycoplasma contamination is a major challenge in cell culture and vaccine production laboratories because of its ability to persist undetected and alter cellular physiology, thereby compromising experimental validity and product quality. This study investigated the presence and diversity of Mycoplasma species in vaccine samples and laboratory environments in Nairobi, Kenya, with emphasis on molecular detection and screening of finished vaccine products. A cross-sectional study was conducted using 64 samples comprising 20 vaccine samples and 44 environmental swabs collected from laboratory surfaces and equipment, together with two positive controls. DNA was extracted using the ZymoBIOMICS DNA Miniprep Kit, followed by genus-specific PCR targeting the 16S rRNA region and multiplex PCR for species characterization. Of the 20 vaccine samples tested, one vaccine sample tested positive for Mycoplasma using the universal primer and was subsequently identified by multiplex PCR as *Mycoplasma capricolum* subsp. capripneumoniae. Among the 44 environmental swabs, two samples were positive using the universal Mycoplasma primer. The remaining vaccine and environmental samples were negative. The findings demonstrate that PCR is a sensitive and useful screening method for detecting Mycoplasma DNA in vaccine and laboratory samples. Routine molecular surveillance, stringent contamination-control measures and confirmatory testing are therefore recommended to strengthen vaccine and cell-culture quality assurance.

Session 4 | Abstract 045

Effects of Spirulina- and Redworm-Based Hatchery Nutrition on Growth, Nutrient Utilization and Survival of African Catfish Fingerlings

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Background: African catfish is an important freshwater aquaculture species whose production partly depends on hatchery nutrition. However, conventional protein ingredients are expensive and unsustainable. Despite their potential as alternative hatchery proteins, Spirulina and redworm carry-over effects on grow-out performance, sustainability and profitability remain poorly understood. This study evaluates the effects of spirulina-and redworm-based hatchery nutrition on nutrient utilization, growth and survival of African catfish fingerlings in grow-out ponds.

Methods: African catfish hatchery feeding trials were conducted at the Department of biology, University of Nairobi, using six formulated diets with Spirulina or redworm replacing Cardina nilotica at 25%, 50% 75% and a control of 100% Cardina nilotica for 60 days. Following the 60-day experimental feeding, larvae were acclimated to commercial Unga catfish feed two weeks before they were transferred to hapa nets (0.25 m^3 each) installed in two greenhouse-covered concrete ponds filled to two-third at Makindi Fish Farm, Murang'a County, Kenya as fingerlings. The fingerlings had variable weights specific to hatchery nutrition (diet) at stocking. Fifty African catfish fingerlings and a total of 150 from each diet were randomly but equally distributed into hapa nets in triplicate. In each separate concrete pond, fingerlings were stocked at a rate of 25 fingerlings per hapa net, with two-thirds of the hapa net dipped into the pond water. The fingerlings were further acclimatised and fed Unga catfish feed for two weeks. To eliminate pond effects, each pond was randomly assigned one of the two commercial diets (Raanan or Skretting) provided by the fish farm. The fingerlings were fed at a rate of 5% and a frequency of two per day for 60 days.

Key Results: Fingerlings with 75% redworm hatchery nutrition recorded the highest length (20.10 ±0.17cm and 20.12 ± 0.22cm), weight gain (13.01±0.11g and 12.85± 0.09g), specific growth rate (4.45±0.01%/day and 4.17±0.04%/day) and the best feed conversion ratio (1.19±0.01 and 1.39±0.00) for Raanan and Skretting diets respectively though they were not significantly ($P>0.05$) different from those fed on 50% redworm and the control in the hatchery. The fingerlings with hatchery nutrition of 50% spirulina and 75% spirulina posted the highest survival of 92-93% for both Ranaan and Skretting diets in the ponds. However, 75% redworm hatchery nutrition fed fingerlings had the lowest survival of 86-88%.

Conclusion: Hatchery diets differentially influenced African catfish growth, nutrient utilization, and survival during grow-out. Further studies should evaluate combined Spirulina–redworm diets across agro-ecological zones, time to market size and production profitability.

Keywords: Spirulina, Redworm, Hatchery nutrition, African catfish, Alternative protein

Session 5 Wildlife Animal Welfare and Community Engagement

Session 5 | Abstract 001

A Review of Bird Conservation Approaches and Methods and their Impacts on Kenya's Avian Biodiversity Status

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Background: Kenya is a mega avian biodiversity hotspot with 1,100 bird species of major ecological, conservation and economic values, including endemic, range-restricted, and threatened species distributed across five major ecosystems. This paper reviewed bird conservation approaches and methods used in Kenya over the last century and evaluated their effectiveness in conservating avian biodiversity.

Methods: Literature published in English language between 1900 and 2026 was comprehensively searched using Google Scholar, Scopus and Web of Science, using key words related to avian biodiversity, conservation approaches and methods, habitats, threats and Kenya. Approximately 23,00 records were identified, screened by tittle, abstract and full paper text against predefined eligibility criterion, resulting in 168 publications for detailed review. Data on species, conservation approaches and methods, outcomes and status and trends were extracted, categorized and synthesized using descriptive and qualitative thematic analysis. Findings were compared across periods, habitats and species of conservation concern.

Key Results: Kenya has employed diverse bird conservation approaches including in-situ and ex-situ conservation, protected areas, habitat protection and restoration, integrated ecosystem and landscape management, community-based conservation, species-focused conservation, legislation, awareness programmes, research and monitoring. Key bird conservation methods include expansion of protected-area networks, conservancies, sanctuaries, single species action plans, Important Bird Area (IBA) site action plans, captive breeding, anti-poisoning initiatives, and customary conservation practices. Emerging technologies and technology-driven approaches including citizen science, artificial intelligence, GIS and remote sensing, satellite telemetry, drones, camera traps, mobile applications, eDNA, and bioacoustics are increasingly supporting bird conservation in Kenya. These conservation approaches and methods have contributed to protection of important bird species, although effectiveness varies among habitats and species. Despite conservation efforts, avian biodiversity continues to face major pressures, particularly habitat loss, fragmentation, degradation, land-use change, poisoning, agriculture, deforestation, powerlines, urban development, climate change and other anthropogenic threats. Endemic, range-restricted species, threatened and habitat specialist species like vultures, grassland specialists and forest-dependent bird species remain particularly vulnerable, with most of them moving from least concern to higher IUCN threat categories. The review also identified gaps in long-term monitoring, research coverage and evaluation of conservation outcomes.

Conclusion: Kenya has made significant progress in bird conservation. Conservation outcomes vary among ecosystems and species, with some interventions contributing to improved protection and population recovery. Yet, existing efforts have not fully prevented the decline in avian biodiversity. Stronger, coordinated, long-term and evidence-based strategies are needed, integrating habitat protection and restoration, community participation, research and monitoring, effective policy implementation, climate-change adaptation and technology to safeguard Kenya’s avian biodiversity.

Keywords: Bird conservation approaches and methods, Avian biodiversity status, Kenya

Session 5 | Abstract 028

ANNUAL PATTERNS OF BREEDING AND MOULT IN COMMON BULBULS (*Pycnonotus barbatus*) ACROSS NIGERIA, ZAMBIA AND KENYA

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Breeding and moult are energetically demanding events in the avian annual cycle, yet their organization relative to climate seasonality remains understudied in tropical and sub-tropical resident species. To address this gap, we investigated annual breeding and moult patterns and their overlap, in the common bulbul *Pycnonotus barbatus* across three climatically contrasting sub- Saharan African populations: Jos, Nigeria (unimodal rainfall, stable temperatures; n=861, 2013-2016), Mutinondo, Mwinilunga, Mkushi, Mutanda and Choma, Zambia (unimodal rainfall, pronounced temperature seasonality; n=491, 2016-2022), and Nairobi and Karen, Kenya (bimodal rainfall, moderate year-round temperatures; n=510, 1994-2024). 1,862 long-term mist-netting ringing records were analysed alongside 30- year climate data from CHIRPS and CRU TS 4.07. Breeding was indexed via brood-patch prevalence and young birds' proportions and moult via active primary, head and body feather replacement. Structural data gaps from Kenya and Zambia records limited inferential statistics; patterns were therefore described as monthly proportions, compared with each climatic regime and interpreted as temporal associations.

