

One Health approach to safety around animals: Train-the-teacher event in Mũkũrwe-inĩ Sub- county, Kenya



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International Livestock Research Institute

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Abbreviations and acronyms

ACP	African, Caribbean and Pacific
CIRAD	French agricultural research centre for international development
COHESA	Capacitating One Health in Eastern and Southern Africa
EU	European Union
ILRI	International Livestock Research Institute
ISAAA	International Service for the Acquisition of Agri-Biotech Applications
M&E	monitoring and evaluation
OACPS	Organization of African, Caribbean and Pacific States

Acknowledgements

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The workshop facilitator thanks the Mũkũrwe-inĩ Sub-County education director and primary and secondary school principals for their support in organizing the workshop as well as the University of Nairobi as the Capacitating One Health in Eastern and Southern Africa project partner institute in Kenya.

Finally, the workshop facilitator and author of the materials for the session acknowledges the Global Alliance for Rabies Control, Blue Cross for Pets, Manitoba Agriculture, the education committee of Farmers Helping Farmers (comprised, in part, of University of Prince Edward Island education faculty) and the primary school teachers in Mũkũrwe-inĩ who have all provided materials or contributed to the design of this workshop.

Background

‘Safety around animals’ is a teaching initiative aimed at promoting safer interactions between people and animals and to prevent zoonotic diseases (diseases that are transmissible between animals and people). It is also aimed at promoting the understanding of One Health (the interconnected nature of human, animal and environment health).

This work is part of a program that Shauna Richards, a post-doctoral fellow at the International Livestock Research Institute (ILRI), has been implementing at twinned primary schools in Mūkūrwe-inĩ Sub-county in Kenya, via the relationship built through Farmers Helping Farmers, a Canadian non-governmental organization registered in Prince Edward Island, Canada. The organization partners with Kenyan farmers and families and its education committee has been working with twinned Canadian and Kenyan schools since 2004.

The pilot of the ‘safety around animals’ teaching session was implemented in 2015, after which the program was expanded and refined. Since 2016, annual sessions with over 1700 students have been taught in nine primary schools.

In 2022, a one-day workshop was held for one science teacher from each of the 73 primary schools in Mūkūrwe-inĩ Sub-county so that they could learn to teach, lead and implement the program in their schools. Approval for this activity was obtained from the sub-county education director and curriculum officers through an in-person meeting. Mūkūrwe-inĩ Sub-county serves approximately 13,000 primary-age students (excludes pre-primary). The sub-county is in Nyeri County, southwest of the Mount Kenya highlands.

Farmers Helping Farmers has continued to support the program in 2023, with additional support from ILRI through the Capacitating One Health in Eastern and Southern Africa (COHESA) project. The COHESA project is funded by the European Commission OACPS Research and Innovation Programme and implemented by a consortium which includes ILRI, CIRAD (French agricultural research centre for international development) and the International Service for the Acquisition of Agri-Biotech Applications (ISAAA) AfriCenter, working through country multipliers.

In Kenya, the project partner is the University of Nairobi. The COHESA project aims to generate an inclusive research and innovation ecosystem for rapid uptake, adaptation and adoption of solutions to issues that require a One Health approach, with the One Health concept embedded across society in eastern and southern Africa, working for healthy people, animals and environment.

Objectives of the workshop

The workshop was convened to train secondary school teachers in Mükürwe-inĩ Sub-county on a One Health approach to safety around animals. The specific objectives were to

1. learn about One Health, with examples relevant to the sub-county/student education level, and how to integrate One Health into the secondary school curriculum; and
2. understand how safety around animals is related to One Health, with examples of prevention of zoonoses (with rabies as a specific example), prevention of injury from animals and improving animal welfare and the health of people and animals while considering environment health.

