



*...improving the livelihoods of Kenyans*

## The Kenya Veterinary Association

**59<sup>TH</sup>** ANNUAL SCIENTIFIC  
CONFERENCE AND WORLD  
VETERINARY DAY CELEBRATIONS

THEME: “ANIMAL HEALTH TAKES A TEAM”

**23<sup>RD</sup> - 25<sup>TH</sup> APRIL, 2025**

Grand Royal Swiss Hotel  
Kisumu County, Kenya

**BOOK OF ABSTRACTS**

# TABLE OF CONTENTS

|                                         |      |
|-----------------------------------------|------|
| NATIONAL EXECUTIVE COMMITTEE (NEC)      | v    |
| SCIENTIFIC PROGRAM ORGANISING COMMITTEE | v    |
| SECRETARIAT                             | v    |
| Word from the National Chairman         | vii  |
| Message from the KVA Honorary Secretary | viii |
| Message from the CEO                    | ix   |
| Conference Program                      | x    |

## **Day 1: April 23, 2025**

|                                                                   |   |
|-------------------------------------------------------------------|---|
| Session 1: Animal Health Care, Disease Management and Diagnostics | 1 |
|-------------------------------------------------------------------|---|

|                                                                                                                            |   |
|----------------------------------------------------------------------------------------------------------------------------|---|
| A Survey of African Animal Trypanosomiasis and Tsetse Fly Infestation in Select Areas of Busia and Bungoma Counties, Kenya | 1 |
|----------------------------------------------------------------------------------------------------------------------------|---|

|                                                                                                                        |   |
|------------------------------------------------------------------------------------------------------------------------|---|
| Comparison of California Mastitis Test, Bacterial Culture, and Novel pH-based Test for Diagnosis of Mastitis in Cattle | 3 |
|------------------------------------------------------------------------------------------------------------------------|---|

|                                                                                                                           |   |
|---------------------------------------------------------------------------------------------------------------------------|---|
| Assessing the Antimicrobial Resistance Testing Capacity of Public and Private Veterinary Diagnostic Laboratories in Kenya | 4 |
|---------------------------------------------------------------------------------------------------------------------------|---|

|                                                                                                  |   |
|--------------------------------------------------------------------------------------------------|---|
| Antimicrobial and Wound Healing Properties of <i>Hermetia Illucens</i> -Derived Extracts in Dogs | 5 |
|--------------------------------------------------------------------------------------------------|---|

|                                                                                                                                           |   |
|-------------------------------------------------------------------------------------------------------------------------------------------|---|
| Knowledge, Attitudes and Practices on Animal Health and Antimicrobial Use among Smallholder Pig Producers from Nine (9) Counties of Kenya | 6 |
|-------------------------------------------------------------------------------------------------------------------------------------------|---|

|                                                                                                                    |   |
|--------------------------------------------------------------------------------------------------------------------|---|
| Assessing the Ante-Mortem Diagnostic Potential of Nasal Planum Biopsies for Rabies Virus Antigen Detection in Dogs | 8 |
|--------------------------------------------------------------------------------------------------------------------|---|

## **Session 2**

|                                                          |   |
|----------------------------------------------------------|---|
| Zoonotic Diseases, One Health, and AMR (Breakout Room 1) | 9 |
|----------------------------------------------------------|---|

|                                                                                                                              |   |
|------------------------------------------------------------------------------------------------------------------------------|---|
| Prevalence and Genetic Diversity of <i>Echinococcus granulosus sensu lato</i> Isolated from Livestock in Narok County, Kenya | 9 |
|------------------------------------------------------------------------------------------------------------------------------|---|

|                                                                              |    |
|------------------------------------------------------------------------------|----|
| Ngari Virus in Humans and Livestock in Arid and Semi-Arid Ecologies in Kenya | 10 |
|------------------------------------------------------------------------------|----|

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Sero-Epidemiology of <i>Coxiella burnetii</i> in Livestock and Humans in Isiolo County, Kenya | 11 |
|-----------------------------------------------------------------------------------------------|----|

**Session 3**

|                                                                     |    |
|---------------------------------------------------------------------|----|
| Disease Surveillance and Epidemiological Research (Breakout Room 2) | 12 |
|---------------------------------------------------------------------|----|

|                                                         |    |
|---------------------------------------------------------|----|
| Role of Veterinarians in Aquatic Animal Health in Kenya | 12 |
|---------------------------------------------------------|----|

|                                                                                                                                                             |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Pastoralists' utilization and preferences for stakeholders and methods in livestock disease reporting and response in northern Kenya: a participatory study | 14 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------|----|
| Assessing Antibiotic Resistance in <i>Campylobacter</i> spp. Isolated from Slaughtered Livestock in Nairobi Metropolis | 16 |
|------------------------------------------------------------------------------------------------------------------------|----|

**Day 2: April 24, 2025****Session 4:**

|                                        |    |
|----------------------------------------|----|
| Zoonotic Diseases, One Health, and AMR | 17 |
|----------------------------------------|----|

|                                                                                                                                       |    |
|---------------------------------------------------------------------------------------------------------------------------------------|----|
| The Burden of Brucellosis in Donkeys and its Implications for Public Health and Animal Welfare: A Systematic Review and Meta-Analysis | 17 |
|---------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                                                                          |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| One Health Investment Planning for Kenya: National Investment Planning and Leverage for the Implementation of OH-Informed Agrifood System Transformation | 19 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                               |    |
|---------------------------------------------------------------------------------------------------------------|----|
| The Animal and the Environment: Major Drivers of the Rift Valley Fever Outbreak in Wajir County, January 2024 | 21 |
|---------------------------------------------------------------------------------------------------------------|----|

**Session 5**

|                                        |    |
|----------------------------------------|----|
| Zoonotic Diseases, One Health, and AMR | 22 |
|----------------------------------------|----|

|                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------|----|
| Knowledge, Attitude, and Practices on Antimicrobial Use and Pig Welfare in Selected Farms in Nyeri, Kenya | 22 |
|-----------------------------------------------------------------------------------------------------------|----|

|                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------|----|
| Strategies for the Prevention and Control of Zoonotic Diseases – A Zoonotic Disease Unit (ZDU) Case Study | 24 |
|-----------------------------------------------------------------------------------------------------------|----|

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| ZoNoH – Preventing Zoonoses in Kenya by Fostering Collaboration in the Food System | 25 |
|------------------------------------------------------------------------------------|----|

|                                                                                                                                                      |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Microbial Contamination and Antibiotic Resistance in Winam Gulf: Assessing Bacterial Pathogens and Their Resistance Patterns in Lake Victoria, Kenya | 26 |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------|----|
| Aflatoxin Contamination of Maize from Small-Scale Farms Practicing Different Artisanal Control Methods in Kitui, Kenya | 27 |
|------------------------------------------------------------------------------------------------------------------------|----|

### **Day 3: April 25, 2025**

#### **Session 6**

|                                                          |    |
|----------------------------------------------------------|----|
| Veterinary Policy, Regulation, Training, and Legislation | 28 |
|----------------------------------------------------------|----|

|                                                                                        |    |
|----------------------------------------------------------------------------------------|----|
| Exploring the Effectiveness of Animation Training Videos for Competency-Based Learning | 28 |
|----------------------------------------------------------------------------------------|----|

|                                                                                                                                             |    |
|---------------------------------------------------------------------------------------------------------------------------------------------|----|
| Effectiveness of an Educational Program on the Level of Awareness of Rabies Disease among Primary School Learners in Machakos County, Kenya | 29 |
|---------------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                      |    |
|------------------------------------------------------------------------------------------------------|----|
| Leveraging Social Media for Disease Surveillance: A Case Study of Professional Associations in Kenya | 30 |
|------------------------------------------------------------------------------------------------------|----|

|                                                                                            |    |
|--------------------------------------------------------------------------------------------|----|
| Occupational Hazards and Mitigation Strategies for Veterinarians Handling Donkeys in Kenya | 31 |
|--------------------------------------------------------------------------------------------|----|

|                                                                                               |    |
|-----------------------------------------------------------------------------------------------|----|
| Breaking Barriers in Veterinary Medicine: Addressing Gender Bias in the Veterinary Profession | 32 |
|-----------------------------------------------------------------------------------------------|----|

#### **Session 7**

|                                                  |    |
|--------------------------------------------------|----|
| Animal Welfare, Ethics, and Community Engagement | 33 |
|--------------------------------------------------|----|

|                                                                                                               |    |
|---------------------------------------------------------------------------------------------------------------|----|
| Impact of work type on prevalence of tracheal collapse and other related conditions in donkeys in Meru, Kenya | 33 |
|---------------------------------------------------------------------------------------------------------------|----|

|                                                                                                   |    |
|---------------------------------------------------------------------------------------------------|----|
| Welfare Challenges in Donkeys Working on Markets Adjacent to Mt. Elgon Sub County, Bungoma County | 35 |
|---------------------------------------------------------------------------------------------------|----|

|                                                                                                                                                                    |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Improving Donkey Welfare through Promotion of Sustainable Community Behavior Change, Enhancing Livelihood and Resilience in Machakos, Makueni and Kajiado Counties | 36 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|

|                                                                                                        |    |
|--------------------------------------------------------------------------------------------------------|----|
| Demystifying Pet Relocation: A Structured Guide to Safe and Stress-Free Global Companion Animal Travel | 37 |
|--------------------------------------------------------------------------------------------------------|----|

**Session 8**

|                                                                                                                                         |    |
|-----------------------------------------------------------------------------------------------------------------------------------------|----|
| Animal Production and Herd Management                                                                                                   | 38 |
| The Nexus between Animal Welfare, Animal Health, Animal Production, and Community Engagement in Sustainable Development                 | 38 |
| Integrating Genomic Technologies into Animal Health and Breeding                                                                        | 39 |
| Knowledge, Attitudes, and Practices on Animal Welfare among Smallholder Pig Producers from Nine (9) Counties of Kenya                   | 40 |
| Poster Presentations (Day 1 & 2)                                                                                                        | 42 |
| The AMR Drug Box: An Innovative Approach to Antibiotic Disposal                                                                         | 42 |
| Find My Vet: Enhancing Access to Veterinary Services through a Mobile Application                                                       | 43 |
| Awareness of Diagnostic Capacity in the Directorate of Veterinary Services, National Veterinary Reference Laboratories, Kabete          | 44 |
| Role of surveillance systems in Detection, Confirmation and Response to the Rift Valley Fever outbreak in Marsabit County, January 2024 | 45 |
| Reducing Mastitis Incidence and Improving Antibiotic Stewardship in Kenyan Smallholder Dairy Systems                                    | 46 |
| Empowering Communities through One Health: A Training of Trainers Approach                                                              | 47 |

## NATIONAL ORGANIZING COMMITTEE (NEC)

|     |                        |   |                     |
|-----|------------------------|---|---------------------|
| 1.  | Dr. Kelvin Osore       | - | National Chairman   |
| 2.  | Dr. Flookie Owino      | - | Vice Chairman       |
| 3.  | Dr. Ambrose Kipyegon   | - | Honorary Secretary  |
| 4.  | Dr. Agnes Maina        | - | Assistant Secretary |
| 5.  | Dr. Godfrey Wamai      | - | Treasurer           |
| 6.  | Dr. Carol Khaemba      | - | Assistant Treasurer |
| 7.  | Prof. Charles Kimwele  | - | Committee member    |
| 8.  | Dr. Daniel Muasya      | - | Committee member    |
| 9.  | Dr. Nick Lang'at       | - | Committee member    |
| 10. | Dr. Joel Ruto          | - | Committee member    |
| 11. | Dr. Samantha Opere     | - | Committee member    |
| 12. | Dr. Kamama Edgar Sakwa | - | Committee member    |

## SCIENTIFIC PROGRAM ORGANISING COMMITTEE

|    |                       |   |             |
|----|-----------------------|---|-------------|
| 1. | Dr. Daniel Muasya     | - | Chairperson |
| 2. | Prof. Charles Kimwele | - | Member      |
| 3. | Dr. Ambrose Kipyegon  | - | Member      |
| 4. | Dr. Felix Kibegwa     | - | Member      |
| 5. | Dr. Brenda Machoka    | - | Member      |
| 6. | Dr. Cecilia Njoroge   | - | Member      |

## SECRETARIAT

|    |                        |   |                        |
|----|------------------------|---|------------------------|
| 1. | Dr. Samson Muchelule   | - | CEO                    |
| 2. | Mr. Joseph Kiplimo Too | - | Accountant             |
| 3. | Ms. Mary Malonza       | - | Office Admin           |
| 4. | Mrs. Millicent Kimiti  | - | Assistant Office Admin |
| 5. | Dr. Nelly Bargoiyet    | - | Projects Assistant     |

## LOCAL ORGANIZING COMMITTEE MEMBERS

|    |                      |   |               |
|----|----------------------|---|---------------|
| 1. | Dr Allan Muruli      | - | Nyanza Branch |
| 2. | Dr Humphrey Nyaroché | - | Nyanza Branch |
| 3. | Dr Teresa Opiyo      |   | Kisumu County |
| 4. | Dr George Odhiambo   |   | Kisumu County |
| 5. | Dr. Anthony Oynga    |   | Nyanza Branch |

## Our Esteemed Partners



## Word from the National Chairman

It is both a privilege and an honor to welcome you to our 59th Annual Scientific Conference and World Veterinary Day celebrations at the Grand Royal Swiss Hotel, Kisumu City. This year, the theme of the celebrations, "Animal Health Takes a Team," resonates deeply within the veterinary community and the broader spectrum of public health.

The interconnection between human, animal, and environmental health has never been more apparent, especially in light of recent global health emergencies. The One Health approach emphasizes the necessity of collaboration among veterinarians, physicians, environmental scientists, and policymakers to combat zoonotic diseases and ensure comprehensive health strategies. This interdisciplinary collaboration is vital for advancing the welfare of both animals and humans, as highlighted by the critical role veterinarians play in safeguarding animal health and facilitating public health initiatives.

It is with this in mind that the association has taken steps to firm up our relationship with the Kenya Medical Association into a memorandum of understanding to ensure that maximum efforts are channeled towards ensuring the One health approach in Kenya works. One other example of this includes the ongoing campaign to administer preexposure prophylaxis vaccine jabs against rabies to veterinary practitioners in Kenya. KVA will keep reaching out to other players as we view one health as a critical output by our members towards ensuring Kenya's sustainability and public health. Indeed, as stewards of animal health, veterinarians are equipped with the knowledge to advocate for both animal welfare and public safety, making their role crucial in disease prevention and control efforts.