Breeding and moult patterns closely tracked regional climate regimes. In Nigeria, breeding peaked in March- April at wet season onset, with seasonal primary moult in May- July and a partial breeding- moult overlap (April-July). In Zambia, breeding peaked in October at wet-season onset and moult occurred in the wet season (November to February), and the overlap was minimal. In Kenya, breeding was weakly seasonal with a modest peak and high young birds' proportions year-round, moult was broadly distributed, and breeding-moult overlap was the most sustained of the three common bulbul populations.

These results demonstrate that common bulbuls schedule annual life-history events in relation to local rainfall and temperature regimes. This comparative population framework advances understanding of tropical avian phenology and provides a basis for anticipating how climate change may disrupt life- history alignment in tropical resident birds.

Keywords: *Pycnonotus barbatus*, annual cycle, breeding-moult overlap, rainfall-temperature seasonality

Session 5 | Abstract 026

Status of Macrofungi and Arbuscular mycorrhiza fungi in one-year old forest gardens in Lake Victoria Watershed Ecosystem.

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BACKGROUND: Forest gardens, are sustainable food-producing systems that integrate trees and crops and have been promoted in the Lake Victoria Watershed Ecosystem to mitigate adverse effect of climate and enhance food production. This study assessed macrofungi and arbuscular mycorrhizal fungi (AMF) communities associated with forest gardens established under a climate-change mitigation initiative in the Lake Victoria Watershed Ecosystem.

METHODS: A survey was undertaken in April and May 2023. The study area was stratified into three counties: Kisumu, Migori and Homabay. In each county, three sub-regions were randomly selected, and 5 - 7 farms participating in the forest garden carbon project were selected as sampling units. Within each farm, a60 x 60 m plot (approximately 1-acre) encompassing a woodlot, homestead, grazed grassland, cultivated area and live green fence was sampled. A total of 50 farms with one-year old forest gardens were surveyed. Adjacent forest and wetland ecosystems were also surveyed for comparison. Macrofungi were documented through field surveys, while AMF were assessed from soil samples.

KEY RESULTS: A total of 172 macrofungi species representing 34 families and 69 genera were documented. The most represented families were Agaricaceae (25%), Polyporaceae (15%), Omphalotaceae (6%), Marasmiaceae (6%), Strophariaceae (5%), Mycenaceae (4%), Psathyrellaceae (4%) and Tricholomataceae (3%).. Saprophytic fungi, including wood-rotting, litter-dwelling and soil colonizing species, dominated the fungal community, and were mainly associated with woodlots and live fences. Kisumu County recorded the highest macrofungi species (94), followed by Homabay County (73) while Migori county recorded the lowest (43) . In addition, 58 AMF species belonging to five families and eleven genera were recorded. Acaulosporaceae (21), Glomaraceae (18) and Gigasporaceae (13) were the most represented families. Acaulospora accounted for 36% of AMF species, followed by Glomus (22%) and Scutellospora (9%). AMF community composition, species richness and diversity were relatively similar among the surveyed farms. Adjacent forests and wetland ecosystems supported lower macrofungi species richness, abundance and diversity than the agricultural landscapes.

CONCLUSIONS: Forest gardens supported diverse macrofungal and AMF communities and may provide important ecosystem functions relevant to nutrient cycling, soil health and carbon dynamics. The findings provide a baseline for evaluating the ecological contribution of forest gardens to climate change mitigation and sustainable agricultural production in the Lake Victoria Watershed Ecosystem. Long term monitoring is recommended to determine how fungal communities change as forest garden mature to quantify their contribution to soil carbon sequestration and ecosystem resilience.

Keywords: Macrofungi, Arbuscular Mycorrhiza Fungi, Forest Gardens, Agroforestry, Climate change, Carbon sequestration.

Session 5 | Abstract 027

FORAGING ECOLOGY OF THE VULTURINE GUINEAFOWL (*Acryllium vulturinum*) AT MPALA RANCH, LAIKIPIA, KENYA

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Background: Foraging is essential to species' survival, growth and reproduction, yet the feeding ecology of many species, particularly vulnerable gamebirds, remains poorly understood. This knowledge gap is concerning for species facing compounding pressures such as climate change and human overexploitation. Understanding how environmental conditions influence forage availability, foraging behaviour and diet is essential for effective conservation. This study investigated environmental drivers of forage availability, foraging behaviour and dietary composition of the vulturine guineafowl (*Acryllium vulturinum*), a large gamebird inhabiting arid and semi-arid areas of East Africa.
Methods: The study was conducted during a drought year when the expected wet season largely failed, with only a brief period of rainfall that nevertheless altered foraging dynamics. Normalized difference vegetation index (NDVI), pitfall traps and sweep netting were used to quantify food availability across habitats before and after rainfall. Video-recorded observations quantified foraging budgets and behaviours, while DNA metabarcoding of faecal samples characterized dietary composition.
Key Results: Rainfall increased food availability, with insect abundance significantly higher after rainfall. Before rainfall, insect abundance did not differ significantly among habitats; after rainfall, glades supported significantly more insects than denser habitats. Vulturine guineafowl increased their use of glades during cooler periods, particularly in the morning and late afternoon, suggesting that food availability and temperature influenced habitat selection. During midday, birds preferentially used shaded habitats, likely reducing thermal stress. Foraging activity and behaviours also changed with forage availability, with more intense foraging before rainfall when resources were scarce. Gleaning was the predominant foraging method in both periods. DNA metabarcoding revealed a plant-dominated diet, particularly grasses, while arthropods formed a smaller, apparently opportunistic component. Plant dietary diversity increased after rainfall, with birds consuming a wider range of herbs and forbs, potentially reflecting vegetation responses in glades.
Conclusion: Vulturine guineafowl diet and foraging behaviour are strongly influenced by rainfall-driven changes in food availability and temperature. Conservation strategies should maintain habitat mosaics comprising open glades that provide abundant food following rainfall and shaded habitats that offer thermal refuge during hot periods. Such management could benefit wild populations and inform captive management and ex situ conservation. Further studies should examine foraging ecology during normal wet seasons, quantify the nutritional importance of food resources, investigate predation effects, and use longer-term comparative studies to understand dietary flexibility and adaptation to environmental variability.

Keywords: Vulturine guineafowl, foraging, habitat, diet, behaviour, seasons, conservation, ecology.

Session 5 | Abstract 024

Using tri-axial accelerometers to evaluate the lying time of working donkeys in Mwea subcounty, Kenya

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Background: Limited information exists on the lying behaviour of working donkeys, restricting understanding of whether this behaviour is adequately expressed under working conditions.

Objective: To determine lying behaviour and identify factors associated with lying time among working donkeys in Mwea Subcounty, Kenya.

Methods: A cross-sectional study involving 355 working donkeys from 120 donkey owners/users was conducted. Lying behaviour was recorded using tri-axial accelerometers secured to the lateral aspect of the right metatarsal region. Animal- and farm-level factors were collected using questionnaires. Univariable and multivariable multilevel mixed-effects linear regression models were used to identify factors associated with average daily lying time, with farm identification number included as a random effect.

Key results: The mean daily lying time was 2.59 ± 1.94 hours/day (median 2.04; range 0.19–11.72). In the multivariable model, engagement in crop and livestock farming alongside donkey use was associated with a 26.7% reduction in lying time. Donkeys transporting water, rice, and animal feed had 23.7%, 28.8%, and 28.1% reductions in lying time, respectively, compared with donkeys not transporting these loads.

