



Food and Agriculture  
Organization of the  
United Nations

# Mitigating AMR in Africa: The Role of FAO Virtual Learning

Presenter name

Organization

**FAO  
Virtual  
Learning  
Centers**





## FAO Virtual Learning Centers (VLCs)



### What do we do?

We develop and deliver online and blended learning tailored for specialists in the field of **One Health and animal health and production**: veterinarians, veterinary paraprofessionals, and other important allied professions.

We support One Health capacity development, the 2030 agenda and the sustainable development goals (SDGs).

### How do we do that?

We use a decentralized model involving five FAO regions to create customized courses based on the needs of specific geographical areas.

We are a large geographically dispersed team of high-level professionals, including:

- Animal health and One Health professionals.
- Veterinary education specialist.
- Virtual learning specialists and instructional designers.



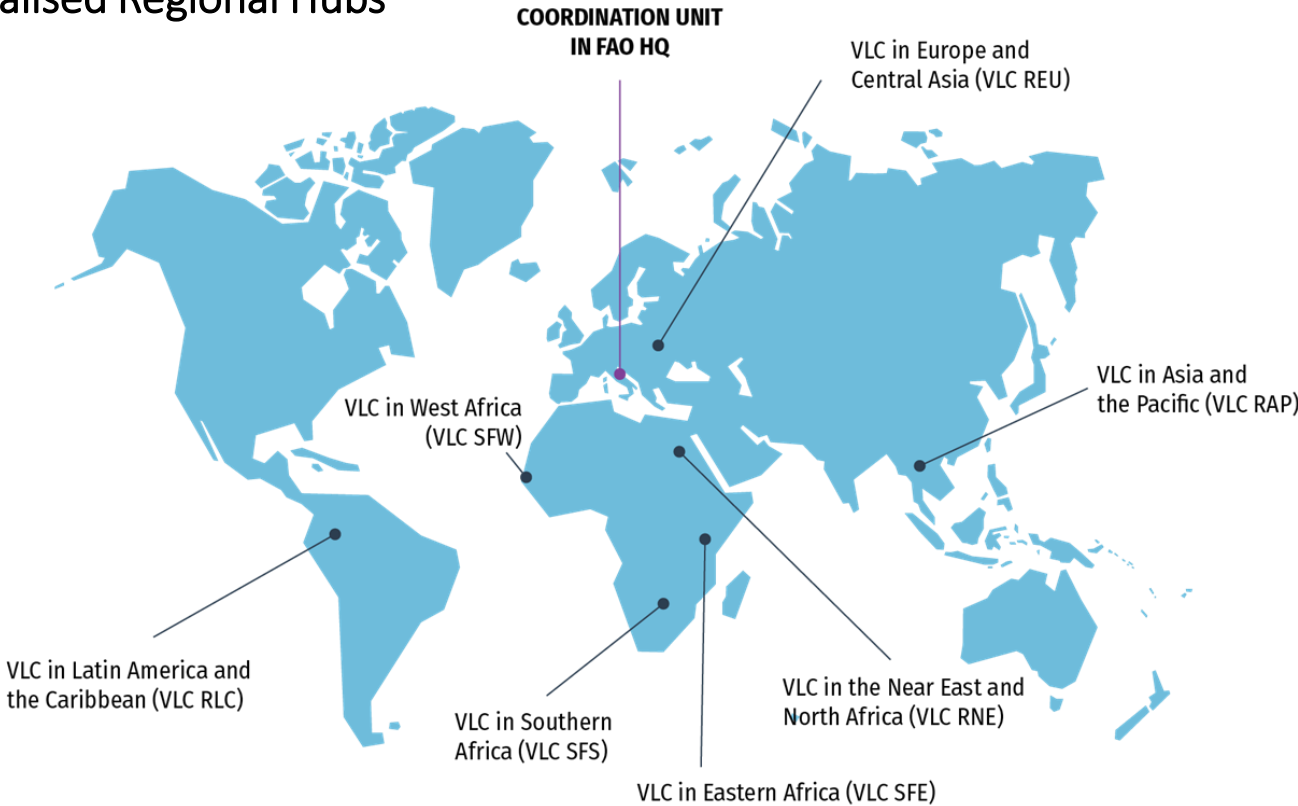


# A Global Network – 7 Decentralised Regional Hubs

The FAO VLCs are seven online hubs established in **five FAO regions**, supported by the HQ unit in Rome.

This globally dispersed team supports the effective use of online learning technologies at all stages of the course development and delivery process.