Furthermore, the success of these health strategies is heavily reliant on the competence and education of our veterinary workforce. The call for curriculum harmonization in veterinary education in other jurisdictions, focusing on competencies in public health and population medicine, illustrates the urgent need for preparatory frameworks that align with international standards, thus enhancing the capabilities of the veterinary profession on a global scale. The integration of multidisciplinary perspectives into veterinary education and practice is essential for addressing contemporary challenges, including animal production welfare, ethical considerations, and public trust in our profession. As we celebrate our advancements in science, it is also pertinent to reflect on the evolving expectations of the public who increasingly rely on veterinarians as leaders and advocates for animal welfare.

This year's conference serves as a platform to foster discussions that champion collaborative practices, where sharing knowledge across disciplines not only enhances animal health but also contributes to global health security. That is why the topics and panelists come from a diverse background ranging from veterinary medicine, human health, finance among others.

By working together, we can create resilient health systems capable of responding to emerging challenges in animal and human health alike, as echoed in successful health governance models that advocate for multisectoral cooperation.

As we come together over the next few days, let us harness this opportunity to learn from each other, strengthen our connections, and renew our commitments to the health and welfare of animals. Together, we can ensure a healthier future not only for our animals but also for the communities we serve.

Thank you for being a part of these vital conversations.

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**Dr Kelvin Osore,**  
National Chairman, Kenya Veterinary Association

## Message from the KVA Honorary Secretary

With humility, it is my great honor to welcome you honorable members of KVA to the 59th Kenya Veterinary Association Annual Scientific Conference and World Veterinary day Celebration. This year's theme, "Animal Health Takes a Team," highlights the critical need for collaboration in achieving optimal animal health and welfare. The theme is also a timely reminder of the collective responsibility we all share in advancing animal health, welfare, and productivity.

The Kenya veterinary association's mission to champion members' welfare, animal welfare, and safeguarding public health affirms the integral role of veterinary professionals in safeguarding public health, ensuring food security, and supporting sustainable livelihoods. However, the complexity of today's challenges—from emerging zoonoses to climate-related threats—demands a multidisciplinary, collaborative approach. Veterinarians, researchers, Human medics, anthropologists, para-veterinary professionals, policy makers, farmers, and other stakeholders must come together as one cohesive team in order to overcome the challenge.

This conference offers us the opportunity to share knowledge, exchange ideas, and forge stronger partnerships that will shape the future of animal health in Kenya and beyond.

I commend all participants, presenters, and partners for their contributions and commitment to our shared mission.

KVA is delighted to host this year's event in Kisumu, a vibrant city on the shores of Lake Victoria. We invite you to take time to explore its rich culture, scenic beauty, and warm hospitality. From sunsets over the lake to the city's culinary delights and cultural heritage, Kisumu offers a memorable experience beyond the conference sessions.

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**Dr. Ambrose Kipyegon**  
Honorary Secretary  
Kenya Veterinary Association

## Message from the CEO

I take this opportunity to welcome you to this 2025 Scientific Conference and World Veterinary Day celebrations to be held on 26th April, 2025.

World Veterinary day is an invaluable opportunity to recognize and celebrate the vital role Veterinarians play in safeguarding the health and well-being of both animals and humans. This day serves as an important reminder to promote sustainable humane practices in animal care alongside the critical need for preventive measures.

Let's make a difference in Health and well-being of both animals and humans.

Wishing you great deliberations in the Scientific conference and happy world Veterinary celebrations

A big thank you to all KVA members and our partners in making this event a great success.

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**Dr Samson E Muchelule**

CEO , Kenya Veterinary Association

## Science and CPD Subcommittee

It is a great pleasure to welcome you to the 59th Kenya Veterinary Association Scientific Conference. This year marks an exciting milestone as the Science and CPD Subcommittee successfully held its first-ever pre-conference session an important step in enriching our conference engagement. We also resumed poster presentations, offering a broader platform for sharing research, and held a successful 2024 World Rabies Day celebration that brought together diverse stakeholders in One Health. Looking ahead, we are enthusiastic about the anticipated revival of The Kenyan Veterinarian scientific journal, which will further strengthen our professional discourse. I remain deeply grateful to the KVA Chairman, National Executive Committee, and all members for the steadfast support.

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**Dr. Daniel Muasya**

Chairman, Science and CPD Subcommittee

Kenya Veterinary Association

# CONFERENCE PROGRAM

| Time | Activity | Presenter |
|------|----------|-----------|
|------|----------|-----------|

## Day 1: April 23, 2025

|                 |                                     |  |
|-----------------|-------------------------------------|--|
| 7:30AM – 8:00AM | Registration                        |  |
| 8:00AM – 8:30AM | Poster presentation                 |  |
| 8:30AM – 9:00AM | Opening Remarks and Welcome Address |  |

## Session 1: Animal Health Care, Disease Management and Diagnostics – Moderators:

**Dr. Kipyegon  
& Dr. Muasya**

|                          |                                                                                                                                           |                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 9:00AM – 9:15AM          | A survey of African Animal Trypanosomiasis and Tsetse Fly Infestation in select areas of Busia and Bungoma Counties, Kenya                | Stephen Burudi                        |
| 9:15AM – 9:30AM          | Comparison of California Mastitis Test, bacterial culture and novel pH-based test for diagnosis of mastitis in cattle                     | Peter Ndirangu                        |
| 9:30AM – 9:45AM          | Assessing the antimicrobial resistance testing capacity of public and private veterinary diagnostic laboratories in Kenya                 | Dr. Alexina Morang'a                  |
| 9:45AM – 10:00am         | Q & A Session 1                                                                                                                           |                                       |
| <b>10:00AM – 10:30AM</b> | <b>Tea Break</b>                                                                                                                          |                                       |
| 10:30AM – 11:45AM        | Opening ceremony                                                                                                                          | Dr. Flookie Owino<br>Dr. S. Muchelule |
| 11:45AM – 12:00AM        | Antimicrobial And Wound Healing Properties of Hermetia Illucens-Derived Extracts in Dogs.                                                 | Dr. Specioza Chelang'at               |
| 12:00PM – 12:15PM        | Knowledge, Attitudes and Practices on Animal Health and Antimicrobial Use among Smallholder Pig Producers from nine (9) counties of Kenya | Dr. Victor Yamo                       |
| 12:15PM – 12:30PM        | Assessing the ante-mortem diagnostic potential of nasal planum biopsies for rabies virus antigen detection in dogs                        | Dr. Eric Ogola                        |
| 12:30PM – 12:50PM        | Q & A Session 1                                                                                                                           |                                       |
| 12:50PM – 1:00PM         | 10 Minute Partner Presentation                                                                                                            |                                       |
| 1:00 PM – 2:00PM         | Lunch Break                                                                                                                               |                                       |

## 1:00 PM – 2:00PM Lunch Break

## Break out room 1 (Main Hall)

| Time                                                                | Activity                                                                                                                           | Presenter                                                |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Session 2: Zoonotic Diseases, One Health, and AMR</b>            |                                                                                                                                    | <b>Moderators:<br/>Dr. Khadija &amp;<br/>Dr. Machoka</b> |
| 2:00 PM – 2:15PM                                                    | Prevalence and genetic diversity of Echinococcus granulosus sensu lato isolated from livestock in Narok County, Kenya              | Lucy Gitau                                               |
| 2:15PM – 2:30PM                                                     | Ngari Virus in humans and livestock in Arid and Semi-Arid ecologies in Kenya                                                       | Dr. Margaret Wahome                                      |
| 2:30PM – 2:45 PM                                                    | Sero-epidemiology of Coxiella burnetii in livestock and humans in Isiolo county Kenya.                                             | Dr. Wilfred Mutisya                                      |
| 2:45PM – 3:00PM                                                     | Q & A Session 2                                                                                                                    |                                                          |
| <b>Break out room 2 (Downstairs by the pool)</b>                    |                                                                                                                                    |                                                          |
| <b>Session 3: Disease Surveillance and Epidemiological Research</b> |                                                                                                                                    | <b>Moderator:<br/>Dr. Felix Kibegwa</b>                  |
| 2:0 PM – 2:15PM                                                     | Role of Veterinarians in Aquatic Animal Health in Kenya                                                                            | Dr. Joseph Wairia                                        |
| 2:15PM – 2:30PM                                                     | Indicators Of Livestock Disease Reporting and Response for Pastoralists in Northern Kenya: A Participatory Study                   | Dr. Derrick Sentamu                                      |
| 2:30PM – 2:45PM                                                     | Assessing Antibiotic Resistance in Campylobacter spp. Isolated from Slaughtered Livestock in Nairobi Metropolis                    | Christine Inguyesi                                       |
| 2:45PM – 3:00PM                                                     | Q & A Session 3                                                                                                                    |                                                          |
| <b>Common session (Main Hall)</b>                                   |                                                                                                                                    |                                                          |
| 3:05PM – 3:15PM                                                     | 10 Minute Partner Presentation                                                                                                     |                                                          |
| 3:15PM – 3:25PM                                                     | 10 Minute Partner Presentation                                                                                                     |                                                          |
| 3:30 PM – 5:00 PM                                                   | PANEL FORUM DISCUSSION<br>Healthcare Governance: Opportunities and Challenges in the Medical and Veterinary Profession 5 panelists |                                                          |
| 5:00 PM – 5:20 PM                                                   | 20 Minute Partner Presentation                                                                                                     |                                                          |
| 5:20 PM – 5:40 PM                                                   | 20 Minute Partner Presentation                                                                                                     |                                                          |
| 5:40 PM                                                             | Evening Coffee                                                                                                                     |                                                          |

| Time                                                     | Activity                                                                                                                                                 | Presenter                                                                 |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>Day 2: April 24, 2025</b>                             |                                                                                                                                                          |                                                                           |
| 7:30AM – 8:00AM                                          | Registration and Networking                                                                                                                              |                                                                           |
| 8:00AM – 8:30AM                                          | <b>Poster presentation</b>                                                                                                                               |                                                                           |
| <b>Session 4: Zoonotic Diseases, One Health, and AMR</b> |                                                                                                                                                          | <b>Moderators:</b><br><b>Prof. C. Kimwele &amp; Dr. Khadija Chepkorir</b> |
| 8:30AM – 9:00AM                                          | Keynote speaker 1: Pain management: Improving the welfare of livestock afflicted by viral vesicular diseases                                             | Prof. Peter A Windsor                                                     |
| 9:00AM – 9:15AM                                          | The burden of brucellosis in donkeys and its implications for public health and animal welfare: A systematic review and meta-analysis                    | Dr. James Kithuka                                                         |
| 9:15AM – 9:30AM                                          | One Health Investment Planning for Kenya: National investment planning and leverage for the implementation of OH-informed agrifood system transformation | Arithi Mutembei                                                           |
| 9:30AM – 9:45AM                                          | The Animal and the Environment: Major drivers of the Rift Valley Fever outbreak in Wajir County, January 2024.                                           | Dr. M Matheka                                                             |
| 9:45AM – 10:00AM                                         | Q & A Session 4                                                                                                                                          |                                                                           |
| 10:00AM – 10:30AM                                        | <b>Tea Break</b>                                                                                                                                         |                                                                           |
| <b>Session 5: Zoonotic Diseases, One Health, and AMR</b> |                                                                                                                                                          | <b>Moderators:</b><br><b>Dr. Felix Kibegwa &amp; Dr. Brenda Machoka</b>   |
| 10:30AM – 11:00AM                                        | Forage forecast for anticipatory planning and resilient Pastoral communities                                                                             | IGAD                                                                      |
| 11:00AM – 11:15AM                                        | Knowledge, Attitude and Practices on Antimicrobial Use and Pig Welfare in Selected Farms in Nyeri, Kenya.                                                | Emma Mugo                                                                 |
| 11:15AM – 11:30AM                                        | Strategies For the Prevention and Control of Zoonotic Diseases – A Zoonotic Disease Unit (ZDU) Case Study                                                | Dr. Khadija Chepkorir                                                     |
| 11:30AM – 11:45AM                                        | ZoNoH – Preventing zoonoses in Kenya by fostering collaboration in the food system                                                                       | Dr. Kelvin Momanyi                                                        |
| 11:45AM – 12:00PM                                        | Microbial Contamination and Antibiotic Resistance in Winam Gulf: Assessing Bacterial Pathogens and Their Resistance Patterns in Lake Victoria, Kenya     | Dr. Waweru Kamundia                                                       |
| 12:00PM – 12:15PM                                        | Aflatoxin Contamination of Maize from Small-scale Farms Practicing Different Artisanal Control Methods in Kitui, Kenya                                   | Dr. Winfred Kyalo                                                         |

| Time                    | Activity                     | Presenter |
|-------------------------|------------------------------|-----------|
| 12:15PM – 12:35PM       | Q & A Session 5              |           |
| 12:35PM – 12:45PM       | 10 Minutes Partner Session   |           |
| 12:45PM – 1:00PM        | 15 Minutes Partner Session   |           |
| <b>1:00PM – 2:00PM</b>  | <b>Lunch Break</b>           |           |
| 2:00PM – 2:20PM         | Partners Session – Safaricom |           |
| 2:30PM – 5:30PM         | AGM                          |           |
| <b>5:00 PM – 5:30PM</b> | <b>Evening Coffee</b>        |           |

## End of Day 2

### Poster Presentations Day 1 and Day 2: (April 23 and 24, 2025)

|                  |                                                                                                                                         |                      |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 8:00AM – 8:30AM  | The AMR Drug Box: An Innovative Approach to Antibiotic Disposal                                                                         | Kamanga Mungai       |
| 8:00AM – 8:30AM  | Find my vet John Collins                                                                                                                |                      |
| 8:00AM – 8:30AM  | Awareness of Diagnostic Capacity in the Directorate of Veterinary Services, National Veterinary Reference Laboratories, Kabete.         | Dr. Mercy Murigu     |
| 8:00 AM – 8:30AM | East Coast Fever (ECF) is Deadly                                                                                                        | Dr. Gabriel Turasha  |
| 8:00 AM – 8:30AM | Role of surveillance systems in Detection, Confirmation and Response to the Rift Valley Fever outbreak in Marsabit County, January 2024 | Dr. M Matheka        |
| 8:00AM – 8:30AM  | Reducing Mastitis Incidence and Improving Antibiotic Stewardship in Kenyan Smallholder Dairy Systems                                    | Dr. Christian Odinga |
| 8:00AM – 8:30AM  | Empowering communities through One Health: A Training of Trainers approach                                                              | Dr. Buke Wako        |
| 8:00AM – 8:30AM  | Broiler production and distribution channels in Kenya: a framework for antibiotic use analysis.                                         | Eugene Lusanji       |

| Time | Activity | Presenter |
|------|----------|-----------|
|------|----------|-----------|