Conclusions: Additional farming activities and transportation of water, rice, and animal feed were associated with reduced lying time among working donkeys. Reduced lying time may compromise adequate rest and recovery, potentially affecting the welfare and wellbeing of working donkeys. Management approaches that consider workload and opportunities for adequate rest may help safeguard the health and welfare of working donkeys.

Keywords: Behaviour; welfare; workload; lying behavior; donkey

Session 5 | Abstract 035

CONTRIBUTION OF THE UNIVERSITY OF NAIROBI VETERINARY OUTREACH PROGRAMS TO ANIMAL WELFARE IN NDUMBUINI, KIAMBU COUNTY, KENYA

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Background: In many peri-urban communities across sub-Saharan Africa, animals live and die in conditions that fall far short of any accepted welfare standards. Ndumbuini is a peri-urban area in Kiambu County near the University of Nairobi's School of Veterinary Medicine. This proximity is thought to boost animal welfare through university's outreach programs. The aim of the study was to evaluate how community awareness and its participation in the University of Nairobi's animal welfare outreach initiatives translates into measurable improvements in livestock health and living conditions.
Methods: A cross-sectional descriptive study was conducted among 70 animal owners in Ndumbuini. Structured questionnaire was used to collect data on awareness of University of Nairobi outreach activities, participation, service quality ratings, perceived frequency of visits, overall animal health status, prevailing welfare challenges, and willingness to engage in future outreach efforts. The data were analysed using descriptive statistics. Associations were assessed using chi-square tests and Spearman rank correlations.
Key Results: The findings revealed high community awareness of outreach programs (84.3%), with 81.4% of respondents reporting direct benefit. Service quality was rated favourably, with 65.7% of beneficiaries rating it good or excellent. However, outreach visits were perceived as episodic, with 54.3% of respondents reporting visits only two to three times per year and 34.3% reporting visits once a year or less. The overall mean animal health score was 2.75 out of 5.0, reflecting a community perception of suboptimal welfare. Stray and unowned dogs (77.1%), knowledge gaps in animal care (68.6%), animal cruelty and neglect (54.3%), and high cost of veterinary services (50.0%) were identified as the most significant welfare challenges. Community willingness to support future outreach activities was exceptionally high, at 81.4%. Higher animal-health scores were positively correlated with more frequent visits (Spearman $\rho = 0.41$, $p = 0.001$). Respondents who had experienced outreach were significantly more willing to participate in future activities than those who had not ($p < 0.001$; OR = 6.4, 95% CI).
Conclusions: University of Nairobi outreach program delivers quality service and broad reach. However, the episodic frequency of visits and persistent welfare challenges collectively highlight the need for structural reform of the outreach model.
Recommendations: Program effectiveness can be enhanced by transitioning to regular monthly or bimonthly clinics, coordinating stray-dog vaccination and sterilization drives, integrating welfare education, and establishing monitoring systems.

Keywords: Animal Welfare, University of Nairobi, Ndumbuini Ward

Session 5 | Abstract 011

Animal Welfare and Occurrence of Subclinical Mastitis in Smallholder Dairy Cows in Njoro Sub-County, Kenya

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Background The dairy sector contributes substantially to Kenya's economy, food security, and rural livelihoods, with smallholder farmers producing most of the country's milk. However, poor animal welfare practices and subclinical mastitis constrain dairy productivity and milk quality. Despite their importance, limited information exists on relationship between animal welfare, farmers' knowledge, attitudes and practices (KAP), and subclinical mastitis in smallholder dairy systems in Njoro Sub-County. Objective: To investigate the occurrence of sub-clinical mastitis in smallholder dairy cattle herds, and farm-level practices related to animal welfare in Njoro Sub-County, Kenya. Methods: A cross-sectional study was conducted among 179 smallholder dairy farmers across the six wards of Njoro Sub-County, Nakuru County. Data on farmers' knowledge, attitudes, and practices related to animal welfare were collected using semi-structured questionnaires, while animal welfare was assessed using selected animal- and resource-based indicators. Milk samples were collected from 248 lactating cows and tested for subclinical mastitis using the California Mastitis Test (CMT). Data were entered and cleaned in Microsoft Excel before analysis using R statistical software version 4.1.2. Descriptive statistics were used to summarize farmers' characteristics, animal welfare practices, and subclinical mastitis occurrence, while logistic regression analysis was used to identify factors associated with subclinical mastitis. Variables meeting the predefined criteria at univariable analysis were considered for multivariable analysis, with statistical significance assessed at $p < 0.05$. Key results: The study found low awareness of animal welfare among smallholder dairy farmers, with only 30% (54/179) of respondents reporting knowledge, understanding, or prior training on animal welfare. Nevertheless, 97% (174/179) perceived animal welfare as very important in dairy farming and expressed willingness to adopt improved welfare practices. Welfare assessment showed that although most farms practiced routine feeding, watering, and udder hygiene, important gaps remained in housing conditions, disease prevention, and farmer knowledge of animal welfare principles. The herd-level prevalence of subclinical mastitis was 62% (111/179; 95% CI: 54.44–69.06), while cow-level prevalence was 58% (143/248; 95% CI: 51.24–63.84). Multivariate logistic regression showed that cows with hind limb hygiene scores of 3 and 4 had 4.2 ($p = 0.003$) and 6.0 ($p = 0.0001$) higher odds of subclinical mastitis, respectively, compared with cows having a hygiene score of 1. Likewise, cows from farms that co-reared sheep with cows had 2.3 times higher odds of subclinical mastitis ($p = 0.0026$), while cows in late lactation (>7 months) had 1.8 times higher odds ($p = 0.032$) than cows in earlier stages of lactation. Conclusions: Animal welfare matters in improving dairy cattle health, productivity, and the sustainability of smallholder dairy farming systems. This study demonstrated that although most farmers recognized the importance of animal welfare, limited knowledge and training, coupled with poor hygiene and management practices, contributed to the high prevalence of subclinical mastitis. Improving farmer awareness, promoting welfare-friendly husbandry and milking practices, and strengthening veterinary extension services are essential for reducing subclinical mastitis, enhancing milk quality, and improving the welfare and productivity of dairy cattle in smallholder production systems

Keywords: Animal Welfare, Subclinical Mastitis, Smallholder farmers

Session 6 Drug Discovery Development and AMR and Basic and Applied Bioscience Research

Session 6 | Abstract 034

KNOWLEDGE, ATTITUDE AND PRACTICE OF DAIRY FARMERS REGARDING ANTIBIOTIC USE AND RESISTANCE IN SELECTED REGIONS OF ERITREA

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Background: Irrational antibiotic use in livestock production poses a public health threat in low- and middle-income countries. Eritrea lacks published baseline data on dairy farmers' knowledge, attitude and practice (KAP) regarding antibiotic use and resistance.
Aim: This study assessed dairy farmers' KAP regarding antibiotic use and resistance in selected regions of Eritrea.
Methods: A cross-sectional survey was conducted from July to October 2023 among 246 purposively selected medium and large-scale dairy farm owners in Anseba, Debub and Maekel regions, using a semi-structured questionnaire. Knowledge, attitude and practice (outcome variables, each dichotomised at a score of ≥75%) were analysed against region, gender, age, education level and farming experience (independent variables) by multivariable logistic regression, reporting odds ratios (OR).
Key Results: All farmers (100%) used antibiotics, yet 65% could not identify which infections antibiotics treat and 61.4% had no knowledge of antibiotic resistance. Most (84.1%) kept no treatment records and 58.5% did not observe withdrawal periods. Unfavorable attitudes (79.7%) and poor practices (81.3%) predominated. Compared with Anseba, Maekel farmers had more favorable attitudes (OR = 3.8, p = 0.037), while Debub (OR = 13.0, p = 0.022) and Maekel (OR = 14.0, p = 0.018) farmers had better practices. University-educated farmers had better practices than illiterate farmers (OR = 35.4, p = 0.002). Confidence intervals were wide.
Conclusions: Knowledge, attitude and practice were generally poor and varied by region and education level. Region-specific training on prudent antibiotic use, withdrawal periods and record keeping is warranted. The findings offer baseline evidence to guide targeted awareness programs and policies that curb antibiotic misuse and resistance, protecting animal and public health.