Summary of the workshop

The workshop was convened and opened by the sub-county director of education, John Ndundu. Robert Mugweru, the principal of secondary schools, and Lucy Wachira, the principal of primary schools, provided additional opening remarks. All spoke of the importance of the content of the workshop and the need to integrate the materials into the curriculum. Lucy Wachira spoke about the previous workshop held for primary school teachers last year and recalled its importance. A total of 35 secondary school teachers were invited to attend the workshop (one from each secondary school), and 28 attended. There are approximately 11,000 students in secondary schools in this sub-county in 2023.

The agenda of the workshop is provided in Annex 1 of this report. During the morning and early afternoon sessions, the workshop participants were taken through a presentation on a One Health approach to safety around animals. Technical content for the workshop objectives was covered during this time. Participants were given links to various online resources and a lesson plan to supplement their learning (see Annex 2) and links to One Health content from the Food and Agriculture Organization of the United Nations, Global Alliance for Rabies Control, the Kenya Medical Research Institute, the World Health Organization, the World Organisation for Animal Health and the Zoonotic Disease Unit in Kenya. During the lunch break, videos on One Health, rabies and zoonoses were played from the ILRI and ISAAA websites.

In addition to the technical delivery related to the workshop objectives, the participants were given a background on the contributing partners, the growing importance of One Health worldwide and potential career opportunities in the field of One Health for students in Kenya. Participants were advised of integration of the One Health approach through various examples (presentation and lesson plan) that they could use or expand upon in their normal curricula materials, in addition to giving the taught materials in a one-hour session.

In the afternoon, the participants were given case studies that students can use to apply their skills to One Health scenarios. These scenarios help to ensure students understand the resources and can apply them in real-life and complex settings. Teachers worked on these cases, presented their answers to the rest of the group and provided feedback on the cases, indicating their relevance to their existing curricula. Teachers were then given time to develop their own case studies within groups and included topics such as dog behaviour, risk of rabies, environmental contamination with cow manure and associated risks, and risk of

zoonoses from local livestock. Participants exchanged their cases with other groups for feedback on the style and presentation of the cases and how to improve them.

Robert Mugweru closed the workshop and expressed his appreciation for the session, noting that there were good opportunities to integrate the material into the secondary school curriculum. He also thanked the facilitator and the funders for their support.

Monitoring and evaluation

A questionnaire was administered on KoboCollect, an open-source Android application for collecting survey data, before the session began and upon its completion. Mentimeter was used to collect qualitative feedback at the start of the session to understand participants' initial thoughts on One Health (Figure 1) and gain insights into their expectations of the session (Figure 2).

Figure 1: Word cloud in response to the question 'What comes to mind when you hear One Health?'

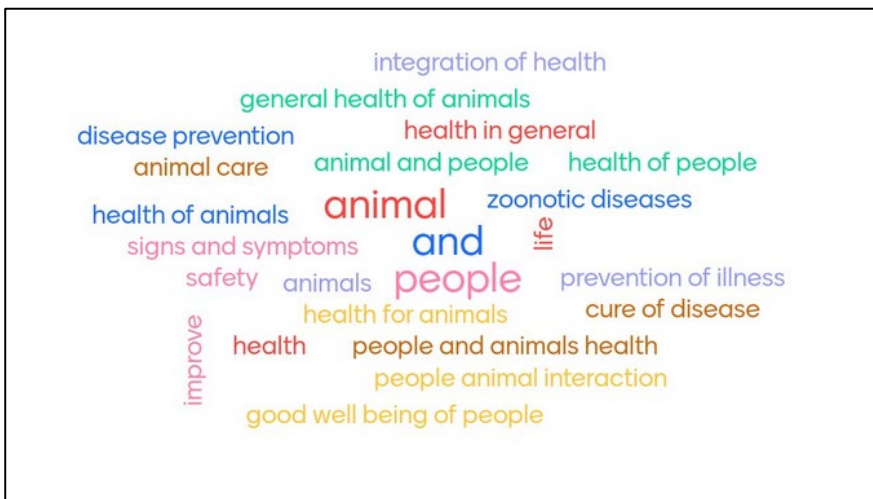
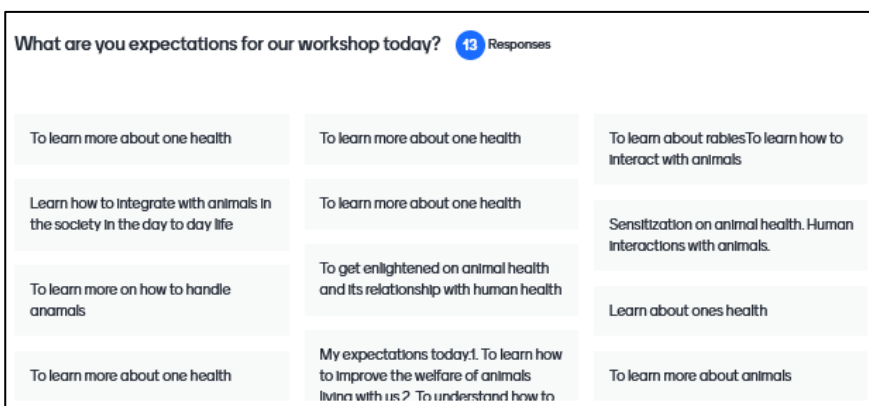