### Day 3: April 25, 2025

7:30AM – 8:00AM Registration and Networking

#### Session 6: Veterinary Policy, Regulation, Training, and Legislation

**Moderators:**

**Dr. Daniel Muasya &  
Dr. Nick Langat**

|                   |                                                                                                                                              |                        |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 8:00AM – 8:15AM   | Exploring the effectiveness of animation training videos for competency-based learning                                                       | Dr. Vincent Oloo       |
| 8:15AM – 8:30AM   | Effectiveness of an educational program on the level of awareness of rabies disease among primary school learners in Machakos County, Kenya. | Dr. Shepelo Gertrude   |
| 8:30AM – 8:45AM   | Leveraging on Social media for Disease Surveillance. A Case Study of the Professional Associations in Kenya                                  | Dr. David Ojigo        |
| 8:45AM – 9:00AM   | Occupational Hazards and Mitigation Strategies for Veterinarians Handling Donkeys in Kenya                                                   | Dr. JaelMercy Manani   |
| 9:00AM – 9:15AM   | Breaking Barriers in Veterinary Medicine: Addressing Gender Bias in the Veterinary Profession.                                               | Dr. Marilyn Karani     |
| 9:15AM – 9:30AM   | Q & A Session 6                                                                                                                              | All session presenters |
| 9:30AM – 9:40AM   | Comprehensive Work Plan for KVA WG (April – June 2025)                                                                                       | Dr. L. Amadi           |
| 9:40AM – 9:50AM   | 10 Minutes Partner Session                                                                                                                   |                        |
| 9:50 AM – 10:00AM | 10 Minutes Partner Session                                                                                                                   |                        |
| 10:00AM – 10:30AM | Tea Break                                                                                                                                    |                        |

#### Session 7: Animal Welfare, Ethics, and Community Engagement

**Moderators:**

**Dr. Ambrose Kipyegon  
& Dr. Khadija Chepkorir**

|                   |                                                                                                                                                                     |                      |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 10:30AM – 10:45AM | Impact of work type in Kenyan donkeys on prevalence of tracheal collapse and other related conditions.                                                              | Dr. Josphat Matara   |
| 10:45AM – 11:00AM | Welfare Challenges in Donkeys Working on Markets Adjacent to Mt Elgon Sub County, Bungoma County.                                                                   | Dr. Emmanuel Wechabe |
| 11:00AM – 11:15AM | Improving Donkey Welfare Through Promotion of Sustainable Community Behavior Change, Enhancing Livelihood and Resilience in Machakos, Makueni and Kajiado Counties. | Dr. Barack Ougo      |

| Time              | Activity                                                                                                                    | Presenter        |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------|
| 11:15AM – 11:30AM | Ensuring Safe and Compliant Pet Relocation from and into Nairobi, Kenya by Air: Challenges, Regulations, and Best Practices | Dr. Gabriel Ouma |
| 11:30AM – 11:45AM | Q & A Session 7                                                                                                             |                  |
| 11:45AM – 12:05PM | 20 Partners Session                                                                                                         |                  |
| 12:05PM – 12:25PM | 20 Partners Session                                                                                                         |                  |
| 12:25PM – 12:45PM | 20 Partners Session                                                                                                         |                  |
| 1:00PM – 2:00PM   | Lunch Break                                                                                                                 |                  |

### Session 8: Animal Production and Herd Management

### Moderators:

**Dr. Brenda Machoka  
& Dr. Felix Kibegwa**

|                   |                                                                                                                         |                        |
|-------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------|
| 2:00 PM – 2:15 PM | The Nexus between Animal Welfare, Animal Health, Animal Production, and Community Engagement in Sustainable Development | Dr. Mwenda Mbaka       |
| 2:15 PM – 2:30 PM | Integrating Genomic Technologies into Animal Health and Breeding                                                        | Jackline Chepkoech     |
| 2:30 PM – 2:45 PM | Knowledge, Attitudes and Practices on Animal Welfare among Smallholder Pig Producers from nine (9) counties of Kenya    | Dr. Victor Yamo        |
| 2:45 PM – 3:00 PM | Q & A Session 8                                                                                                         | All session presenters |
| 3:00 PM – 4:00 PM | PANEL FORUM DISCUSSION:<br>Healthy Business by Veterinarians                                                            | 4 Panelists            |
| 4:00 PM – 4:30 PM | Closing Ceremony – Guest Dr Augustine Cheruyiot                                                                         | Dr. Flookie Owino      |

**4:30 PM – 6:00 PM Excursion to Makasembo**

**6:30 PM – 10:30 PM Dinner Party**

### End of Day 3

## Day 4: April 26, 2025

### FIELD DAY & EXHIBITIONS

|                   |                               |
|-------------------|-------------------------------|
| 8:30 AM – 9:00 AM | Procession                    |
| 9:00 AM – 1:00 PM | Field work                    |
| 1:00 PM – 2:00 PM | Lunch                         |
| 2:00 PM – 4:00 PM | Excursion to Impala sanctuary |

Day 1: April 23, 2025

# SCIENTIFIC ABSTRACTS AND PRESENTATIONS

## 1 Session 1: Animal Health Care, Disease Management and Diagnostics

### A Survey of African Animal Trypanosomiasis and Tsetse Fly Infestation in Select Areas of Busia and Bungoma Counties, Kenya – (9:30 AM – 9:45 AM)

Burudi S. S., <sup>1</sup>Onyancha, E., <sup>1</sup>Mudavadi, P. O., <sup>2</sup>Cheruiyot J. K., <sup>3</sup>Mungube, E.O<sup>1</sup>Kenya Agricultural and Livestock Research Organization (KALRO), Veterinary Science Research Centre, Alupe, P.O Box 399-50400 Busia, Kenya.<sup>2</sup>Department of Biological sciences Masinde Muliro University of Science and Technology, P.O. Box 190-50100 Kakamega, Kenya<sup>3</sup>Livestock Health Research Division, KALRO Headquarters, P.O Box 57811-00200 Nairobi, Kenya

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African animal trypanosomiasis (AAT) is a Vector-borne disease caused by protozoan parasites of the genus *Trypanosoma*, primarily transmitted through the bite of infected tsetse flies. The disease is a major constraint to livestock production, causing reduced productivity, anemia and mortality in affected animals. A cross sectional study was conducted from November to December 2024 to assess the prevalence of nagana in cattle as well as tsetse fly abundance in Busia and Bungoma Counties, Kenya. A total of 886 cattle, randomly selected from seven villages in Busia County and one village in Bungoma County, were screened for AAT using the quantitative buffy coat technique. Packed cell volume (PCV) values were also determined. Tsetse survey was done by deploying 20 tsetse biconical tsetse traps in thickets and along streams in Funyula, Butula, Teso north and Sirisia sub counties to estimate tsetse flies' distribution and density. Overall prevalence of AAT was 6.43% (95% CI: 4.96–8.20) with *T. Vivax* (4.51%) as the most prevalent species followed by *T. congolense* (1.81%) and *T. brucei* (0.11%). Differences in species prevalence was significant ( $p = 0.002$ ).

Overall mean PCV for the study population was 25%, AAT positive cattle had significantly ( $p < 0.001$ ) lower PCV (22.2%) compared to 27.0% in the trypanosomes negative cattle.

Fly catches indicated no statistical significant difference in fly trap densities (FTD) between *Glossina pallidipes* (Gpd) and *Glossina fuscipes fuscipes* (Gff) ( $p = 0.429$ ), despite Gpd exhibiting a higher mean FTD (0.091, SD = 0.175) compared to Gff (0.013, SD = 0.025).

The study confirmed that AAT is still endemic in pockets of Busia and Bungoma Counties. There is need to investigate role of biting flies in AAT transmission. Other studies should consider molecular diagnostics for improved parasite detection and speciation.

**Key words:** African Animal trypanosomiasis, Cattle, Prevalence, Packed cell volume, Tsetse fly

# Comparison of California Mastitis Test, Bacterial Culture, and Novel pH-based Test for Diagnosis of Mastitis in Cattle – (9:45 AM – 10:00 AM)

\*P N Ndirangu<sup>1</sup>, A.K. Kipronoh<sup>2</sup>, P.K. Nyongesa<sup>4</sup>, I.N. Ogalil, E O Mungube<sup>3</sup> and D N Siamba<sup>5</sup>

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This study had the objective of determining sensitivity and specificity of a novel pH-based Pen-side test in detecting subclinical mastitis (SCM) in cattle. Sensitivity (se) is defined as the proportion of truly diseased animals that the test correctly identifies as diseased or the ability of test to detect a true positive result while specificity (sp) is the proportion of truly non-diseased animals that the test correctly identifies as non-diseased. These parameters were determined in a cross-sectional study undertaken in Kiambu County. A total of 362 udder quarter milk samples collected from 91 cows were used. Samples were tested for presence of SCM using California Mastitis Test (CMT) and a novel pH-based mastitis test. They were then subjected to bacterial culture, which was the gold standard used to determine sensitivity and specificity of the pH-based test. The comparative test results were subjected to statistical analysis to determine their levels of agreements in terms of percentage of agreement, Kappa value, positive predictive value and negative predictive value. The percentage of agreement between pH-based test and CMT was 85.9%, KAPPA value for agreement was 0.71, positive predictive value was 93.4% and negative predictive value was 76.5%. The sensitivity of the new test was 76.5% and specificity was 90.4%. Comparison of the pH based kit and CMT showed remarkable agreement between the two tests. The results clearly demonstrated that the pH based test is reliable in detecting SCM in cattle at farm level. In addition, the new test had high sensitivity and specificity indicating its good performance in detecting intra-mammary infections in cattle. This kit needs to be availed since its use will enable early detection of SCM and this coupled with use of appropriate mastitis control measures will lower prevalence of mastitis in the study site.

## Key words

Agreement, Gold standard, KAPPA, sensitivity, specificity

# Assessing the Antimicrobial Resistance Testing Capacity of Public and Private Veterinary Diagnostic Laboratories in Kenya – (11:30 AM – 11:45 AM)

Alexina K Morang'a<sup>1,2</sup>, Dishon M Muli<sup>3</sup>, Hannah Aanonsen<sup>4</sup>, Arshnee Moodley<sup>1,4\*</sup>

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Veterinary diagnostic laboratories play a crucial role in diagnosing animal and zoonotic diseases, surveillance, and antimicrobial resistance (AMR) diagnostic testing. We assessed the capacity of veterinary diagnostic laboratories with a focus on AMR testing and explored the awareness and use of veterinary diagnostic services by end-users in Kenya. Semi-structured questionnaires, focus group discussions, and key informant interviews were utilized to collect data on access to diagnostic services from laboratory users, including farmers (n = 86) and animal health service providers (AHSPs) (n = 40) in Kiambu and Kajiado counties, along with regulatory authorities (n = 2). The FAO ATLASS survey tool was also used to evaluate laboratory capacity across 12 public and private veterinary diagnostic laboratories in Kenya. Quantitative data were analyzed using descriptive statistics, while qualitative data were transcribed and collated into predefined templates organized around key themes related to the study objective. Overall, all assessed laboratories were well-equipped and capable of performing diagnostic testing; however, they remained underutilized. The laboratories scored above 50% in all four assessed areas: activity, technical practices, data and biological materials management, and quality assurance. Under category level, workflow organization (87.8%), bacteriology technical practice (63.6%), and AST methods (63.1%) recorded the highest scores, whereas molecular tools (0%), collaborations (33.5%), and sustainability (33.3%) reported the lowest scores. Challenges such as sample transport logistics, high costs, lengthy turnaround times, failure to receive test results, and low trust in the labs were noted by farmers and AHSPs. Laboratories faced difficulties, including financial and human resource constraints, insufficient supplies of reagents, and outdated equipment. There is a need to enhance awareness among end-users regarding the benefits of diagnostic services and to ensure financial support for laboratories to facilitate timely and high-quality results.

## Keywords

Veterinary diagnostics, Animal health, AMR testing

# Antimicrobial and Wound Healing Properties of *Hermetia Illucens*-Derived Extracts in Dogs – (11:45 AM – 12:00 PM)

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**Introduction:** Despite the advances in wound therapeutics such as utilization of antiseptics, antimicrobials and well-established surgical approaches of wound closure techniques, healing is almost always accompanied by some level of infection and delays. The related threat of antimicrobial resistance further exacerbates this challenge. Consequently, alternative natural products are increasingly researched and applied.

**Methodology:** This study investigated Antimicrobial and wound-healing potential of BSF extracts. BSF Chitosan was extracted from pupal exuviae, while oil and fats were extracted from 5th instar larvae. A cross-sectional analysis of 40 bacteria isolates from infected dog wounds with an in-vitro assessment of BSF extract antimicrobial sensitivity against the bacteria isolates was done. Further, randomized controlled study on dogs with 66 full-thickness excisional wounds were used to evaluate BSF extracts wound healing capacity.

**Results:** *Staphylococcus* (62.5%); *Proteus* (15%); *Streptococcus* (10%); *E. coli* (7.5%); and *Pseudomonas* (5%) were isolated. BSF chitosan and BSF fat exhibited antibacterial activity against most of the bacteria but had varying zones of inhibition. BSF oil showed very low antimicrobial activity. *Pseudomonas*, which showed resistance to the positive control (Gentamicin), was highly inhibited by BSF chitosan ( $15 \pm 4.24b$ ,  $p < 0.05$ ). During the 3rd day of wound healing, 55.55% (6/11) of wounds treated with BSF chitosan, 72.73% (8/11) of wounds treated with BSF Fat and 81.82% (9/11) of control wounds had formed granulation tissue. The percentage wound contraction was significantly different ( $p < 0.05$ ) between the test groups from day 17 to day 32. The BSF Fat treatment group generally exhibited the highest wound contraction percentages (98.86% wound contraction at Day 32) and was significantly different from the BSF Chitosan and Control groups ( $p < 0.001$ ).

**Conclusion:** These findings suggest the potential of BSF extracts, particularly BSF chitosan and Fat in antimicrobial growth inhibition and wound management.

**Keywords:** Black soldier fly (BSF), Wound management, Granulation tissue, Antimicrobial activity, Wound contraction.

# Knowledge, Attitudes and Practices on Animal Health and Antimicrobial Use among Smallholder Pig Producers from Nine (9) Counties of Kenya – (12:00 PM – 12:15 PM)

Victor Yamo<sup>1\*</sup>, Patrick Muinde<sup>2</sup>, Beryl Okumu<sup>2</sup>, Joseph Ogola<sup>3</sup>, Jack Omolo<sup>4</sup>, Paul Ayieko<sup>5</sup>, Khadija Chepkorir<sup>6</sup> and Joshua Onono<sup>7</sup>

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**Background:** Reducing antibiotic use on farm animals is a key node for controlling the rise of resistant bacteria that are potentially hazardous to both animals and humans. As the world seeks alternatives to antimicrobials it is increasingly apparent that improving animal health and good antimicrobial use practices should have significant impact in reduction of antimicrobial resistance. Therefore, exploring farmers' perceptions on animal health and antimicrobial use may provide important data that would aid in the planning and implementation of practices that ensure prudent antimicrobial use. This is a key intervention in reducing risks associated with emergence of antibiotic resistant pathogens at production level.