Keywords: KAP; antibiotic use; antibiotic resistance; dairy farmers; Eritrea.

Session 6 | Abstract 008

Antimicrobial activity and toxicity of secondary metabolites produced by extremophile bacteria isolated from Lake Magadi, Kenya

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Background. Drug resistance challenges the management of microbial infections, highlighting the urgent need to develop novel, effective antimicrobials. Extremophile microbes may produce unique metabolites that can be exploited as antimicrobials to mitigate antimicrobial resistance and as anticancer agents. This study explored unique and exploitable antimicrobial-producing bacteria from the extreme habitat of Lake Magadi.

Methodology. We purposively collected soil samples from five sites representing different physicochemical conditions around Lake Magadi. A total of 163 bacterial types were recovered and screened for antimicrobial activity using the agar well-diffusion method; 10 displayed high bioactivity. Selected isolates underwent biochemical, physiological, and molecular characterization. The isolates were also tested for antiproliferative and cytotoxic activity against HELA and Vero 199 cells, respectively.

Results. Ten isolates demonstrated good antimicrobial activity against Bacillus subtilis (ATCC 6633), Shigella dysenteriae (ATCC 13313), Salmonella typhimurium (ATCC 19028), *Staphylococcus aureus* (ATCC 23922), *Candida albicans* (ATCC 90028), *Escherichia coli* (ATCC 25922), and Pseudomonas aeruginosa (ATCC 29212). The 16S rRNA gene sequence analysis identified the best antimicrobial-producing bacterium as Brevibacillus laterosporus. The isolate exhibited antibacterial activities against a wide range of pathogens, with MICs ranging from 6.25 µg/mL in B. subtilis and E. coli to 50 µg/mL in S. aureus and MBCs ranging from 12.5 µg/mL in B. subtilis and E. coli to 100 µg/mL in S. aureus. Notably, the MBC was twice the MIC across all the pathogens tested. The crude extract displayed antiproliferative activity (IC50 60.63 µg/ml) against HELA cells and cytotoxicity (CC50 of 89.52 µg/ml) against Vero 199 cells. The isolate thrived at pH 9, temperature > 40 ℃, and 5 % salinity. The isolate also showed high secretion of cellulase, amylase, lipase, and lyase enzymes. The major constituents in the ethyl acetate crude extract of Brevibacillus laterosporus were hydrocinnamic acid, 4-hydroxy-benzene propanoic acid, n-hexadecanoic acid, and (E)-9-octadecenoic acid. Fatty acids and fatty acid esters were also identified.

B. laterosporus produces metabolites with antimicrobial and antiproliferative activity.

Conclusion. Extremophile bacteria, particularly Brevibacillus laterosporus, from Lake Magadi produce bioactive compounds that could be explored to develop novel antibiotics, anticancer agents, and industrial enzymes.

Keywords: Extremophiles, antimicrobial activity, antimicrobial resistance.

Session 6 | Abstract 010

EFFECT OF BLACK SOLDIER FLY LARVAE ON BACTERIAL PATHOGENS AND ANTIMICROBIAL RESISTANCE GENES IN DORPER SHEEP MANURE

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Antimicrobial resistance (AMR) is an important global health and environmental challenge, driven partly by the overuse and misuse of antimicrobials in livestock production. Sheep manure can serve as a reservoir of antimicrobial-resistance bacteria (ARBs) and antimicrobial resistance genes (ARGs), facilitating their dissemination within the environment and posing risks to animal and human health. Conventional manure treatment approaches including anaerobic digestions and composting, may be constrained by cost, operational complexity, and variable efficiency. This study investigated the effect of Black Soldier fly larvae on bacterial pathogens and antimicrobial resistance genes in manure Dorper sheep manure as a potential approach for manure bioconversion and AMR mitigation.
Manure samples were obtained from twelve Dorper sheep (n=12) and subjected to three treatment conditions: untreated manure (without the BSFL), manure treated with the BSFL and manure incubated with the BSFL. DNA was extracted using DNA stool kit, followed by shotgun metagenomic sequencing on Illumina MiSeq to characterize bacterial diversity and ARG profiles. Bioinformatics analyses using Kraken 2 and Resfinder 4.2 within the Galaxy database were performed to identify bacterial taxa and ARGs.
In this small sample, BSFL introduction was associated with a significant change in the bacterial community composition and higher bacterial diversity, as shown by increased Chao-1 and Shannon diversity indices ($p < 0.05$). The dominant phyla across the three treatments included Proteobacteria, Firmicutes, Actinobacteria, and Bacteroidetes. Following incubation with BSFL, there was a reduction in the abundance of Proteobacteria and increased abundance in Firmicutes and Bacteroidetes. The ARBs abundance of *Escherichia coli*, Pseudomonas aeruginosa, Klebsiella pneumoniae, and Salmonella enterica decreased after treatment with BSFL suggesting possible suppression of some zoonotic and drug-resistant pathogens. However, there was emergence of some opportunistic pathogens like Acinetobacter baumannii at low levels after subjecting the manure to BSFL treatment.
Profiling of ARGs has revealed the presence of genes that confer resistance to tetracycline, β-lactams, sulfonamides, streptomycin, chloramphenicol, macrolides, and fluoroquinolones. Tetracycline resistance genes were the most abundant as well as persistent across the three treatments. Although certain genes remained persistent after incubation, manure treatment with BSFL was associated with a general decline in the ARGs abundance that is linked with multidrug resistant bacteria.
In this small study of twelve Dorper sheep, BSFL treatment was associated with reduced abundance of several pathogenic and antimicrobial resistant bacteria and a general decline in ARG abundance, suggesting that BSFL bioconversion may be a promising option for mitigating antimicrobial resistance determinants in Dorper sheep manure. However, the limited sample size restricts statistical power and the generalizability of these findings beyond the study population, so the results should be regarded as preliminary. The emergence of an opportunistic pathogen after treatment also warrants further evaluation. Larger studies across different farms, breeds and management systems are needed to validate these findings before BSFL-based manure management is recommended more widely.

Keywords: Black Soldier Fly Larvae (BSFL), Dorper sheep, antimicrobial resistance, bacterial pathogens, manure bioconversion.

Session 6 | Abstract 040

ANTIMICROBIAL RESISTANCE AWARENESS IN LOCAL LANGUAGES: THE VOICEVIGIL AMR LANGUAGE CHAMPIONS PROGRAMME SCHOOL ENGAGEMENT PATHWAY IN KENYA

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BACKGROUND: Antimicrobial resistance (AMR) constitutes a critical threat to human and animal health. Low AMR literacy among lay populations, compounded by self-medication and premature cessation of antimicrobial therapy, accelerates the selection and dissemination of resistant pathogens.

AIMS: To design and implement a multilingual, school- and community-based AMR sensitization intervention aimed at improving comprehension of prudent antimicrobial use, infection prevention and the risks of self-medication.

METHODS: A student-led descriptive intervention was implemented under the School Engagement Pathway of the VoiceVigil AMR Language Champions Programme over 11 days (26 May–6 June 2026) at the University of Nairobi, Kabete Campus, and the adjoining community. Messaging was delivered in English, Kiswahili, Kalenjin and Kikuyu through interactive sessions, quiz-based engagement, educational posters, branded wristbands and T-shirts and one-on-one and small-group discussions framed with simple analogies.

RESULTS: The intervention directly reached 200 individuals and an estimated 150 additional individuals through peer and family dissemination. Participants demonstrated improved recognition of prudent antimicrobial use and increased willingness to relay key messages within their social networks. Quiz-based delivery combined with analogies enhanced the accessibility of AMR concepts among audiences with limited prior exposure. Limitations included constrained engagement time, variable baseline interest, logistical and resource constraints and the absence of a structured post-intervention assessment, precluding objective evaluation of knowledge retention and behavioural change.