Figure 2: Participants' expectations of the workshop.



The initial questionnaire was answered by 13 participants, and the follow-up questionnaire by 27 participants. Lower numbers at the start were due to late arrivals. Over 66% of the participants were 25–35 years old, 48% were female and 52% male. Most (63%) of the participants had an undergraduate degree,

30% a diploma and 7% a master's degree. All taught at the secondary level and most were biology (52%) and mathematics (52%) teachers (respondents could indicate that they taught more than one subject). Other subjects taught included chemistry (37%), agriculture (30%), physics (26%) and Kenyan Sign Language (4%).

Prior to the session, 46% of participants indicated that they had a limited amount of knowledge on One Health, whereas after the session, 52% reported having a moderate amount of knowledge on One Health and 30% indicated they were experts. This was reflected in the question 'What is One Health?', where only 61% of respondents were correct before the session and 100% answered correctly after the session. Before the session, only about half (54%) of the participants were able to correctly define a zoonotic disease; this increased to 100% after the session.

Participants also improved their responses when indicating risk prevention methods for zoonoses in general and rabies specifically (risk of acquiring and symptoms). However, some participants still did not indicate every possible risk, so these were highlighted at the close of the session to ensure participants' understanding.

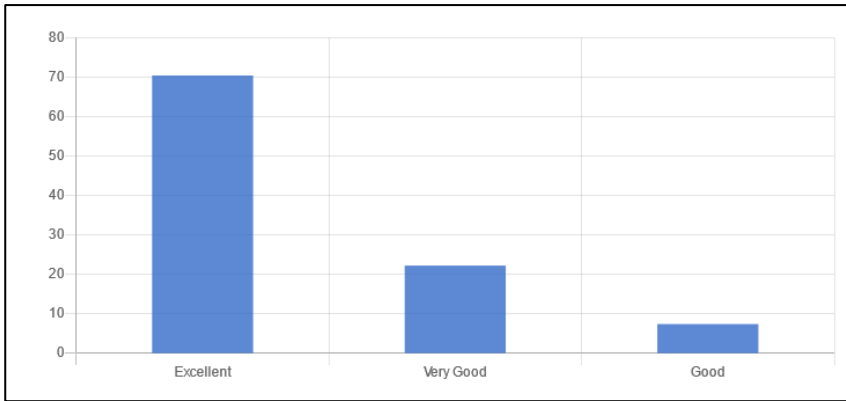
Participants were questioned on their knowledge of methods used to control rabies. Prior to the workshop, respondents were mainly aware of vaccination but following the session, they became aware of additional methods, such as, avoiding roaming/unowned dogs, preventing bites and keeping away from wildlife. Respondents also improved in responses regarding post-bite care. Prior to the workshop, most of the respondents indicated seeking medical care, but very few indicated the need to return for all treatments and wash the wound well with soap and water immediately after the bite occurs. Following the workshop, over 85% of participants indicated these additional post-bite measures.