**Objective:** The main objective of the study was to determine the knowledge, attitudes and practices on animal health and antimicrobial use among smallholder pig producers in nine counties of Kenya.

**Methodology:** A cross sectional study using Participatory epidemiological techniques was undertaken across 9 counties namely Bungoma, Uasin Gishu, Nakuru, Kajiado, Muranga, Nairobi, Makueni, Mombasa and Kilifi counties.

**Results:** The Focus Group Discussions (FGD) across the 9 counties were attended by 134 participants, averaging of 14.9 participants per FGD. 65.7% of the participants were male. The participants had a mean of 4.8 years in pig production with an average of 26.5 pigs per participant. The participants from all counties identified "Lack of appetite / Not feeding" as the most common disease symptom followed by "Lethargy / Depression / Dullness" in 77.8% of the counties. Pneumonia was the most common disease in all counties (100%) but experienced by around 17% of the participants. This was followed by Diarrhea (55.5% of counties, 12% of participants). The most practiced disease control method was "Hygiene & Sanitation" (77.8% of counties) followed by Vaccination (66.7%), Movement restriction / quarantine (55.6%).

The most common veterinary drugs used included Dewormers (Albendazole, Piperazine and Levamisole) [88.9% of counties], Iron dextran (77.8%) and Ivermectin (66.7%). The most commonly used antibiotics included Penicillin + Streptomycin combination (Penstrep®) in 55.6% of counties and Oxytetracycline (Alamycin® and Adamycin®) in 55.6% of counties.

However, the participants indicated that they rarely used antibiotics on their farms while deworming was done every 3 months. In 66.7% of the counties the participants appreciated that an animal under treatment should not be consumed as meat. The participants had also experienced treatment failure which they attributed to Wrong Diagnosis (44.4%) and Drug Resistance (44.4%).

**Conclusion:** The participants had fairly good knowledge and understanding of animal health issues especially around disease control and use of antimicrobials. This knowledge was being utilized in the day to day practices that the producers were implementing in their production systems to control and manage disease outbreaks.

**Key words:** Animal Health, Antimicrobial Use, Smallholder Producers, Pigs

# Assessing the Ante-Mortem Diagnostic Potential of Nasal Planum Biopsies for Rabies Virus Antigen Detection in Dogs – (12:15 PM – 12:30 PM)

Dr. Eric Ogola, BVM, MPH, CASMI Fellow

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Rabies, a fatal zoonotic disease caused by *Lyssavirus rabies* (RABV), remains a critical public health challenge, with dogs serving as the primary reservoir in endemic regions. Current ante-mortem diagnostic methods in dogs—such as PCR on saliva or nuchal skin biopsies—face limitations, including intermittent viral shedding, invasiveness, and variable sensitivity. This presentation proposes nasal planum biopsies as a novel, minimally invasive approach for RABV antigen detection, leveraging immunohistochemical (IHC) techniques to improve diagnostic accuracy and inform timely interventions.

Aligned with the conference theme “Animal Health Takes a Team,” this multidisciplinary study integrates veterinary pathology, virology, and biomarker research to address gaps in rabies diagnostics. The protocol involves collection of nasal planum biopsies from three canine cohorts: rabies-confirmed, rabies-suspect (*Lyssavirus*-negative), and non-rabies control dogs. Tissue sections undergo antigen retrieval and IHC staining using an anti-RABV nucleoprotein antibody, visualized via the EnVision® detection system. Results are compared to gold-standard postmortem tests (DFAT, PCR) to evaluate sensitivity and specificity. The rationale for targeting nasal planum biopsies stems from the region’s dense innervation, which may harbor viral antigen during neuroinvasion. This method could complement existing ante-mortem diagnostic strategies, including the use of neuronal biomarkers. The study also emphasizes collaborative frameworks for sample collection, ethical euthanasia practices, and data sharing to optimize One Health outcomes.

Expected outcomes include validation of nasal planum biopsies as a reliable ante-mortem diagnostic tool, reducing reliance on high-risk brain tissue sampling. This work aims to support therapeutic development and refine post-exposure management protocols. The findings will underscore the critical role of interdisciplinary collaboration in combating rabies, in alignment with global efforts to achieve zero human deaths from dog-mediated rabies by 2030.

**Keywords:** Rabies diagnostics, Nasal planum biopsy, Neurodegeneration biomarkers, Neuroinflammation, One Health

## 2 Session 2: Zoonotic Diseases, One Health, and AMR (Breakout Room 1)

### Prevalence and Genetic Diversity of *Echinococcus granulosus sensu lato* Isolated from Livestock in Narok County, Kenya – (2:00 PM – 2:15 PM)

Lucy Gitau<sup>1, 2</sup>, Cecilia Mbae<sup>1</sup>, Timoleon Tchouinkam<sup>2</sup>, Eberhard Zeyhle<sup>3</sup>, Erastus Mulinge<sup>1</sup>, Zipporah Gitau<sup>1</sup>, Brian Silantoi<sup>1</sup>, Japhet Magambo<sup>3</sup>, Peter Kern<sup>4</sup>, Thomas Romig<sup>5</sup>, Marion Wassermann<sup>5</sup>

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**Background:** Cystic Echinococcosis (CE), is an endemic parasitic zoonosis of public health and economic concern in Africa. Molecular survey of CE has the potential to yield baseline information on the infective genotypes among the intermediate hosts, aiding in the development of effective control strategies. In Narok County, Kenya, data on CE prevalence in livestock and the role of *Echinococcus granulosus sensu lato* species/genotypes in transmission is lacking. This study aimed to determine the prevalence and genetic diversity of *E. granulosus s. l.* in livestock in the County.

**Methods:** A total of 1892 livestock (668 cattle, 592 sheep, and 632 goats) slaughtered at Narok and Ewaso Ng'iro abattoirs were examined for the presence of CE in various organs. Cyst isolates were genotyped by Polymerase chain reaction-restriction fragment length polymorphism and sequencing of the NADH dehydrogenase subunit 1 gene.

**Results:** The overall prevalence of CE was 28.75% (544/1892), with 16.77% (106/632) in goats, 31.93% (189/592) in sheep, and 37.27% (249/668) in cattle. Out of the 1827 cysts isolated, 838 (45.82%) were from liver, 964 (52.76%) from lungs, 11 (0.60%) from spleen, 2 (0.11%) from the mesentery and 12 (0.66%) from the heart. A total of 848 cysts were successfully characterised as *E. granulosus sensu stricto* 839 (98.94%), *E. canadensis* (G6/7) 1 (0.12%), and *E. ortleppi* 8 (0.94%).

**Conclusion:** CE is endemic in Narok County with higher prevalence than other counties in Kenya. *E. granulosus s. s.* is the dominant species of CE cases. Studies on the role of dogs and wildlife in the transmission of CE in Narok County are recommended to understand fully the epidemiology of CE in this county

**Keywords:** Cystic Echinococcosis, *Echinococcus granulosus sensu lato*, Livestock, Narok County, Kenya.

# Ngari Virus in Humans and Livestock in Arid and Semi-Arid Ecologies in Kenya – (2:15 PM – 2:30 PM)

<sup>1,2</sup>Wahome M. W., <sup>3</sup>Slothouwer I., <sup>3</sup>Muthoni J.J., <sup>1</sup>Cherop F., <sup>1</sup>Tchouassi D. P., <sup>4</sup>Venter M., <sup>2</sup>Junglen S\*, <sup>1</sup>Sang R\*.

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**Background:** Ngari virus (NRIV) is an emerging, mosquito-borne, zoonotic reassortant orthobunyavirus. It has been associated with severe hemorrhagic fever in humans and domestic ruminants. NRIV represents a critical burden to human and animal health, especially in East and West Africa, where limited diagnostic and surveillance tools are available. The disease's burden is underreported and occasionally identified during Rift Valley Fever virus (RVF) outbreaks. There is also limited understanding of how the virus persists between outbreaks and its ecology in Kenya.

**Objective:** This study sought to determine NRIV circulation in humans and livestock in Kenya's selected pastoral arid and semi-arid ecosystems where RVF outbreaks are often reported.

**Methods:** A cross-sectional study was conducted from 2022 to 2024 in pastoralist-dominated arid and semi-arid ecologies in Marigat, Baringo County and Nguruman, Kajiado County. Syndromic and non-syndromic (livestock) cattle, sheep, goats and hospital-based human patients were recruited. Blood sample was obtained for serum harvesting. Serum was used for viral isolation using cell culture, antibody detection by plaque reduction neutralization test and molecular detection and characterization using reverse transcriptase polymerase chain reaction.

**Results:** NRIV was isolated and detected in one lethargic bull with pale mucous membrane and body temperature of 39.80C and in a non-syndromic cow respectively. Phylogenetic analysis showed a 98% similarity to NRIV detected in the 2022 Omoga study, sampled in similar areas. NRIV neutralizing antibody were detected in 34% (142/418), 33.3% (61/204), 35% (64/183) and 31% (47/150) humans, cattle, sheep and goats, respectively. All detected NRIV antibodies in humans were from febrile patients.

## Conclusion

Our study shows that NRIV is circulating in humans and livestock, indicating potential zoonosis in arid and semi-arid Kenyan ecologies. The key findings are crucial for the guidance and implementation of One Health control and preventive measures for NRIV outbreaks.

## Keywords

Ngari virus, Hemorrhagic fever, Humans, Livestock, Kenya.

# Sero-Epidemiology of *Coxiella burnetii* in Livestock and Humans in Isiolo County, Kenya – (2:30 PM – 2:45 PM)

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**Background:** *Coxiella burnetii*, the causative agent of Q fever, is a globally distributed pathogen with significant zoonotic and economic impacts, particularly in regions where humans and livestock interact closely. Although endemic in many countries, including Kenya, comprehensive epidemiological data on the pathogen are limited. To address this gap, we conducted a linked study of human and livestock populations in Garbatulla, Isiolo County, between July and August 2021 to assess seroprevalence and identify potential predictors of *C. burnetii* exposure.

**Methods:** We used a cross-sectional design with multistage sampling. Blood and serum samples were collected from 2,157 livestock and 683 humans that were recruited from 242 households. Additional data on herd/household and subject characteristics were collected using a structured questionnaire. Indirect enzyme-linked immunosorbent assay (ELISA) was used to test the serum samples for antibodies against *C. burnetii*. Univariable and multivariable analyses identified potential predictors of exposure in both livestock and humans.

**Results:** The overall seroprevalence of *C. burnetii* was 47.9% in livestock and 44.7% in humans. In livestock, significant variation in seroprevalence was found by species ( $p < 0.001$ ). Goats were found to have significantly higher odds of being exposed to *C. burnetii* compared to cattle, sheep, and camels. Both weaners and young animals had significantly lower odds of exposure compared to adults. In humans, the odds of *C. burnetii* exposure were lower among females compared to males. Herd seropositivity was also an important predictor of humans' exposure to *C. burnetii*.

## Conclusions

This study provides evidence of high seroprevalence of *C. burnetii* in both livestock and humans, highlighting the need for active surveillance programs targeting both populations. These programs should focus on identifying active shedding and implementing targeted control measures to mitigate the public health risks associated with *C. burnetii*.

## Keywords

Herd seropositivity, Predictors, *Coxiella burnetii*, Seroprevalence and exposure.

# 3 Session 3: Disease Surveillance and Epidemiological Research (Breakout Room 2)

## Role of Veterinarians in Aquatic Animal Health in Kenya – (2:00 PM – 2:15 PM)

Joseph Wairia<sup>1</sup>\*, Robert M. Waruiru<sup>2</sup>, Finnan O. Ageng'o<sup>3</sup>, Daniel W. Wanja<sup>4</sup>, Isaac R. Mulei<sup>2</sup>, Philip N. Nyaga<sup>2</sup> and Paul G. Mbuthia<sup>2</sup>

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Kenya's aquaculture is rapidly expanding due to the increasing demand for fish, driven by population growth and heightened consumer awareness of healthy food choices. Veterinary education globally incorporates the specialization of aquatic animal health (AAH) into curricula. Unlike terrestrial animal health, AAH presents unique challenges, requiring veterinarians to apply expertise in food safety, epidemiology, pathology, pharmacology, and health management. Despite the growing aquaculture sector in Kenya, veterinary participation in AAH remains inadequate in both public and private sectors. The emergence of aquatic animal diseases (AADs) poses a significant challenge, as primarily focus is terrestrial AH. Intensification of aquaculture, including cage farming and recirculating aquaculture systems, is increasing to meet local and international trade demands for fish, brood stock, and aquatic genetic materials. The emergence of new AADs is a persistent challenge in the global aquaculture industry. Key factors for effective disease response include early detection, industry cooperation, diagnostic capabilities, and rapid intervention. This requires collaboration between veterinary and fisheries authorities.

Veterinarians play a crucial role in AAH by developing and enforcing biosecurity protocols to prevent disease introduction and spread, while offering treatment as needed. Surveillance and early intervention are critical in identifying and reporting notifiable, emerging, and re-emerging AADs to the Director of Veterinary Services and the World Organization for Animal Health.

Veterinarians contribute to research and training in AAH, focusing on disease diagnosis, epidemiology, and vaccine development. Their role extends to assessing the impact of AADs on human health regarding food safety and zoonotic diseases. Additional responsibilities include training stakeholders on best practices, participating in regulatory frameworks, advising on disease-resistant aquatic species selection, and maintaining ecological balance.

Kenyan veterinarians should assume a leading role in AAH while collaborating with other aquatic animal health professionals to enhance industry resilience and sustainability.

**Keywords:** Veterinarians, Disease, Pathogens, Aquatic Animal Health, Vaccine Development

## Pastoralists' utilization and preferences for stakeholders and methods in livestock disease reporting and response in northern Kenya: a participatory study – (2:15 PM – 2:30 PM)

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**Background:** Livestock disease surveillance is important in early detection and control of diseases. In resource constrained settings, the surveillance system relies heavily on the community to share information on livestock disease events for eventual response by the relevant stakeholders. This study aimed to characterize the passive surveillance system, documenting key reasons/criteria considered when reporting and responding to diseases.

**Methods:** The study was conducted in Marsabit county in Northern Kenya with pastoralists. Participatory epidemiology tools were used to profile the stakeholders and utilization of different methods with respective criteria for livestock disease reporting and response and further understand their utilization overtime.