CONCLUSIONS: Interactive, analogy-based communication delivered in locally relevant languages can improve short-term comprehension of antimicrobial stewardship principles among student and community audiences, providing a scalable, low-cost strategy to mitigate antimicrobial misuse. Future interventions should incorporate pre- and post-intervention assessment, expanded volunteer capacity and diversified communication channels (e.g., school assemblies, community meetings) to strengthen reach and sustained behavioural change.

Keywords: antimicrobial resistance; community sensitization; multilingual health communication; antimicrobial stewardship; self-medication

Session 6 | Abstract 043

MORPHOLOGY AND MORPHOMETRY OF THE OLFACTORY MUCOSA AND OLFACTORY BULB IN THE MUSCOVY DUCK (*Cairina moschata*)

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Background: Birds exhibit remarkable diversity in olfactory bulb (OB) size and nasal morphology. Muscovy ducks (MSDs) (order Anseriformes) are ranked among the most scent-capable amphibious freshwater vertebrates with olfaction playing a critical role in many aspects of ecological adaptation including foraging, selection of mates, habitat awareness, and predator avoidance. However, data on how and to what extent their olfactory systems are anatomically adapted to olfactory function are largely lacking.
Objective: To analyze the qualitative and quantitative structure of the MSD olfactory mucosa (OM) and OB.
Materials and methods: Ten MSDs of both sexes (7-8 months) were purchased from a commercial breeder. They were euthanized with pentobarbital sodium (50 mg/kg) and perfused transcardially using 10% neutral buffered formaldehyde. The OM-covered caudal nasal concha (n=5) and the whole brain (n=5) were harvested and immersed in the same fixative. The volume of the whole brain and OB were determined using the Scherle method while linear dimensions of the OB and the telencephalon were measured using vernier calipers. After transecting each concha into rostral, middle and caudal parts, conchal subsegments were obtained from each level by systematic random sampling, and decalcified in EDTA. Thereafter, both the OB and decalcified OM pieces were dehydrated in graded ethanol series, embedded in paraffin, sectioned in the transverse plane, and stained in H&E and Masson's trichrome following routine procedures. Volume densities of the various OB layers were determined by point counting methods, and absolute volume of a given OB layer was worked out as a product of the layer's volume density and OB volume.
Results: The OM was confined to the triangular-shaped caudal nasal concha and comprised an epithelium that measured 74.2±5.3 µm thick, and a lamina propria which had Bowman's glands, blood vessels and olfactory axonal bundles (70.1±9.4 µm in diameter). The unfused olive-shaped OBs were positioned at the base of the telencephalon. Respectively, the volume (mm^3) of the OB and the brain was 6.84±0.42 and 6425±467.5, translating to a volume ratio of 0.12%. The OB had a laminar appearance and consisted of six layers of varied volumes (mm^3): olfactory nerve layer (0.841), glomerular layer (0.917), external plexiform layer (0.759), mitral cell layer (0.663), internal plexiform layer (0.328), and granule cell layer (1.614). Respective ratios (%) for lengths and breadths of the OB to telencephalon were 23.6 and 15.5.
Conclusion: The MSD OM and OB are structurally refined to levels that align with the species' functional needs and ecological lifestyle.

Keywords: Muscovy duck, Olfactory bulb, Olfactory mucosa, Stereology

Session 7 Livestock Value Chains Food and Feed Safety

Session 7 | Abstract 021

EFFECTS OF GRASS-LEGUME INTERCROPPING ON RUMEN MICROBIAL COMPOSITION AND METABOLITE PROFILES IN BORAN STEERS FED TROPICAL GRASSES

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Background: Sustainable intensification of tropical livestock systems relies on low-input strategies that enhance forage quality without increasing production costs. Intercropping tropical grasses with legumes improves forage nutritional quality but its effects on rumen microbial function and metabolism remain insufficiently understood.
Aim: To determine how grass species and management system (Monoculture or legume intercropping) affect rumen bacterial community structure and metabolite profiles in Boran steers.
Methods: Eighteen yearling steers were fed in a 3 × 2 factorial design comprising three grasses (Brachiaria brizantha, Pennisetum purpureum (Napier) and Chloris gayana (Rhodes) and two management systems (monoculture or intercropped with Lablab purpureus) over two 70-day experimental periods. Multiple rumen fluid samples (n = 52) were analysed using 16S rRNA gene (V3–V4) amplicon sequencing and gas chromatography–mass spectrometry (GC–MS)–based metabolomics.
Key results: Bacterial alpha diversity did not differ significantly among grass species or management systems (P > 0.05). Bacteroidetes (41.89-47.59%) and Firmicutes (21.83-48%) dominated across all treatments, and only Cyanobacteria differed by grass species(P=0.03). Prevotella and Succiniclasticum were the most abundant genera, with only minor grass-specific differences observed for selected low-abundance genera with minor grass-specific differences in a few low-abudance genera. Principal component analysis showed no clear separation between management systems whereas OPLS-DA separated metabolite profiles for Brachiaria grass and Napier grass but not Rhodes grass. Twenty-six metabolites differed in monocultures and 18 in intercropped systems with six and five enriched pathways respectively.
Conclusion: Under the conditions of this study, intercropping with Lablab purpureus was associated with altered rumen metabolite profiles and pathways enrichment without significant changes in bacterial community composition, indicating metabolic shifts despite microbial stability. Effects on animal performance were not measured and require further study.
The findings give farmers and extension services early evidence of how legume intercropping may influence rumen function in forage-fed cattle, helping to guide low-input forage strategies for tropical livestock systems.

Keywords: Boran steers, grass-legume intercropping, rumen microbiota, metabolomics. tropical forages.

Session 7 | Abstract 033

Goat Value Chain Modelling Shows Investment in Mosquito Control Creates Benefits Through Reduced Incidences of Rift Valley Fever in Human and Animal Populations

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Background: Rift Valley fever (RVF) is a mosquito-borne zoonosis of major economic and public health importance in Kenya. Restrictions on livestock movements and slaughter activities are frequently applied outbreak-response measures. Yet, their effectiveness in controlling spread of the disease is not documented within the context of livestock value chains. Objectives: Developing a value chain-based mathematical model for RVF transmission across producer, trader, butcher, and consumer nodes for goat meat, and evaluate the effectiveness of vaccination, mosquito control, trade restrictions, and slaughter restrictions in reducing disease burden in goats and humans. Methods: A Susceptible-Infected compartmental model was developed linking mosquito, livestock, human, and meat compartments across the four value chain nodes: producer, trader, butcher and consumer. Model parameters were obtained from a review of published literature on RVF and additional survey data collected on purchase of goats and slaughter rates from pastoralist communities in northern Kenya. Baseline transmission dynamics and six intervention scenarios are simulated, with global (Sobol) and one-way sensitivity analyses used to determine the key drivers for outbreak duration, size and peak incidence. Key Results: Reduction of mosquito contact rate for humans was the most effective intervention, with up to 90% fall in outbreak size and eliminating RVF persistence. In contrast, restrictions of livestock trade and slaughter activities were not effective: a full trade ban lengthened outbreaks in goat flocks six-fold (32 to 193 days), and ban of livestock slaughter activities caused RVF to persist for a full year of simulation, by having infected goats trapped within nodes and sustaining transmission cycles between mosquito-goat. Conclusions: Control of mosquito vectors offers the most reliable protection for both animal and human populations from negative health outcomes of RVF outbreaks. However, frequently practised veterinary measures including restricted livestock movements and slaughter activities may inadvertently prolong duration of RVF outbreaks.