With regard to animal behaviour, participants had limited awareness of why animals might injure people; respondents mainly indicated that animals would do this to protect themselves. After the workshop, participants recognized all possible reasons why animals might injure people. Overall knowledge on the technical aspects of the workshop improved to a level where participants could competently teach the material to students.

Feedback on the workshop was positive, with 70% of participants indicating the session was 'excellent' (Figure 3), which was supported by 92% of participants stating that the objectives were clearly presented, 85% indicating the workshop was very useful (15% indicated it was moderately useful) and 100% indicating that they would recommend the workshop to their colleagues.

Participants could provide open-ended responses on the most important aspects taught in the workshop, and these included comments such as One Health, rabies prevention, handling animals safely, zoonoses prevention, bite prevention and understanding animal behaviour. Most participants (n =26) felt that all content was relevant, but two indicated animal behaviour and zoonoses prevention were not relevant topics to learn about.

Figure 3: Proportion of respondents indicating how they rated the workshop.



Most participants (81%) indicated that they would integrate the workshop material into other existing course materials to teach these new concepts, whereas 11% said they would teach it as a stand-alone session and 7% said they would use both methods to integrate the materials. None of the participants said that they would not use the materials.

Some final feedback from participants included appreciation for the educational session, learning how to safely interact with animals and understand animal health and its relation to human health, the desire to share the knowledge with their communities, and that more training should be provided to share this knowledge more broadly.

Recommendations

Similar to the session held for primary school teachers in 2022, this session was well received by the sub-county education staff as well as the teacher participants. Knowledge of the technical material was improved following the session, and participants demonstrated ability to apply the knowledge through the case studies.

Importantly, participants were keen to integrate the materials into their existing curriculum and planned to do this to share the knowledge with their students. Having teachers create their own case studies helped them to develop One Health cases on a potentially large variety of subjects in their classes. This aligns with the current teaching methods in the Kenyan curriculum which emphasize problem-solving skills and applied use of knowledge.

The workshop facilitator and report author suggests that this workshop be implemented in additional regions in Kenya to determine its relevance in a variety of settings. Following the completion of this work, a more complete report, with an analysis of the monitoring and evaluation (M&E) details, can be presented to the Kenyan Ministry of Education for consideration to integrate this material into the curriculum more formally.

Annex 1: Agenda

Facilitator: Shauna Richards

Time	Activity
0830–0900	Arrival of workshop participants and pre-workshop questionnaire
0900–0930	Opening of workshop
0930–1000	Introduction to One Health
1000-1030	Health break
1030–1300	One Health and zoonotic diseases <ul style="list-style-type: none">• What is One Health? Examples of One Health• What are zoonotic diseases?• Signs of illness in animals and prevention• Rabies: What is it and how can it be prevented?
1300–1400	Lunch break
1400–1500	Bite prevention and injury prevention <ul style="list-style-type: none">• Bite prevention and dog language• Injury prevention and cow language
1500–1600	Exercises and feedback
1600	Close out session and post-workshop questionnaire

Annex 2: Presentations and supporting documents

One Health approach to safety around animals – Presentation for workshop

<https://tinyurl.com/bddhd85p>



One Health Approach
to Safety Around Anin

One Health approach to safety around animals – Lesson plan

<https://tinyurl.com/bddzh9yn>



Lesson Plan

One Health approach to safety around animals – Case studies

<https://tinyurl.com/mr4d2fnr>



Case Studies

One Health approach to safety around animals – Student presentation slide set

<https://tinyurl.com/4su2jvzk>



Student slide set

Monitoring and evaluation (M&E) questionnaire

<https://tinyurl.com/5n8vd8ay>



M&E

M&E pre-workshop results

<https://tinyurl.com/27kphbt>



Pre-Workshop

M&E post-workshop results

<https://tinyurl.com/4nprxvit>



Post-Workshop