**Results:** The disease reporting ecosystem in Marsabit was most influenced by livestock owners (median rank = 9), friends and traditional healers (median rank = 7) and Elders' council and Private AHWs (median rank = 6). Disease reporting was primarily through mobile phones (median rank = 4) with their usage increasing markedly between 2001 to 2024. Livestock disease response was most frequently offered by livestock owners, friends and agrovets/private practitioners, with median ranks of 9, 7 and 6, respectively. Pastoralists responded to disease events mostly by themselves, using synthetic drugs (median = 8) and this practice had increased overtime from before the 1980s to 2024. The pastoralists' decisions to report a disease event were largely influenced by accessibility of the stakeholder or method of reporting, perceived technical knowledge of the recipient, cost friendliness and affordability, while ability to provide quick response, credit facilities for services, having technical knowledge and affordability were important criteria for their choice in the process of disease response.

**Conclusions:** This study highlights the central role livestock owners play in disease reporting and response in underserved areas in pastoralist systems of northern Kenya, with a limited role played by the public/government animal health services providers. The results suggest that veterinary services delivery systems should be reviewed with input from community stakeholders to improve surveillance, disease reporting and response. This integration would enhance livestock disease surveillance and protect pastoralists' livelihoods.

**Key words:** Pastoral systems, Livestock, Participatory epidemiology, Disease surveillance

## Assessing Antibiotic Resistance in *Campylobacter* spp. Isolated from Slaughtered Livestock in Nairobi Metropolis – (2:30 PM – 2:45 PM)

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Thermophilic *Campylobacter* species have been recognized as a major cause of acute bacterial gastroenteritis in humans, being implicated for 400–500 million cases of diarrhea each year worldwide. Transmission of *Campylobacter* spp. to humans occurs mainly through the consumption of contaminated foods of animal origin, as well as through the ingestion of foods that are cross-contaminated by raw meat especially poultry, during food preparation. Severe and prolonged *Campylobacter* infections can occur, particularly in the young, elderly and in the immunocompromised warranting therapeutic intervention. However, *Campylobacter* is increasingly becoming resistant to the clinically important antibiotics raising a public health concern. This is further complicated by the fact that *Campylobacter* is zoonotic and is exposed to antibiotics used in both animal production and human medicine. This study aimed to isolate and identify *Campylobacter* species from intestinal swabs collected from different animal species to determine their prevalence and contribute to understanding the role of livestock in *Campylobacter* transmission. Samples were collected from cattle, sheep, goats, pigs and chicken between November 14th and December 9th 2024 and cultured for *Campylobacter* spp. which were identified by biochemical tests and gram staining. An antibiotic sensitivity test was performed using the Kirby-Bauer method according to the European Committee on Antimicrobial Susceptibility Testing (EUCAST, 2024). The results revealed that all isolates were resistant to tetracycline, with 29% resistant to gentamycin, and 57% resistant to kanamycin, chloramphenicol, and trimethoprim-sulfamethoxazole, respectively.

Antibiotic resistance development in *Campylobacter* poses a public health challenge as it is zoonotic and may cause great havoc to immunocompromised patients. There is a need for the implementation of strict measures in the use of antibiotics in livestock rearing to help curb the development and spread of antibiotic resistance.

### Key words

*Campylobacter*, Zoonosis, AMR, Livestock, Nairobi

Day 2: April 24, 2025

# 4

## Session 4: Zoonotic Diseases, One Health, and AMR

### The Burden of Brucellosis in Donkeys and its Implications for Public Health and Animal Welfare: A Systematic Review and Meta-Analysis – (9:00 AM – 9:15 AM)

James Mutiiria Kithuka<sup>1,3</sup>, Timothy Muthui Wachira<sup>1</sup>, Joshua Orungo Onono<sup>1</sup>, and Wyckliff Ngetich<sup>2</sup>

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**Background and Aim:** Brucellosis is a globally significant zoonotic disease affecting a wide range of wild and domestic animals, with implications for human and animal health. Despite donkeys' crucial roles in agriculture, transportation, and livelihoods, there is limited research on the burden of brucellosis in this species. This study systematically reviews the prevalence and role of donkeys as reservoirs for *Brucella* spp., providing insights into their public health implications.

**Materials and Methods:** Using the PRISMA guidelines, a systematic search of PubMed, Scopus, and Google Scholar was conducted for studies published from 1990 to May 2024. Out of 1159 retrieved articles, 20 met the inclusion criteria. Data on study design, location, diagnostic methods, and brucellosis prevalence were extracted and analyzed using R statistical software. Pooled prevalence and heterogeneity were calculated, and the Newcastle–Ottawa Scale was employed to assess study quality.

**Results:** The pooled prevalence of brucellosis in 6,785 donkeys across 20 studies was 10.23% (range: 0–63.7%), with the highest prevalence reported in Asia (26.80%). While 15% of studies suggested that donkeys act as reservoirs for *Brucella* spp., direct evidence linking donkeys to disease transmission remains scarce. The disease's impact on donkey reproduction, including abortion and infertility, is underexplored, highlighting a significant research gap.

**Conclusion:** Brucellosis in donkeys represents a notable zoonotic and occupational risk. The limited data from East Africa, despite its high donkey population, emphasize the need for comprehensive epidemiological studies. Findings underscore the importance of targeted interventions, including biosecurity, public education, and enhanced diagnostic approaches, to mitigate brucellosis' impact on donkey health and its broader public health implications.

**Keywords:** Brucellosis, Donkeys, Zoonosis, Public health, Systematic review  
Prevalence, Reservoir host, Meta-analysis

# One Health Investment Planning for Kenya: National Investment Planning and Leverage for the Implementation of OH-Informed Agrifood System Transformation – (9:15 AM – 9:30 AM)

Authors: Arithi Mutembei<sup>1</sup>, Barbara Haesler<sup>2</sup>, Eleanor Raj<sup>3</sup>, Khadijah Chepkorir<sup>4</sup>, Katrin Taylor<sup>2</sup>, Paola DiTimasso<sup>2</sup>, Fasina Folorunso<sup>2</sup>, Charles Bebay<sup>1</sup>.

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<sup>4</sup> Zoonotic Disease Unit, Directorate of Veterinary Services; Nairobi-Kenya

Corresponding author: Arithi Mutembei

**Background:** Application of One Health (OH) approach can transform agrifood systems and address health threats at the human-animal-plant-environment interface. In low- and middle-income countries (LMICs), challenges such as knowledge gaps, weak governance, and limited resources hinder the adoption and implementation of OH approach. However, anticipatory global efforts to prevent future pandemics have introduced new tools and funding opportunities, highlighting the need to strengthen One Health capabilities.

**Objectives:** The One Health Investment Planning for Kenya initiative aims to leverage One Health investments to transform agrifood systems

## Methods

The process follows a seven-step approach viz:

- 1) a review of national assessments (e.g., JEE, PVS, FSA) to identify gaps for One Health;
- 2) long- and shortlisting of opportunities through participatory workshops and online surveys;
- 3) scoping of investment landscapes;
- 4) prioritization of the shortlisted opportunities;
- 5) formation of technical working groups to draft proposals;
- 6) building economic cases through ( economic analyses: cost-benefit, cost-effectiveness assessments and return on investments analysis, etc.); and
- 7) Investment landscape analysis mapping.

The process concluded with a national investment forum to present robust investment cases to potential investors.

**Results:** The consultative process identified 43 potential One Health investment opportunities, narrowed to nine thematic areas, with five prioritized themes: One Health surveillance, laboratory infrastructure, workforce development, technology and innovation, and food safety. Stakeholders developed detailed, economically viable proposals, and investor landscaping identified potential funders. These proposals, presented at a national One Health investment dialogue, fostered new partnerships and secured funding commitments, with further follow-up with potential investors ongoing.

The results and the conclusion failed to highlight the OH-informed agrifood system transformation mention in the abstract title

**Conclusion:** Kenya's One Health investment planning process successfully leverages investments for comprehensive health system transformation. The approach realigns national needs with global strategies, offering innovative and scalable funding-attraction models for other regions.

**Key words:** One Health Approach, Investment Planning, Resource Allocation Stakeholder Engagement, Public Health Prioritization

# The Animal and the Environment: Major Drivers of the Rift Valley Fever Outbreak in Wajir County, January 2024 – (9:30 AM – 9:45 AM)

M. Matheka<sup>1,2\*</sup>, S. Okumu<sup>1</sup>, F. Odhiambo<sup>1</sup>, A. Mwatondo<sup>2</sup>, M. Muturi<sup>2</sup>, C. Okendo<sup>3</sup>

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**Background:** Rift Valley Fever is a significant zoonotic disease in Kenya due to its high morbidity and mortality rates, frequency, and socioeconomic impact. Major outbreak in 2006–2007 resulted in 340 human cases, 90 human fatalities, and economic losses. The investigation aimed to characterize animal cases, identify related environmental factors and institute control and prevention measures.

**Methods:** We investigated animals with RVF-like syndromes as reported by the area animal health practitioners in Eldas or Wajir West Sub-counties. The case definition was herd/flock presenting or with a history of mass abortions or deaths of young animals (< 3 months old) or haemorrhagic syndrome in individual animals within the herd from December 01, 2023. We reviewed meteorological reports, conducted environmental observation and laboratory diagnostics. A structured questionnaire was used to collect information. Data were extracted into an MS Excel for analysis.

**Results:** A total of 36 suspect herds/flocks were identified with a total of 83 animals line listed. Most cases were in Caprine at 75.9% (63/83) and those above one year at 97.6% (81/83). Eldas Ward most affected with 44.4% (16/36) of the cases. Management of sick animals mainly by farmers at 81.8% (26/32) with 9.4% (3/32) slaughtering for consumption. Abortus thrown to scavengers at 80.6%. Vaccination coverage low with 96.6% (31/32) having unvaccinated animals. RVF IgM positive samples on laboratory investigation. Peak rainfall in early November. Most cases along the water bodies and lagers. Increased mosquito population at 97% (31/32) with 37.5% (12/32) sleeping outside their home in the last 60 days.

**Conclusion:** The investigation highlighted the zoonotic nature of RVF, where close human-animal interactions, poor cultural practices and inadequate vaccination coincides with increased rainfall and vectors. Better cultural practices with implementation of prevention and control measures will help prevent similar outbreaks in future.

**Key words:** Disease, Mortality, Syndrome, Abortion, Prevention.

# 5 Session 5: Zoonotic Diseases, One Health, and AMR

## Knowledge, Attitude and Practices on Antimicrobial Use and Pig Welfare in Selected Farms in Nyeri, Kenya

Emma Mugo<sup>1</sup>, Joshua Onono<sup>1</sup>, Jackson Ombui<sup>1</sup>, Nduhiu Gitahi<sup>1</sup>, Patrick Muinde<sup>3</sup>, Maina Ngotho<sup>2</sup>

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Rampant overuse and misuse of antimicrobials in livestock production is a driver for occurrence of antimicrobial residues in foods of animal origin and emergence of antimicrobial resistance which is a public health concern. Yet, only a few studies have reported antimicrobial use in pigs within developing countries. The objective of this study was to investigate knowledge, attitude, and practices of pig farmers on antimicrobial use in pig and pig welfare in farms located in Nyeri, Kenya. A cross-sectional survey was conducted using a semi-structured questionnaire, administered to pig farmers. Data was collected on scale of production; types of feeds and modes of feeding pigs; pig breeds and breeding methods; methods of pig identification; sales of pig; antimicrobial use; access to animal health services; disposal of farm wastes and expired drugs; and pig farmer knowledge of fundamental freedoms of animal welfare. Data were collected from 100 pig farmers within the study area using Open data kit. The data was later downloaded into MS excel software for cleaning and coding. Analysis was done using R-statistical software. The findings revealed that sixty-five percent (65%) of respondents were categorized as small-scale farmers rearing less than 20 pigs per farm. About (52%) were directly involved in feeding pigs while (55%) had employees. Furthermore, (65%) were involved in sale of pigs and their products. About (48%) of pig farmers had participated in training activities on pig production. Materials used in floor pens for pig houses were made of concrete (73%), with (13%) being slatted floors. Moreover, (79%) of respondents reported to clean pig pens daily. The predominant breeds kept were Large White (92%), Duroc (20%), Landrace (6%) and Hampshire (4%). Natural mating (92%) was the main breeding method and the remainder used artificial insemination. The primary purposes of pig production were pork production (68%) and breeding (60%). About (86%) of pig farms relied on commercial feeds, but others supplemented pigs with vegetable and crop residues (29%), household wastes (28%), home-made feeds (5%), and brewers' waste (1%).

Approximately (71%) of replacement stock were from local breeders, and (16%) raised within farms. The primary factors influencing choice of breeding stock were pig genetics (68%), health status (55%), and market price (13%). Seventy-seven percent (77%) of respondents reported to have encountered a case of diarrhoea in their pigs. Nearly (95%) of dead pigs were buried, while a small proportion were used for human food in households or sold. Government veterinarians (37%) and private veterinarians (58%) were the primary providers of animal health services, and only (2%) of respondents' used laboratory services. Fifty percent (50%) of pig farmers administered veterinary drugs without veterinary prescription. These findings provide baseline practices in pig farms, with a focus on antimicrobial use and animal welfare. Findings from this study will be useful for shaping interventions and policies for the improvement of pig health and promotion of food security.

**Keywords:** pigs, knowledge, attitude, and practices (KAP), antimicrobial use (AMU), antimicrobial resistance (AMR),

# Strategies for the Prevention and Control of Zoonotic Diseases -A Zoonotic Disease Unit (ZDU) Case Study - (11:15 AM - 11:30 AM)

Khadija Chepkorir<sup>1,5</sup>, Mathew Muturi<sup>1,5</sup>, Athman Mwatondo<sup>2,5</sup>, Mathew Mutiiria<sup>2,5</sup>, Jane Akale<sup>3,5</sup>, Raphael Nyawa<sup>4,5</sup>

<sup>1</sup>State Department of Livestock Development, Directorate of Veterinary Services

<sup>2</sup>State Department of Public Health & Professional Standards, Directorate of Public Health

<sup>3</sup>State Department of Livestock Development, Directorate of Livestock Policy, Research & Regulations

<sup>4</sup>County government of Kwale, Department of Veterinary Services

<sup>5</sup>Zoonotic Disease Unit

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**Introduction:** The successful prevention and control of zoonotic diseases require a One Health approach, involving multisectoral collaboration among the human, animal, and environmental health sectors. The Zoonotic Disease Unit was established in 2012 as a collaborative platform shared between the human and animal health sectors. It serves as Kenya's One Health office and secretariat to the Zoonoses Technical Working Group (ZTWG). Here we aim to disseminate strategies that the ZDU has implemented for the prevention and control of zoonotic diseases.