Keywords: Rift Valley Fever; value chain modelling; livestock trade restrictions; vector control; One Health

Session 7 | Abstract 023

Histomorphometric Changes in Sheep Gut Following Nutritional Supplementation with *Saccharomyces cerevisiae* Fermentation Product

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Saccharomyces cerevisiae fermentation product (Diamond V XPC™) was evaluated for effects on abomasal and small intestinal histomorphometry in Dorper lambs using qualitative and quantitative methods. Ninety lambs were weighed from birth at two-week intervals to six weeks, stratified by body weight, and assigned to two groups: control group (C1) and a treatment group (E2) receiving 2 g/head/day of the fermentation product through one-month post-weaning. Growth was monitored and at experiment end five lambs per group were randomly selected. They were euthanized, abomasa and small intestines excised, washed, fixed, and processed for stereological and histological analysis with Stepanizer software. Histomorphometric results indicated improved mucosal organization and more prominent intestinal villi in sheep supplemented with *Saccharomyces cerevisiae* fermentation product compared with the control group. Mean abomasal volumes were 116.01 ± 15.40 cm^3 (C1) and 148 ± 87.71 cm^3 (E1) intestinal volumes were 610.15 ± 99.9 cm^3 and 564 ± 81.4 cm^3, respectively. Villous length increased significantly with supplementation (503 ± 5.20 µm in C1 vs. 537.67 ± 37.98 µm in E1). Intestinal mucosal surface area rose from 4,641.63 ± 261.89 cm^2 to 7,038.59 ± 1,972.56 cm^2 with treatment; abomasal mucosal surface area increased from 200 ± 14.4 cm^2 to 380.67 ± 98.14 cm^2. Overall, S. cerevisiae supplementation produced statistically significant mucosal adaptations indicative of enhanced digestive and absorptive capacity in the gut. The study provides detailed histological evidence addressing an existing knowledge gap and supports the physiological relevance of S. cerevisiae fermentation products for improving gut health and informing feeding strategies in sheep.

Keywords: *Saccharomyces cerevisiae* fermentation product, sheep gut, stereology, histomorphometry

Session 7 | Abstract 013

Risk Factors Associated with Food-Borne Diseases Among Patients Diagnosed at Kenyatta National Hospital, Kenya

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Background and Aim: Foodborne diseases are a significant global public health concern. Outbreaks of foodborne infections can lead to widespread morbidity and mortality. The economic impact of these diseases is substantial, affecting healthcare systems, agriculture, and global trade. These diseases also have significant socioeconomic impacts, particularly in low-and middle-income countries (LMICs). The aim of this study is to determine the environmental and socioeconomic factors associated with foodborne diseases among patients diagnosed and treated at Kenyatta National Hospital in Nairobi County, Kenya. Materials and Methods: An unmatched case-control study was conducted in the Medical Laboratory and Medical Records departments of Kenyatta National Hospital. A desk review of the laboratory registers was conducted to compile a list of patient file numbers for those who tested positive or negative for food-borne diseases. All file numbers for patients who met the inclusion criteria during the desk review were included in the study. The key variables examined included patient demographics, clinical presentations, laboratory findings, dietary history, hygiene-related observations, and predisposing conditions. Results: The study established that the causes of food-borne disease were Salmonella, Giardia lamblia, E. coli, Rotavirus, and Vibrio cholerae, in that order. The sociodemographic factors were age, marital status, and level of education, which were significantly associated with food-borne disease. The socioeconomic factors were employment status and income level, which were significantly associated with food-borne disease. The environmental factors were geographical distribution, water source, keeping animals/pets, house size, use of boiled water, and hand washing while handling food, which were found to be significantly associated with food-borne disease. Conclusion and Recommendation: This study identified bacterial, protozoan, and viral agents as causes of foodborne diseases. It also established the demographic, socioeconomic, and environmental risk factors associated with foodborne illnesses diagnosed at Kenyatta National Hospital. The study recommends continuous public sensitisation on health issues through community health workers (CHVs), religious leaders, and clinics. It recommends formulating policy guidelines to strengthen caregivers' practice of good and hygienic food-handling measures. Artificial intelligence technologies can be adopted to enhance food safety messaging by enabling personalised and targeted communication, thereby improving the reach and effectiveness of food safety campaigns.

Keywords: Foodborne diseases; food safety; socioeconomic factors; environmental factors; risk factors; Kenyatta National Hospital; Nairobi County; Kenya; Salmonella; Giardia lamblia; *Escherichia coli* (E. coli); Rotavirus; Vibrio cholerae; hygiene practices; water source; food handling; socio-demographic factors; community health workers; artificial intelligence in public health.

Session 8 Innovative and Smart Livestock Production Technologies and Advances in Clinical Veterinary Practice

Session 8 | Abstract 009

MastiSense: A Portable Multi-Parameter Smart Strip Cup for Early Mastitis Detection in Smallholder Dairy Herds

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Mastitis is among the most economically important diseases affecting dairy cattle worldwide, causing substantial milk yield losses, increased veterinary costs, and premature culling. In smallholder dairy systems, which dominate Kenya's livestock sector, early detection remains poor: farmers rely almost exclusively on visual strip cup examination, which only identifies disease after clinical signs are already visible. Existing alternatives — somatic cell counting, bacterial culture, the California Mastitis Test, and conductivity meters — each face barriers of cost, turnaround time, reagent dependency, or single-indicator unreliability that limit their routine use on smallholder farms.

This work aims to conceptually design a portable, multi-parameter strip cup for early mastitis screening in smallholder dairy systems. Specific objectives were to review existing detection methods and their limitations, identify a defensible gap for smallholder on-farm use, and propose a device architecture and screening logic addressing that gap.

A structured review of published mastitis-detection literature was conducted to characterise existing methods and their limitations. Sensor parameters (electrical conductivity, temperature, and colour/turbidity) were selected based on physiological changes reported during mastitic inflammation, and a system architecture and two-indicator risk-classification rule were specified accordingly. No laboratory or field experiments have yet been conducted.

This review identified a gap in low-cost, portable, multi-parameter screening tools designed for smallholder on-farm use. In response, we propose MastiSense: a handheld, USB-rechargeable device combining electrical conductivity, temperature-compensated measurement, and colour/turbidity sensing, analysing milk stripped from each udder quarter within 10–20 seconds and producing a categorical risk output (low, medium, or high). These are design outputs of the conceptual review; no empirical performance data exist, as no prototype has yet been constructed.

MastiSense is a design-stage concept, grounded in established mastitis pathophysiology, intended to address a genuine gap in affordable on-farm screening for smallholder dairy systems. We recommend bench-level validation of the proposed sensors against known mastitic and healthy milk samples as the immediate next step, followed by prototype construction and field testing. If validated, the device has the potential to support earlier mastitis detection, reduced milk loss, and improved animal welfare among smallholder dairy farmers.

Keywords: Mastitis detection; smart strip cup; precision livestock technology; smallholder dairy; point-of-care diagnostics

Session 8 | Abstract 006

In Silico Evaluation of Cytotoxicity, Drug-Induced Genetic Expressions, and ADMET Characterization of Selected Phytochemicals with Anticancer Activity Using AI and ML Techniques