**Methodology:** The One Health Strategic Plan for the prevention and control of zoonotic diseases (2021 – 2025) aims to reduce the burden of zoonotic diseases through a One Health approach. This is to be achieved through 3 objectives: 1) Strengthen Implementation of One Health Approach at National and County Levels; 2) Strengthen Prevention, Surveillance, Response and Control of Priority Zoonotic Diseases in both Humans and Animals; and 3) Promote Applied Research using the OH Approach.

**Results:** Key strategies implemented under objective 1 were strengthening OH Co-ordination Mechanisms in counties and workforce capacity building with the following key results: establishment of 19 (36%) County One Health Units, Rapid Response Teams (RRT), Joint Risk Assessment (JRA), Biorisk Management (BRM) and SIMEX trainings. RRT training was conducted in 10 high-risk counties, JRA (5 counties) and BRM training (5 counties). Key strategies in objective 2 include strengthening surveillance, preparedness and response to Zoonotic Disease Outbreaks, where Anthrax and Brucellosis Control strategies have been developed, with their surveillance and case management guidelines under development. In addition, simulation exercises have been conducted. A key strategy for Objective 3 is conducting Applied Research to Inform Evidence-Based Strategies and Policies on Priority zoonoses through collaboration with research institutions.

**Conclusion:** Strengthening the one health approach at the county level and workforce development was identified as critical in the prevention and control of zoonosis.

**Key words:** Zoonosis, One Health, Strategic plan, Workforce, Capacity building

## ZoNoH – Preventing Zoonoses in Kenya by Fostering Collaboration in the Food System – (11:30 AM – 11:45 AM)

Momanyi K<sup>2</sup>, Daburon A<sup>1</sup>, Steketee JS<sup>1</sup>, Barois ZO<sup>1</sup>, Otieno, KO<sup>1</sup>, Likoko E<sup>1</sup>, Arredondo M<sup>1</sup>, Wainaina G<sup>2</sup>, Andisi M<sup>2</sup>, Ndambi OA<sup>1</sup>, Monti G<sup>1</sup>

<sup>1</sup>Wageningen University & Research, Netherlands; <sup>2</sup>Transdisciplinary Consultants Ltd., Kenya

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**Background:** Kenya is experiencing a high prevalence of zoonoses that impact human and animal health and impose significant socio-economic burden. Despite the importance of One Health (OH), local-level operationalization and governance integration remain limited. Additionally, food system (FS) and social sciences remain underrepresented in OH research and operationalization.

**Objective:** The ZoNoH project aims to address these gaps by strengthening agency of County One Health Units (COHUs) in alignment with Kenya's National OH strategic plan.

**Methods:** ZoNoHSync is a replicable service developed to help COHUs manage zoonoses within local FSs. The service fosters OH-FS integration, improves shared understanding of zoonotic impacts and supports the co-creation of localized management strategies. ZoNoHSync has been developed through an iterative interdisciplinary process and involves: 1) prioritizing a zoonotic challenge, 2) analyzing its FS impact, 3) developing an action plan through workshops and research.

**Results:** ZoNoHSync was piloted with Kakamega COHU in 2024. Anthrax emerged as the priority zoonosis. A quick scan of the impact allowed to identify Ikolomani as a hotspot due to high morbidity and mortality. Stakeholders established a vision to “Transform Ikolomani into a model sub-county by eliminating anthrax for healthier, wealthier communities.” Three strategic pathways were jointly outlined to deliver the vision: (1) strengthening farmer and community engagement, (2) enhancing disease surveillance, and (3) increasing stakeholder involvement. Overall, the capability, opportunity and motivation of COHU members to adopt One Health increased. It also favored the condition to launch the Kakamega One Health Strategic Plan 2024-2029, and an interdepartmental MoU signed, marking a key step in coordinated zoonoses control.

**Conclusion:** ZoNoHSync is a replicable service for counties allowing them to maximize resource efficiency in OH implementation, contributing to the SDGs. The next phase explores funding opportunities to scale impact and to develop and mainstream practical OH solutions for decision-makers at all levels (local, sub-national, national and beyond).

**Key words:** One Health, Zoonotic Diseases, Food System, SDGs

# Microbial Contamination and Antibiotic Resistance in Winam Gulf: Assessing Bacterial Pathogens and Their Resistance Patterns in Lake Victoria, Kenya – (11:45 AM – 12:00 PM)

Authors: Kamundia Patrick<sup>1\*</sup>, Mbuthia Paul<sup>2</sup>, Njagi Lucy<sup>2</sup>, Bebora Lilly<sup>2</sup>, and Nyaga Phillip<sup>2</sup>

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**Background:** Background: The Winam Gulf of Lake Victoria, Kenya, is a vital water resource supporting millions of people through fishing, agriculture, and domestic use. However, increasing anthropogenic activities have raised concerns about water quality, particularly microbial contamination and antimicrobial resistance (AMR), posing significant public health risks.

**Objectives:** This study aimed to assess the microbiological quality of water in the Winam Gulf, focusing on bacterial load, pathogen prevalence, and antimicrobial resistance patterns, to inform water management and public health interventions.

**Methods:** A total of 86 water samples were collected from ten river estuaries, one effluent stream, and three fish landing sites across Kisumu and Homa Bay counties over five seasons. Bacterial isolation, identification, and antimicrobial susceptibility testing were conducted using standardized methods. Statistical analyses were performed to evaluate spatial and temporal variations in bacterial contamination.

**Results:** Significant spatial and temporal variations in bacterial loads were observed, with river estuaries consistently showing higher bacterial counts than landing sites, except during one dry season in Kisumu. Among 196 bacterial isolates, *Staphylococcus aureus* (19.4%) and *Escherichia coli* (11.2%) were predominant, with concerning detections of *E. coli* O157 (1.5%), *Vibrio parahaemolyticus* (5.1%), and *V. cholerae* (3.6%). Antimicrobial resistance analysis of 62 isolates revealed widespread resistance, particularly among *Pseudomonas* spp., which exhibited the highest Multiple Antibiotic Resistance (MAR) index of 0.667. Multiple drug resistance (resistance to  $\geq 50\%$  of tested antibiotics) was observed in *E. coli*, *Staph. aureus*, *Enterobacter* spp., and *Pseudomonas* spp.

**Conclusion:** The presence of pathogenic bacteria and high levels of antimicrobial resistance in the Winam Gulf highlight significant public health risks. These findings underscore the urgent need for comprehensive water quality management, improved sanitation infrastructure, and enhanced AMR surveillance to protect public health and preserve the ecological integrity of Lake Victoria.

**Keywords:** Water quality, Lake Victoria, Bacterial pathogens, antimicrobial resistance

# Aflatoxin Contamination of Maize from Small-Scale Farms Practicing Different Artisanal Control Methods in Kitui, Kenya – (12:00 PM – 12:15 PM)

Authors: Winfred Muthini Kyalo\*, Joshua Orungo Onono<sup>1</sup>, Jackson Nyarongi Ombui<sup>1</sup>, Peter Baaro Gathura<sup>1</sup>, Johnson Nduhiu Gitahi<sup>1</sup>, Penina Afwande Ateku<sup>1</sup>

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**Background:** Aflatoxin contamination of maize poses significant threat to food security and public health for households that depend on farming in developing countries.

**Objectives:** The objective of this study was to determine levels of total aflatoxins in maize from farms adopting different artisanal aflatoxin control methods.

**Methods:** A cross-sectional study was conducted in Kitui county with 315 maize farmers randomly sampled. A semi-structured questionnaire was used to collect data on artisanal aflatoxin control methods applied at farm level, and maize grains sampled from the same households for aflatoxin analysis. Total aflatoxins in maize were determined using competitive Enzyme Linked Immunosorbent Assay. Data were analyzed by computing descriptive statistical measures and binary logistic regression was used to determine relationship between levels of aflatoxin in maize and artisanal control methods applied in different farms.

**Results:** Of the 315 samples, 98% had detectable levels of aflatoxins with a mean total aflatoxin level of 12.86 µg/kg which was above the maximum tolerable limits. One-third of maize samples had aflatoxin levels exceeding set maximum limit, with maize samples from lowland areas having high proportions of aflatoxin-positive cases as compared to uplands. The highest level of total aflatoxins detected was 53.9 µg/kg and a minimum of 0.26 µg/kg. There was significant difference in total aflatoxin levels in maize obtained from farms which practiced minimum tillage compared to those practicing deep tillage ( $P = 0.015$ ). Drying maize on bare ground had a high likelihood of aflatoxin contamination than drying maize on tarpaulin ( $p = 0.005$ ).

**Conclusion:** Artisanal aflatoxin control technologies such as land tillage, types of platforms for drying maize and sources of maize seed significantly influenced level of aflatoxins in maize samples. We recommend targeted active surveillance for aflatoxins, continuous public education and adoption of farm level mitigation measures to reduce impact of aflatoxin contamination in farming communities.

**Key words:** aflatoxin; maize; small-scale farmers; artisanal aflatoxin control technologies.

Day 3: April 25, 2025

## 6 Session 6: Veterinary Policy, Regulation, Training, and Legislation

### Exploring the Effectiveness of Animation Training Videos for Competency-Based Learning – (8:00 AM – 8:15 AM)

Authors: Vincent Oloo<sup>1</sup>, Samantha Opere<sup>1</sup>, James Kithuka<sup>1</sup>,

<sup>1</sup>Brooke East Africa works to strengthening animal health systems through training and mentor-ship of veterinary professionals on competencies.

Corresponding author: Dr. Vincent Oloo

**Background.:** Brooke trains and mentors 120 Animal Health Practitioners,(AHPs) annually through Animal Health Mentorship Framework which has 5 competencies; Animal Welfare Advocate, Communicator, Veterinary Clinical Expert, Kit Content, and Clinical Governance. The results indicated that donkey handling, clinical examination, IV and IM drug administration continue to perform poorly. To ameliorate this, Brooke developed an audio-visual training tool.

**Objective:** To explore the effectiveness of animation as an audio-visual training tool on donkey handling and clinical skills.

**Methodology:** Brooke developed and explored the effectiveness of animation as an audio-visual training tool .4 storyboards and videos were developed. Two cohorts (treatment and control) of 10 each in two project geographical areas in Kenya were selected and baseline done. Only the treatment group received the videos for four weeks. Endline data was collected from both the treatment and control groups.

**Results:** Exposure to the videos resulted in improved restraint during treatment. At baseline, 13% of treatment AHPs had a halter, this increased to 59%. At baseline 42% of treatment AHPs would carry out system-by-system examination treatment; this increased to 75%. On intramuscular drug administration, at baseline 38% of treatment aspirated the syringe before starting to inject, this increased to 92%. On intravenous drug administration, at baseline 32% of treatment would correctly insert the needle in the vein, this increased to 75%. For the mentioned parameters, the results remained constant in the control group.

**Conclusion:** The use of animation in teaching AHPs is a a new concept that simulates ideal situations and safeguards animal welfare by replacing live animals for training that has negative effects on the animals. The videos provide AHPs with an easy-to-access reference, especially when their mentors are not reachable and can be used repeatedly

**Keywords:** Animation, animal welfare, competency, donkey

## Effectiveness of an Educational Program on the Level of Awareness of Rabies Disease among Primary School Learners in Machakos County, Kenya – (8:15 AM – 8:30 AM)

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Rabies is among the top five zoonotic diseases in Kenya causing about 523 deaths annually. Although school-based education programs have been proposed as effective for raising rabies awareness and reduce incidences, they are underutilized in Kenya. This study aimed at enhancing rabies awareness among primary school learners in Machakos County through training the learners on key concepts on rabies then assess their knowledge uptake.

This was a cross-sectional intervention study conducted in four pilot primary schools in Mwala Sub-County targeting grades 4 to 6. Baseline data on rabies knowledge and perceptions were collected using a pre-training questionnaire. Learners then received two 2-hour training sessions on rabies, followed by a post-training questionnaire two weeks later. A scoring system was used and the Student T-test used to assess the statistical significance of knowledge changes before and after training.

A total of 210 learners, 51.9%(109/210) females and 49.1%(101/210) males, participated in the study. Among the 210 learners, 95.3% from urban schools and 80.8% from rural schools had ever heard of rabies disease. Understanding of rabies transmission through dog-bites significantly improved ( $p < 0.001$ ). However, there was no statistical significant improvement in understanding of the cause of rabies ( $p=0.672$ ), with only 36.7%(77) correctly identifying it as caused by a virus. Awareness that rabies is zoonotic significantly increased ( $p=0.019$ ). Recognition of vaccination as a rabies prevention method and the number of learners who would seek hospital care after dog-bite increased significantly ( $p < 0.001$ ).

These finding highlights the significance of targeted educational efforts in increasing rabies awareness among vulnerable populations and the need for continued public health initiatives to reinforce these messages and address the misconceptions.

**Key words:** Rabies, education program, Primary school learners, knowledge

# Leveraging Social Media for Disease Surveillance: A Case Study of Professional Associations in Kenya – (8:30 AM – 8:45 AM)

Authors:

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Social media platforms have become essential tools for communication and exchange of information in the social ecosystem. Professional social media platforms have been used to exchange information, discuss emerging issues and for generating disease diagnosis and management. This study analysed the characteristics of posts shared in the professional medical associations in Kenya and generated descriptive and themes running across the posts. The objective was to categorize and quantify posts shared within the platforms into key themes: clinical photos, topical discussions and request for support: Assess the potential of social media as a tool for real-time disease surveillance and early detection and explore the development of an AI-driven application to mine, categorize, and analyse data shared in professional social media platforms. A desktop review of available analytic tools was carried out to identify their suitability. Messages from the social media platforms were exported and analysed using data management tools. Posts were categorized based on content themes and summaries generated. Image-based posts were assessed for their relevance in disease reporting and explored possibility of setting up a pathological image's repository. The analysis characterised the posts in terms of titles, frequency, times of the day week and month. Analysis resulted were presented as pie charts and graphs and were used to generate reports, discussions, recommendations and conclusions made.

The finding indicate that the social media platforms can be useful tool in early detection of diseases by competent authorities could consider enrolling their use in detection of emerging disease thus foregoing economic losses. The analysis provided opportunity to understand trends in information dissemination and explore the potential of automating disease surveillance at different epidemiological scale. Preliminary findings highlighted key trends in professional engagement within the group, the frequency of specific posts and the potential of platforms as disease surveillance tool.

The study provided insights into optimizing social media use in health management and flags the potential of AI to improved disease monitoring to enhance health and returns from animal resources. Further analyses of reports could be done including developing algorithms that can be useful in disease management.