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The escalating global burden of cancer necessitates the accelerated discovery of novel therapeutic agents, with natural products, particularly phytochemicals, offering a rich yet underexplored reservoir of potential anticancer compounds. Natural products have historically contributed to cancer drug discovery, exemplified by paclitaxel, vincristine, and etoposide. This research investigates phytochemicals derived from local medicinal plants. The study employs in silico approaches to evaluate the cytotoxicity, drug induced gene expression profiles, and tumour inhibition (PIG50) values of phytochemicals with potential anticancer activity. Using computational tools to predict the safety, efficacy, bioavailability, and synergistic potential of these natural compounds, facilitating their development as anticancer agents. The integration of Artificial Intelligence (AI) and Machine Learning (ML) techniques has revolutionized the discovery and evaluation of anticancer agents. By leveraging large-scale biological datasets, Machine learning models such as deep neural networks, support vector machines, and ensemble algorithms have demonstrated high accuracy in classifying compounds based on their anticancer potential. Furthermore, AI-driven virtual screening accelerates the drug discovery process, reducing time and cost compared to traditional methods. Methodology In silico cytotoxicity prediction using CLC-Pred was used to determine PIC50 values, indicating inhibitory potency of the phytochemicals. Advanced supervised machine learning models, including deep graphical neural networks, classified compounds based on their predicted efficacy (PIG50). Tumor growth inhibition was assessed via pdCSM-cancer. DIGEPRED 2.0 predicted gene expression changes—upregulation or downregulation of mRNA and proteins—and identified molecular targets related to the compounds' mechanisms of action. Molecular docking with AutoDock Vina evaluated binding affinities and interaction modes with key enzymes targets. ADMET profiling using Protox.3.0, Deep-PK and Admetlab3.0 assessed pharmacokinetics, toxicity, and drug-likeness parameters. Finally, drugs synergy analysis with SynergyFinder and SynergyPred softwares analysed combination therapies in order to identify synergistic or antagonistic interactions with conventional anticancer drugs. Results The study identified phytochemicals with cytotoxic to cancer cell lines (PIC50 > 5.0: Pa > 0.50), high binding affinity (Kcal > 7.0) and stable ligand-protein interactions, and strongly associated with apoptosis and cell cycle arrest. Pharmacokinetic profiling suggested these compounds possess desirable drug-like properties. Toxicity assessments predicted low off-target effects, supporting their safety profile. Synergy models indicated potential benefits in combination therapy with conventional anticancer drugs. since they reduce drug resistance, enhance therapeutic efficacy, decrease patient side effects, and improve treatment success rates Conclusion: The computational drug discovery pipeline was used to identify promising phytochemicals with cytotoxic, molecular, and pharmacokinetic attributes suitableas potential leads for further development as anticancer agents. These findings provide a rational basis for transitioning from virtual screening to biological validation, streamlining anticancer drug discovery from natural products.

Keywords: Phytochemicals, in silico cytotoxicity, anticancer activity,, QSAR

Session 8 | Abstract 014

Locally Developed Animal Models for Clinical Skills Training: A Student-Led Approach to Advancing the Three Rs in Veterinary Education

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Background: Veterinary education requires students to develop practical clinical competencies while maintaining high standards of animal welfare. Traditional practical training has relied heavily on repeated use of live animals, raising ethical concerns regarding animal use, distress and welfare. To address this challenge, the Department of Clinical Studies, in collaboration with Brooke East Africa and the Animal Welfare Students Club, initiated the establishment of a Clinical Skills Laboratory (CSL) at the Faculty of Veterinary Medicine, University of Nairobi. The CSL seeks to integrate practical skills development with the principles of Replacement, Reduction and Refinement (the Three Rs). Objective: To develop and demonstrate the feasibility of using locally produced, low-cost animal models as complementary tools for practical clinical skills training while promoting student engagement, innovation and animal welfare. Methods: A five-day, student-centred CSL workshop, including a three-day practical model-making session, was conducted at the Department of Clinical Studies in June 2026. Veterinary students participated in the design and fabrication of four animal models representing commonly encountered domestic species: donkey, cattle, goat and dog. The models were designed to support training in a range of clinical procedures, including venipuncture, suturing, rectal examination, bandaging, sample collection, dehorning, endotracheal intubation, nasogastric intubation, restraint and handling, and selected surgical approaches. Materials used included wires, metallic bars, plastic containers, binding wire, fabric, artificial leather, Foley catheters, silicone sheets, spray and paint. Results: Four functional animal models were successfully developed. The models provided multiple practical training stations and demonstrated the feasibility of engaging veterinary students in designing and producing affordable, locally adaptable clinical training resources. Although the models require further refinement to improve durability and functionality, they provided a practical platform for skills training while reducing reliance on live animals. The initiative also created an opportunity to embed animal welfare principles, ethical decision-making and the Three Rs within practical veterinary education. Conclusion: The development of locally produced animal models demonstrates the potential of a student-driven, low-cost approach to clinical skills training in veterinary education. The initiative provides a foundation for expanding the Clinical Skills Laboratory into a sustainable centre for practical skills development, student innovation and animal welfare advocacy, while contributing to the progressive integration of the Three Rs into veterinary training.

Keywords: Veterinary education; Clinical skills laboratory; Animal models; Animal welfare; Three Rs; Student innovation.

Session 8 | Abstract 041

Assessment of Artificial Intelligence Adoption and Digital Preparedness Among Veterinary Students; University of Nairobi

Brian Ogalo

Presenting author: Brian Ogalo

This study assessed Artificial Intelligence (AI) adoption and digital preparedness among 57 undergraduate veterinary medicine students at the University of Nairobi using a cross-sectional descriptive design. Data were collected through a structured self-administered questionnaire covering AI awareness, usage patterns, literacy levels, perceptions, and readiness for curricular integration. The study population was predominantly composed of senior students, with fifth-year (40.4%) and fourth-year (24.6%) students making up the majority of respondents, and gender representation was nearly equal. The findings revealed near-universal AI adoption — 59.6% of students used AI tools daily, and no respondent reported never having used them. Generative AI platforms such as ChatGPT and Gemini dominated usage at 94.7%. Academic support activities drove most of this engagement, with studying and revision cited by 93% of students, followed by examination preparation (64.9%) and literature reviews (59.6%). Notably, clinical applications such as case analysis and diagnostics attracted far less uptake at only 19.3%, suggesting students remain cautious about AI's role in direct clinical decision-making. Despite the high frequency of use, the study uncovered a substantial gap between AI engagement and actual digital competence. Only 24.6% of students felt highly confident evaluating AI-generated outputs, and over half (55.4%) rated their overall AI literacy as moderate. Trust in AI-generated content was similarly limited, with 70.2% reporting only moderate trust. Nevertheless, student attitudes toward AI's future role were broadly optimistic — 87.7% agreed AI can improve veterinary education, and 91.2% supported its formal integration into the BVM curriculum. Students preferred applied learning approaches, particularly case-based learning (47.2%) and practical workshops (28.3%), over conventional lectures. Only 22.8% felt well prepared for an AI-driven professional environment, underscoring an urgent need for structured institutional intervention to convert high AI enthusiasm into genuine digital proficiency.

Keywords: Artificial Intelligence, digital preparedness, AI literacy, veterinary education, University of Nairobi, technology adoption

Poster abstracts

Poster presentation | Abstract 007

ACUTE TOXICITY AND PHYTOCHEMICAL SCREENING OF 50% HYDRO-ETHANOLIC EXTRACTS OF *MONDIA WHITEI* (HOOK. F.) SKEELS (APOCYNACEAE).

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Background: Although medicinal plants are widely used and often assumed safe, they can be toxic. When poisoning is reported from medicinal plants, it is usually due to misidentification, incorrect preparation, or incorrect administration. Mondia whitei, native to most of Africa, has a wide range of medicinal benefits, with the roots being the most commonly used.
Aim and Objectives: Investigating the acute oral toxicity of a 50% hydro-ethanolic extract of Mondia whitei leaves and roots, as well as its qualitative phytochemical profile.
Materials and Methods: Roots and leaves of Mondia whitei were acquired, verified, and ground into a fine powder with a pulverizer. The powder underwent cold hydro-ethanolic maceration, and the resulting extract was concentrated, dried, and preserved in airtight containers for later phytochemical testing and acute oral toxicity evaluation.
Results: Extraction of Mondia whitei yielded a higher average recovery from the roots (6.16%) than the leaves (3.97%). The roots showed a more intense color than the leaves in the phytochemical constituents tested, i.e., phenols, alkaloids, anthraquinones, tannins, terpenoids, and saponins. Acute toxicity testing at 2000mg/kg resulted in 0% mortality, a normal physical appearance, and no adverse clinical signs throughout the 14-day observation period. Statistical analysis confirmed a highly significant increase in body weight ($p < 0.001$), indicating the extracts did not interfere with normal metabolic processes. Macro-anatomical examination of internal organs such as the liver, heart, and kidneys revealed no observable pathological changes, hemorrhage, or inflammatory lesions in any group.
Conclusion: These findings demonstrated that the 50% hydro-ethanolic extracts of Mondia whitei roots and leaves are non-toxic and well-tolerated, supporting their safe use and potential ethno-pharmacological properties.

Keywords: *Mondia whitei*, acute oral toxicity, phytochemical analysis

Poster presentation | Abstract 017

FIND MY VET: A PROPOSED DIGITAL INNOVATION TO IMPROVE ACCESS TO VETERINARY SERVICES IN KENYA

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Background: Access to timely veterinary care is limited in many peri-urban and rural parts of Kenya, where registered veterinary professionals are scarce or hard to locate. Animal owners and livestock keepers may therefore delay care or rely on unregulated animal health providers, with possible consequences for animal welfare, disease control and livelihoods. Find My Vet is a mobile application currently at the concept and design stage; it has not been piloted or evaluated.

Aims

To describe the design of Find My Vet, a mobile application intended to connect animal owners with verified, registered veterinary practitioners and to set out a planned pilot evaluation.

Methods: The application was conceptualized and designed by recent Bachelor of Veterinary Medicine graduates of the University of Nairobi. Planned core modules are location-based practitioner search, appointment scheduling and an emergency request feature. Practitioner verification against Kenya Veterinary Board (KVB) registration records is proposed, subject to engagement with the Board and the Kenya Veterinary Association (KVA). A pilot is planned, subject to ethical clearance and stakeholder consultation, and will track practitioner onboarding, user uptake, time from request to consultation and user-reported usability.

Key Results

Demonstrated: No pilot, implementation or outcome data are available; no effectiveness is claimed.

Proposed (hypotheses, not demonstrated): digital practitioner discovery may shorten time to consultation, increase the visibility of licensed practitioners relative to informal providers and generate usage data of potential value to future disease surveillance.

Conclusions: Find My Vet is an early-stage, untested innovation whose benefits remain to be established through pilot evaluation. It is submitted to obtain feedback from regulators, practitioners and animal owners before field deployment.

Contribution to Real-Life Challenges

If validated, the application could help animal owners and livestock keepers find registered practitioners quickly, including in emergencies and give licensed veterinarians a visible route to clients compared with informal providers. It could also give regulators a way to encourage use of verified professionals.

Keywords: veterinary services; digital innovation; mobile application; animal welfare; Kenya

Poster presentation | Abstract 029

Enhanced Universal Health Care Through Integration of Herbal Medicine in Kenya

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Introduction Universal Health Coverage (UHC) means access to safe, effective, quality essential health services, including affordable medicines and vaccines, without financial hardship. UHC is a national priority in Kenya, whose population was approximately 53.8 million in 2019. Kenya faces a triple burden of disease involving communicable diseases, non-communicable diseases, and injuries. Increasing demand for health services, including through free maternity and primary healthcare initiatives, has exposed limitations in the capacity of conventional healthcare facilities. Traditional herbal medicine remains widely used in Kenya but has not been adequately integrated into the formal healthcare system. Materials and Methods This presentation summarizes findings from scientific studies conducted in different regions of Kenya to assess the use and applications of herbal medicines. Information on indigenous medicinal knowledge was obtained through focus group discussions with Traditional Medical Practitioners (TMPs). Medicinal plants identified by practitioners were collected, dried, extracted, and evaluated using various in-vitro and in-vivo laboratory assays. Studies investigated claims including antimicrobial, anticancer, antimalarial, contraceptive, analgesic, and treatments for lifestyle-related conditions such as obesity and hypertension. Results and Discussion Scientific investigations provide evidence supporting the therapeutic potential of selected Kenyan herbal medicines. In cancer care, where treatment can be costly and physically demanding, validated herbal preparations could potentially provide affordable complementary or alternative treatment options. Evidence from countries such as China and India demonstrates the potential benefits of integrating traditional medicine into national healthcare systems. Appropriate validation and regulation of herbal medicines may reduce treatment costs, improve access to healthcare, strengthen recognition of TMPs, and improve their livelihoods. Increased awareness of medicinal plants has also encouraged their conservation. There is therefore a critical need to mainstream traditional medicine into Kenya's public healthcare system. Growing chronic disease burdens, limitations of conventional medicine, interest in preventive and holistic healthcare, evidence of efficacy for selected conditions, and increasing professional interest support a more integrated approach. Conclusions Healthcare access in Kenya remains constrained by high costs, inadequate facilities, shortages of health personnel, and limited resources. The reported doctor-to-patient ratio of approximately 1:17,000 contrasts with the recommended 1:1,000, while TMPs represent a substantial and accessible healthcare resource. Given their broad acceptability, affordability, and availability, TMPs and evidence-based herbal medicine could help bridge healthcare gaps. Kenya should therefore develop and implement a clear policy for the scientific validation, regulation, conservation, training, and formal integration of herbal medicine into mainstream healthcare to advance Universal Health Coverage.

Keywords: Universal Health Care; Herbal Medicine; Evidence-based

Poster presentation | Abstract 038

FACTORS INFLUENCING UPTAKE OF LIVESTOCK VACCINATION PROGRAMMES AMONG SMALLHOLDER FARMERS IN EMBAKASI EAST, NAIROBI COUNTY

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Background: Livestock vaccination coverage in Kenya remains suboptimal, contributing to outbreaks of Foot-and-Mouth Disease, Newcastle Disease, and Lumpy Skin Disease. This study evaluated vaccination uptake among cattle, sheep, goats, and poultry in Embakasi East Sub-County, Nairobi County, focusing on vaccines against Lumpy Skin Disease, Foot-and-Mouth Disease, Rift Valley Fever, Peste des Petits Ruminants, Newcastle Disease, Gumboro disease, fowl pox, and fowl typhoid. Thus, the aim of this study was to assess the influence of farmers' knowledge and awareness, socioeconomic and demographic characteristics, and institutional and programme-related factors on livestock vaccination uptake.

Methods: A cross-sectional mixed-methods study was conducted among 100 purposively selected smallholder livestock farmers across five wards between January and March 2026. Vaccination uptake was defined as the proportion of eligible livestock that had received the relevant vaccine during the recommended vaccination period. Data were collected using structured questionnaires and analysed using descriptive statistics, cross-tabulations, chi-square tests, odds ratios (ORs), and thematic analysis. Findings were interpreted as sample-based univariate associations because purposive sampling limits generalisability. Multiple responses were permitted when reporting barriers.

Results: Overall vaccination uptake during the preceding 12 months was 54%. Knowledge of vaccination schedules was strongly associated with uptake: 85.7% of farmers who knew the schedule vaccinated their livestock, compared with 23.5% who did not ($p < 0.001$; OR = 19.5). Farmer-group membership was also strongly associated with uptake, reported by 96% of members and 40% of non-members ($p < 0.001$; OR = 36.0). Uptake declined as perceived vaccine cost increased, ranging from 100% among farmers who considered vaccines very affordable to 20% among those who considered them very expensive ($p < 0.001$). Reported barriers included cost and financial constraints (55%), unreliable vaccine availability (20%), knowledge gaps (19%), limited access to service providers (9%), and concerns about side effects or vaccine efficacy (3%). Percentages exceeded 100% because multiple responses were allowed.

Conclusions: Livestock vaccination uptake among smallholder farmers in Embakasi East remains suboptimal. Knowledge of vaccination schedules, farmer-group membership, and perceived vaccine affordability were important determinants of uptake.

Recommendations: A coordinated approach is recommended, incorporating targeted vaccination subsidies, schedule-specific farmer education, strengthened extension services, improved communication of vaccination campaigns, and more reliable last-mile vaccine distribution.

Keywords: Livestock vaccination, vaccination uptake, smallholder farmers, veterinary services, Nairobi County.

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