**Keywords:** social media, analysis, disease surveillance, AI in health, professional platform

# Occupational Hazards and Mitigation Strategies for Veterinarians Handling Donkeys in Kenya – (8:45 AM – 9:00 AM)

Dr. J. M. Manani<sup>1</sup>, Dr. Kipyegon<sup>2</sup>

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Veterinarians face significant occupational hazards that may impact their health and wellbeing. This is especially true for veterinarians handling donkeys. This research aimed to identify and assess these hazards and propose mitigation strategies to enhance the occupational safety of veterinarians.

The study was conducted in 21 counties across Kenya where veterinarians actively handle donkeys in diverse settings. Data was collected through structured questionnaires which were filled in google forms. The questionnaires were designed to elicit information on specific hazards encountered by veterinarians.

The study, involving 52 veterinarians, revealed significant occupational hazards when handling donkeys, including frequent kicks (34.7%), occasional bites (1.9%), and psychological stress (30.8%). 47.1 % of respondents perceived a very high injury risk when handling donkeys as compared to other animals, with 51% citing donkey behaviour as a treatment complication. Safety measures taken included PPE, sedation, and proper restraint techniques. Training gaps were noted, with only 51% receiving hazard mitigation guidance. Emergency protocols emphasized wound management, anti-rabies vaccination and tetanus vaccination. Recommendations included standardized donkey-handling protocols, continuous safety training, client education and improved access to PPE and sedatives.

The results highlighted need for policy and practice reforms in Kenya's veterinary training institutions to mitigate risks. For example, PPE, crush restraints, proper haltering, and sedation when necessary, proved to be essential. Additionally, donkey behavior workshops, emergency response drills, and emergency plans such as First aid kits, rapid medical access, client compliance strategies are imperative.

The study lays a background for proactive strategies to not only protect the wellbeing of veterinarians but also contribute to the overall efficiency of donkey treatments, ensuring the delivery of optimal care while minimizing risks associated with this specific animal species. The findings can inform reviewing of the training curricula to ensure safety when handling donkeys and enhancing overall occupational safety.

**Keywords:** Occupational hazards, donkeys, training

## Breaking Barriers in Veterinary Medicine: Addressing Gender Bias in the Veterinary Profession – (9:00 AM – 9:15 AM)

DR. Marilyn Adalo-Karani

One of the seventeen Sustainable Development Goals is Gender Equality and Empowerment, which emphasizes the necessity for equal representation of all genders across various fields, including STEM disciplines such as veterinary medicine. To align with Goal 5 and in acknowledgment of the increasing participation of women in the veterinary profession, the Kenya Veterinary Association (KWVA), in partnership with the University of Minnesota, conducted research focusing on various aspects of gender equality within this sector. The aim was to correlate gender equality with improved veterinary service delivery.

The baseline study, executed by the Kenya Veterinary Association-Women's Branch in collaboration with the University of Minnesota, utilized a mixed-methods approach that included both an online survey and interviews. The findings revealed a significant presence of gender bias, with 71.8% of participants acknowledging its existence. Key contributors and underlying causes of this bias were identified as cultural norms and stereotypes, challenges related to work-life balance, discrimination and harassment, disparities in training, and a lack of mentorship and networking opportunities.

Gender biases adversely affect mental health and well-being, as well as the quality of veterinary service delivery. Addressing these biases within the veterinary profession in Kenya requires a comprehensive strategy that encompasses policy reforms, educational initiatives, and the development of supportive networks. By confronting these challenges, the profession can become more inclusive, allowing both men and women to equally contribute to advancing veterinary practice in Kenya, while simultaneously promoting the mental health and well-being of veterinarians and enhancing veterinary service delivery.

The objective of this paper is to elucidate the causes and impacts of gender biases, explore strategies for addressing these biases, and outline the benefits of achieving gender parity within the veterinary profession.

**Keywords:** Educational Disparities, Gender Bias, Gender Equality, Systemic Change, Mental Health and Wellbeing

## 7 Session 7: Animal Welfare, Ethics, and Community Engagement

### Impact of work type on prevalence of tracheal collapse and other related conditions in donkeys in Meru, Kenya. – (10:30 AM – 10:45 AM)

Martha Mellish, DVM, DACTI; Jennifer Burns, DVM, MSc, DABVP (Equine)<sup>1</sup>; Yvonne Elce, DVM, DACVS<sup>1</sup>; Anya Floyd, BSc, DVM<sup>1</sup>; Jason Stull, VMD, MPVM, PhD, DACVPM<sup>1</sup> and Josphat Matara BVM, MKVA<sup>2</sup>

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**Background:** In Kenya, working donkeys play a key role in the transportation sector and livelihood support to low- and middle-income earning communities. However, their welfare is often overlooked. In Meru county, it has been observed that poorly designed donkey carts and harnessing technique impact negatively on the welfare of these working donkeys. This is especially so in relation to the respiratory system function, respiratory diseases and injuries. The impact of poor carts and harnessing methods can be evaluated.

**Objective:** To establish the association between harnessing techniques, tracheal collapse and related respiratory conditions through endoscopic examination of cart and pack donkeys.

**Materials and methods:** Donkey owners presented their donkeys in routine volunteer health check clinics, randomized selection and endoscopic examination of 80 donkeys was performed and videos recorded. Evaluation of endoscopic videos were performed by reviewers blinded to the work type (cart vs. pack). Endoscopic and physical examination parameters evaluated were: tracheal collapse grade, tracheal ring abnormalities, resting heart and respiratory rates, skin lesions and skin hypertrophy

**Results:** Endoscopic examinations showed that: for pack donkeys; 4% had normal trachea, 50% had grade 1 tracheal collapse, 40% had grade 2 tracheal collapse, and 0 % had grade 3 tracheal collapse. For cart donkeys; 4% had normal trachea, 21% had grade 1 tracheal collapse, 40% had grade 2 tracheal collapse, and 40 % had grade 3 tracheal collapse.

Skin hypertrophy: for pack donkeys; 96% had no skin hypertrophy, while 4% had mild skin hypertrophy. For cart donkeys; 53% had no skin hypertrophy, 24% had mild skin hypertrophy, 16% had moderate skin hypertrophy, and 8% had severe skin hypertrophy. Age of donkeys, resting respiratory rate, and heart rate were not different between the cart and pack groups.

**Conclusions:** There was a strong association between tracheal collapse, tracheal ring abnormalities, skin hypertrophy, hairless areas and pulling carts.

**Key words:** Working donkeys, harnessing equipment, welfare, endoscopy, tracheal collapse.

## Welfare Challenges in Donkeys Working on Markets Adjacent to Mt. Elgon Sub County, Bungoma County – (10:45 AM – 11:00 AM)

Wechabe E. Emmanuel, Peter N. and Were B. Beatrice.

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Donkeys form an integral part of the transport system and livelihoods of the people living in Mt Elgon Sub County and its environs. This is attributed to their resilience and adaptability to harsh conditions in most parts of the world; their ability to penetrate narrow and rugged paths between farmlands to get farm produce to homesteads, roadside collection centers and markets. MT Elgon Sub County has a rugged terrain with poor road networks and some roads impassable by motorized means of transport during the rainy season. The donkeys become the only all-weather means of transport, but their welfare is not considered by the owners and users and the County Government. Four focus group discussions were held with 4 donkey owner and user groups in market centers (Namwela, Chebukwabi, Maeni and Kamukuywa) bordering Mt Elgon sub county. Each group comprised of 10-15 participants including donkey owners, users, handlers, chiefs and village administrators from the county government of Bungoma, and public and private animal health service providers. A participatory rural appraisal tool: If I were a donkey was used to guide the discussion. Most participants considered wounds 82%, overgrown hooves 78% and overloading 67%, overworking 60% as the greatest challenges facing donkeys transporting goods to markets. Other challenges among working donkeys on market centres included: underfeeding 30%, lack of water 25%, threats of road traffic accidents 15%, lack of shelter 15% and theft 5% as mentioned by the participants. Donkeys are important components of farm produce from the farms to market centers, yet their welfare is ignored by users and owners as well as local governments that collect revenue in form of cess. Welfare organizations, county veterinary and revenue departments and Policy makers should consider the welfare of donkeys beyond Mt. Elgon Sub County in Bungoma County.

**Keywords:** overgrown hooves, overloading, overworking, wounds

## Improving Donkey Welfare through Promotion of Sustainable Community Behavior Change, Enhancing Livelihood and Resilience in Machakos, Makueni and Kajiado Counties – (11:00 AM – 11:15 AM)

Barack Ougo

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In Machakos, Makueni and Kajiado Counties, donkeys play pivotal role in transportation of goods to various destinations, some in terrains inaccessible by motor vehicles. In these counties, donkeys are used by the most vulnerable communities, mostly women (83%) primarily to transport water and other goods (95%); ploughing (3%) and cultural events (2%). Baseline study conducted by INADES Formation Kenya in partnership with Brooke East Africa in 2020 highlighted community behaviour and cultural myths as primary contributing factor to donkey welfare issues (overloading, overworking, poor harnessing, wounds and limited access to veterinary services). The study informed development of the project titled “Enhancing donkey welfare for improved community resilience and sustainable livelihoods” with two objectives; Enhancing community resilience for sustainable livelihoods through promotion of donkey welfare and health, strengthening policy and legislation systems for sustainable animal welfare and protection against cruelty. The project undertakes capacity building on donkey welfare priority issues, mentors and link Animal healthcare Practitioners (AHPs) to donkey owners and influences policy actors to develop enabling equine environment. Using Knowledge, Attitude and Practice (KAP) analysis, Human Behavior Change (HBC) modules were developed . Seven Community Resource Persons (CRPs) were trained using the modules (workshop and field practical). They were facilitated to cascade the knowledge to 46 established donkey owners/ users groups under supervision; the 46 donkey owners/ users groups have 2,141 members (1428 women and 713 men) and own 4,652 donkeys. An assessment conducted in 2024 using Equine Welfare Owner Behavior (EWOB) tool noted that 1,713 out of 2,141 donkey owners had adopted compassionate donkey handling techniques, proper harnessing and loading, feeding and wound management. This represented 80% improvement from the 35% noted at baseline . In conclusion, community engagement proved vital in realizing greater impact on the welfare of the donkeys.

**Key words:** Donkey Welfare, Improved Community behavior

# Demystifying Pet Relocation: A Structured Guide to Safe and Stress-Free Global Companion Animal Travel – (11:15 AM – 11:30 AM)

Dr. Gabriel Ouma<sup>1</sup>

<sup>1</sup>Small Five VetClinic Ltd, Nairobi, Kenya

Corresponding author: Dr. Gabriel Ouma

**Introduction:** This presentation outlines a practical, experience-based framework for international pet relocation, developed through extensive case work at Small Five VetClinic Ltd. It underscores the veterinarian's vital role in ensuring regulatory compliance, animal welfare, and client satisfaction throughout the relocation process. Given the complexity of airline regulations, health requirements, and varying client expectations, veterinarians often serve as the primary advisors. The objective is to present a simplified, structured approach that emphasizes thorough planning, effective communication, and stepwise coordination—from initial consultation to successful delivery—ensuring safe, humane, and stress-free travel for companion animals.

**Methods and Materials:** The insights are based on over eight years of field cases handled by Small Five VetClinic Ltd. The core process components include client consultation and travel planning, accurate pet and crate measurements (IATA compliant), airline and route selection, preparation of veterinary and customs documents, crate labeling and safe handling, airwaybill generation and customs coordination, and real-time communication with all stakeholders.

**Results:** Consistent success was linked to early client engagement, correct crate sizing, complete documentation, and effective coordination with customs and airlines. Timely updates and proper preparation minimized delays and reduced pet and client stress.

**Discussion:** Veterinarians are key facilitators of safe animal transport. A multi-disciplinary approach combining clinical knowledge, logistics, and communication offers superior outcomes. The study confirms that proactive planning and transparency are central to success.

**Conclusion:** A clear, veterinarian-led process ensures safe, efficient, and humane pet relocations. Structured planning, communication, and adherence to global standards foster successful reunification of pets and their families.

**Key words:** IATA, IPATA Guidelines, KRA Cargo Manual, EACCMA (2004), USDA APHIS Pet Import Regulations

## Session 8: Animal Production and Herd Management

### The Nexus between Animal Welfare, Animal Health, Animal Production, and Community Engagement in Sustainable Development – (2:00 PM – 2:15 PM)

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The interconnectedness of animal welfare, health, production, and community engagement is fundamental to achieving sustainable development. This article explores these elements through the lenses of One Health and One Welfare, emphasizing the inseparable link between human, animal, and environmental well-being. Animal welfare forms the cornerstone of sustainable animal production, influencing productivity, food security, public health, and economic resilience. Poor welfare conditions compromise animal health, reduce productivity, and increase the risk of zoonotic disease transmission. Community engagement and ethical responsibility must be integrated into veterinary and animal production systems, while leveraging scientific innovation and traditional knowledge. By doing so, societies can build resilient food systems, protect biodiversity, and uphold the dignity and welfare of animals.

**Keywords:** Five Domains Model of Animal welfare, One Health, animal health, veterinary public health, sustainable livestock production, zoonoses, community-based animal management

## Integrating Genomic Technologies into Animal Health and Breeding – (2:15 PM – 2:30 PM)

Jackline Chepkoech<sup>1\*</sup>, Mercy Chepngetich<sup>1</sup>, Prof. Andrzej Kilian<sup>2</sup>, Dr. Kios David<sup>3</sup>

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Genomic technologies have proved to be the solution for advancement in animal health and production more so in disease detection and diagnostics as well as genomic evaluation in animal breeding and genetics. SEQART AFRICA, a private not-for-profit organization established as a partnership between Diversity Arrays Technology Pty Ltd (DART), an Australian genotyping and Information technology company and International Livestock Research Institute (ILRI) based in Nairobi, Kenya works with breeders and scientists towards improving the rate of genetic gains in crops and farm animals using molecular markers. The SEQART platform offers a wide range of services including DNA extraction, genotyping/sequencing, technical support, informatics analyses and support in capacity building for young researchers. The platform uses primarily a genotyping by sequencing (GBS) DArTseq™ technology, which provides rapid, high quality, highly scalable and affordable genome profiling, even from the most complex polyploid genomes. SEQART offers customized downstream data analysis, quality data output and permanent storage of data. SEQART has processed more than 100,000 samples from 80 different species of both crops and animals. These samples have come from African National and International Research Organizations, Private Companies, Private Agricultural Researchers and Academic Institutions. SEQART AFRICA is in the process of rolling out testing for haplotypes associated with infertility in cattle and genetic disorders to support the livestock industry. We are in the process of development and validation of SNP panel for genomic evaluation of the livestock to support animal breeding decisions. Genetic evaluation of livestock has been a challenge in Kenya due to poor record keeping by the farmers. Genomic evaluation therefor will revolutionize livestock breeding in Kenya and beyond. As a part of a growing DART Network SEQART is well positioned to deliver an expanded range of services in genomics and data management space in the future. SEQART AFRICA envisions a society with better crops and Livestock to meet the challenges of food insecurity and climate change.

**Keywords:** Genomic, Technologies, Genetic evaluation, Livestock, Molecular Markers

## Knowledge, Attitudes, and Practices on Animal Welfare among Smallholder Pig Producers from Nine (9) Counties of Kenya – (2:30 PM – 2:45 PM)

Victor Yamo<sup>1</sup>\* Patrick Muinde<sup>2</sup>, Beryl Okumu<sup>2</sup>, Joseph Ogola<sup>3</sup>, Jack Omolo<sup>4</sup>, Paul Ayieko<sup>5</sup>, Khadija Chepkorir<sup>6</sup> and Joshua Onono<sup>7</sup>

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**Background:** Reducing antibiotic use on farm animals is a key node for controlling the rise of resistant bacteria that have the potential to infect humans. As the world seeks for alternatives to antimicrobials it is increasingly becoming clear that improving animal production and animal welfare practices should have significant impact in reduction of antimicrobial resistance. Therefore, exploring farmers' perceptions on animal welfare can help provide critical data that will aid in the planning and implementation of practices that ensure high animal welfare standards are prioritized as a key intervention in reducing risks associated with emergence of antibiotic resistant pathogens at production level. High animal welfare standards mean ensuring animals' physical and mental well-being by meeting their needs for food, water, a comfortable environment, freedom from pain, disease and distress, and the ability to express natural behaviors.

**Objective:** The main objective of the study was to determine the knowledge, attitudes and practices on animal welfare among smallholder pig producers in nine counties of Kenya.

**Methodology:** A cross sectional study using participatory epidemiological techniques was undertaken across 9 counties namely Bungoma, Uasin Gishu, Nakuru, Kajiado, Muranga, Nairobi, Makueni, Mombasa and Kilifi counties. A Focus Group Discussion (FGD) was held in the subcounty with the largest number of pig producers within the county.

**Results:** The FGDs across the 9 counties were attended by 134 participants, averaging of 14.9 participants per FGD. 65.7% of the participants were male. The participants had a mean of 4.8 years in pig production with an average of 26.5 pigs per participant. The producers identified "Freedom from Hunger and Thirst" as the most important animal welfare objective followed by "Freedom from Pain, Injury and Disease." However, "Proper Housing" and "Proper and adequate feeding" were identified as the key husbandry activities to be undertaken by all (100%) of the producers if pigs were to have a good life. While "Underfeeding" (44.4%), "Feeding of Swill" (44.4%), "Free ranging" (44.4%), "Teeth clipping" (33.3%), "Tail docking" (33.3%) and "Poor housing" (33.3%) were identified as husbandry activities that negatively impact on pigs' welfare.

The commonly used feed sources included Swill (41%) and Commercial feeds (34%) while water was mostly from Boreholes (58%) and County Water Boards (40%).

**Conclusion:** Farmers seemed to be aware of the five fundamental freedoms of animal welfare with relatively good knowledge on its linkage to the productivity and health of their pigs. The knowledge did not seem to translate to practice due to poor attitudes and challenges in implementation of the welfare practices.

**Key words:** Animal Welfare, Smallholder Producers, Pigs

## Poster Presentations (Day 1 & 2)

### The AMR Drug Box: An Innovative Approach to Antibiotic Disposal

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**Background:** Antimicrobial resistance (AMR) is a serious threat to public health worldwide, necessitating quick action to spread information and encourage behavior modification. Improper disposal of antimicrobials leads to environmental contamination and promotes antimicrobial resistance (AMR). Residual antimicrobial expose microbes to sub-therapeutic levels, fostering resistance.

**Objective:** This project aimed to reduce antibiotic contamination by promoting safe disposal practices in clinical and community settings.

**Methodology:** The AMR Drug Box integrated a secure, well labeled, color-coded drug disposal containers with educational materials on pharmaceutical pollutants. It guided clients and veterinary professionals on proper disposal practices, minimizing water and soil contamination. The project took place in phases with first spreading awareness about what Antimicrobial Resistance is and how to properly use the AMR Drug disposal boxes. After the disposal boxes were installed in strategic places in the university. Data was collected through surveys at Egerton University, assessing knowledge and behavior before and after exposure to the AMR Drug Box.

**Results:** The pilot at Egerton University increased student awareness and engagement. Participants reported a better understanding of AMR risks linked to improper disposal, with improved adoption of safe disposal practices.

**Conclusion:** The AMR Drug Box effectively raised awareness, promoted safer antibiotic disposal, reducing environmental contamination from both drugs used in animal and human promoting One health. Future plans include expanding to medical and veterinary facilities, with long-term monitoring to assess its impact on reducing antibiotic residues and resistant infections.

**Keywords:** Antimicrobial Resistance, disposal boxes.

# Find My Vet: Enhancing Access to Veterinary Services through a Mobile Application

Bramwel Mitey<sup>1</sup>, Collins Kiprotich Koech<sup>1\*</sup> and Charles Wasike<sup>1</sup>

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**Background:** Access to timely and professional veterinary services remains a challenge for many animal owners in Kenya, especially in rural and underserved areas. The growing need for a reliable and accessible platform to connect animal owners with veterinary professionals inspired the development of a mobile-based solution.

**Objectives:** The project aims to improve the accessibility of veterinary services by leveraging technology to create a user-friendly mobile application—Find My Vet—that connects animal owners to verified veterinary professionals across Kenya.

**Methods:** Developed by a team of 4th-year veterinary medicine students, Find My Vet integrates geolocation features, an appointment scheduling system, and an emergency response module. The application is built with a secure backend and an intuitive user interface. Partnerships with the Kenya Veterinary Board (KVB) and the Kenya Veterinary Association (KVA) are being sought to incorporate a verified database of registered practitioners.

**Results:** The application prototype has been completed, with core features such as location-based vet search, booking capabilities, and emergency alerts already functional. Preliminary testing indicates positive reception from both veterinary professionals and animal owners, suggesting strong potential for large-scale adoption.

**Conclusion:** Find My Vet offers a promising solution to the challenge of accessing veterinary care in Kenya. By leveraging mobile technology, it promotes animal health, supports professional veterinary practice, and strengthens the bond between vets and the communities they serve.

**Keywords:** Veterinary services, Mobile application, Animal health, Accessibility and Digital innovation

# Awareness of Diagnostic Capacity in the Directorate of Veterinary Services, National Veterinary Reference Laboratories, Kabete

Dr Mercy Murigu<sup>1</sup>, Dr Romona Ndanyi<sup>1</sup>, Dr Abraham Sangula<sup>1</sup> and Dr. Allan Azegele<sup>1</sup>.

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The Directorate of Veterinary Services under the Ministry of Agriculture and Livestock Development, State Department for Livestock is mandated to safeguard animal and human health, improve animal welfare, increase animal resource productivity and ensure safe and high-quality animals and their products to facilitate food security and domestic and international trade. It comprises 5 divisions with diagnostic as one of them and National Veterinary Reference Laboratories, Kabete serves the whole country as well as some neighbouring countries. The diagnostic facilities carry out diagnosis and screening of diseases, trade certification and export, Antimicrobial Resistance, disease surveillance, monitoring of residues and contaminants in animal products, quality assurance of production inputs: vaccines, medicines and acaricide and research. It received ISO/IEC 17025:2017 accreditation after meeting international standards for competence with support from FAO and USAID. It is composed of 8 laboratories (TRF, Pathology, Bacteriology, Virology, Molecular, Acarology and Analytical Chemistry & Food Safety). TRF is the main reception where all samples are received, registered and distributed to the relevant testing laboratories. Post-mortem is conducted for the submitted carcasses. Other tests conducted in various laboratories include routine culture, identification and antimicrobial tests for various organisms, Complement Fixation Test, Rose Bengal Plate test, Milk Ring test, ELISA, and real-time and conventional PCR for various diseases. Dip strength analysis, toxicology, detection of aflatoxins in animal feeds, quality controls of acaricides and veterinary drugs, residue analysis of heavy metals, veterinary drugs, and pesticides, ticks and mites identification, acaricide resistance & susceptibility tests, efficacy field trials of new acaricides and dip stability trials. By conducting thorough investigations and research, the laboratory contributes significantly to the understanding of animal health issues, which is essential for improving livestock productivity and ensuring food security in Kenya.

Keywords: Reference Laboratory, Veterinary, diagnosis, tests, surveillance

# Role of surveillance systems in Detection, Confirmation and Response to the Rift Valley Fever outbreak in Marsabit County, January 2024

M. Matheka<sup>1,2\*</sup>, S. Olubulyera<sup>1</sup>, G. Gakuo<sup>1</sup>, F. Odhiambo<sup>1</sup>, C. Ndeta<sup>1</sup>, J. Omolo<sup>1</sup>, A. Abade<sup>1</sup>, M. Muturi<sup>2</sup>, P. Munyua<sup>3</sup>, H. Jonas<sup>3</sup>, H. Abubakar<sup>3</sup>.

<sup>1</sup>Field Epidemiology and Laboratory Training Program, <sup>2</sup>Zoonotic Disease Unit – Ministry of Health, <sup>3</sup>Centre for Disease Control (CDC).

**Background:** In January 09, 2024, a 38-year-old female presented with fever (38.7°C) for 5 days at the out-patient section of the County Referral Hospital. She did not have any localized signs of infection. An on-site malaria Rapid Diagnostic Test was negative. She was then enrolled as a suspect for Rift Valley Fever (RVF) for further testing through the Acute Febrile Illness (AFI) surveillance system. Animal abortions were also been reported through the Kenya Animal Bio-surveillance System (KABS).

**Methods:** We conducted retrospective record review at the Marsabit Referral Hospital for cases presenting with mainly fever (with or without headache, muscle pains and fatigue), contact tracing and active case search at the community level. We also reviewed data collected through the KABS from October 2023 with active case search for animal cases presenting with RVF-like syndromes. Human and animal samples were collected for laboratory confirmation.

**Results:** The index case tested positive for RVF triggering response One Health teams. A total of 82 cases were enrolled with history of fever (100%). Five (5) human samples were confirmed for RVF on TAC-PCR translating to a positivity rate of 6.1% (5/82). All the confirmed cases linked to affected herds/flocks with 72% (59/82) handling aborted animals. Peak abortions in early January 2024 with 68 events reported via KABS. Moyale Sub county more affected among camels, sheep and goats at 91.7%, 76.3% and 89.1% respectively. Three (3) animal samples confirmed for RVF on PCR.

**Conclusion:** Were it not for the Acute Febrile Illness (AFI), the Enhanced Syndromic Surveillance and the Kenya Animal Bio-surveillance systems, this outbreak could have been missed, leading to further spread and possibly causing mortalities and huge economic losses. Continued use of the surveillance systems with regular review of trends of RVF-like signs and syndromes will ensure early detection and response in future outbreaks.

**Key words:** Fever, Infection, Surveillance, Abortion, Trends.

# Reducing Mastitis Incidence and Improving Antibiotic Stewardship in Kenyan Smallholder Dairy Systems

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**Background:** Bovine mastitis causes a significant economic burden on global dairy production. This disease is responsible for reduced milk production, poor milk quality, and over 80% of antimicrobials used in dairy cows. It remains a major challenge, compromising animal welfare, increasing veterinary costs, and reducing farm profitability especially in small holder settings such as Kenya. Lack of standardized contextualized mastitis control program in Kenya inhibits its proper management, control and prevention.

**Objective:** This project aims to develop and test a feasible and scalable clinical and subclinical mastitis control program to reduce mastitis incidence and antimicrobial use on smallholder dairy farms in Kenya

**Methods:** The study will be carried out in Nyeri county, Kenya. To achieve our objectives, we will address the challenge using a three-pronged approach:

1. **Situational analysis – Socio-economic and behavioural contextual factors influencing mastitis prevalence and Antimicrobial use (AMU) among dairy farmers, AHPs (animal health practitioners) and dairy cooperatives.**
2. **Intervention – Co-development and testing of contextualized intervention modules for farmers, dairy cooperatives and AHPs.**
3. **Scaling and sustainability – Developing an economic case for mastitis control including a National Mastitis Control Strategy.**

Our project will combine epidemiological approaches, behavioural science, animal health and economic modelling within an implementation science framework to achieve the objectives.

**Expected results:** A win-win outcome: Farmers (higher yields); AHPs (improved animal health); Dairy Cooperatives (increased profits); Public Health (Food security and safety)

**Key words:** Mastitis, AMR, AMU, antimicrobial stewardship, National Mastitis Control Strategy.

# Empowering Communities through One Health: A Training of Trainers Approach

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**Background:** One Health (OH) is a collaborative approach recognizing the interconnectedness of human, animal, and environmental health. In Meru County, Kenya, zoonotic diseases such as rabies and anthrax pose public health risks. To address this, a Training of Trainers (ToT) program was implemented, targeting teachers and community leaders to enhance OH awareness and promote safer human-animal-environment interactions through the Safety Around Animals lesson plan. This initiative introduced case-based learning for teachers and empowered community leaders to champion OH initiatives locally.

**Methods:** Participants were selected through purposive sampling, in collaboration with local education and community-based organizations. The initiative introduced case-based learning for teachers, to integrate OH topics into school curricula at primary and secondary levels while empowering community leaders to champion OH initiatives. The ToT sessions included interactive modules on zoonotic disease prevention, food safety, safe animal handling, and environmental health. Pre- and post-training assessments were developed using multiple-choice aligned with the OH competencies taught to the teachers. For qualitative, teachers submitted written case studies, which were reviewed for relevance, accuracy, and integration of OH principles.

**Results:** A total of 45 teachers and 24 community leaders were trained. Post-training assessments showed a significant improvement in OH awareness, with teachers' knowledge scores increasing from 57% to 91%. Teachers successfully developed case studies integrating OH principles and expressed confidence in incorporating these into their teaching. Community leaders identified priority zoonotic diseases and explored ways to engage their communities in OH initiatives. Both groups contributed to forming local OH awareness groups and integrating OH concepts into community education and school curricula.

**Conclusion:** The ToT approach proved effective in fostering OH awareness and community engagement. The program's success highlights the impact of participatory and case-based learning in driving OH integration and behavior change. Expanding similar initiatives can further strengthen community resilience against OH challenges, enhancing public health outcomes and promoting proactive disease prevention.

**Keywords:** OH, Training of Trainers, Zoonotic diseases, Community engagement, Education



*....improving the livelihoods of Kenyans*

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