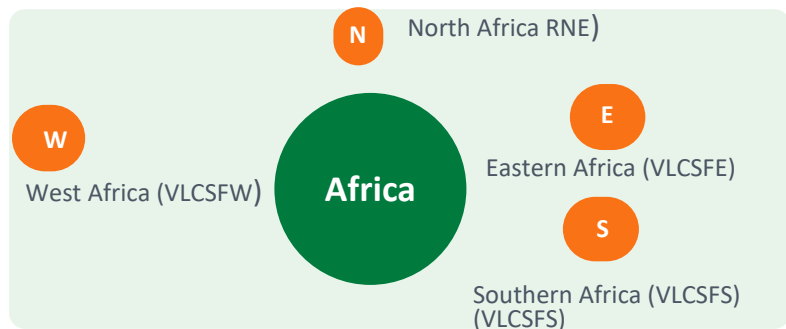
Decentralization allows us to fully understand the needs of learners in each region and tailor course content to their needs.



# The Africa FAO VLC Network

## Africa Context

FAO Has Highest VLCs in Africa



## Our Platform

Moodle-based LMS



Accessible



Scalable



Mobile-compatible






Trackable

## Our Team

Animal health professionals    Veterinary education specialists

 Instructional designers     Virtual learning experts

## Our Overall Mandate

-  Aligned with One Health principles
-  Supporting the 2030 Agenda
-  Advancing the Sustainable Development Goals



## Our deliverables

VLCs use a learning management system (LMS) called **Moodle** to host training courses and resources. Our platform hosts three kind of deliverables, accessible both from **desktop and mobile**.



### Courses

- **Self-paced courses:** typically short, no time limit to complete the course, students can self-enroll themselves.
- **Tutored courses:** interaction from expert tutors and peers, open for limited time, students must be selected.
- **Blended courses:** include an introductory online course and an in-person workshop.



### Communities of Practice

- Usually open to everyone who wants to join.
- Resource and knowledge sharing through discussions and collaboration.
- At least one coordinator to keep engagement high and provide resources.
- Can provide support to meetings and regional networks.



### Simulation exercises

- Immersive and realistic scenarios.
- Customizable injects to test procedures of different groups simultaneously.
- Real-time interaction among players and with role-players.
- Observers and facilitators' instant monitoring of the exercise.
- Possibility to adjust and conduct the exercise in any language.
- Safe, closed environment.

# The AMR Problem We Are Solving in Africa

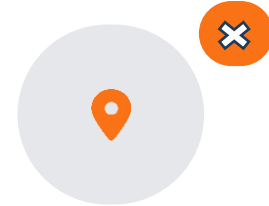
## Structural Gap



10:1 Ratio

VPPs outnumber veterinarians in Sub-Saharan Saharan Africa — yet receive the least formal AMR training

## Access Barrier



Limited continuous professional development in rural and peri-urban settings

## Governance Gap



National AMR Action Plans exist across Africa, but implementation gaps persist at field and education levels

## Risk Factor



Poorly supervised antimicrobial sales undermine stewardship efforts at the last mile

# AMR Training Portfolio — What We Offer



## Self-Paced Courses

inFARM Series

- ✓ AMR mechanisms & risks
- ✓ Responsible antimicrobial use
- ✓ One Health stewardship principles
- ✓ Biosecurity as AMR mitigation
- ✓ AMR surveillance & monitoring
- ✓ Prudent use in terrestrial animals



## Tutored Cohort Courses



Facilitator-led  
Structured learning pathways



Expert feedback  
Personalized guidance



Peer collaboration  
Knowledge exchange  
networks



Discussion forums  
Interactive learning  
communities



## Value & Recognition



Forthcoming

SLU-developed comprehensive AMR  
course — hosted on VLC platform



Accreditation



Recognized FAO certificates

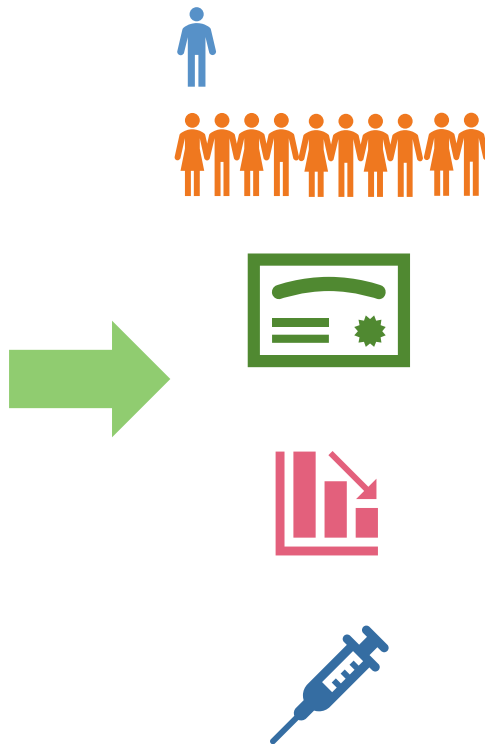


Formal professional development  
pathways

# Why private sector veterinary paraprofessionals?



Farmers need access to quality, holistic and preventive livestock healthcare services in order for their animals to be sustainably productive. **Current service provision is often insufficient to meet this need.**



VPPs outnumber veterinarians 10:1 in Sub-Saharan Africa. Few vets work in rural areas.

VPPs typically have 1-3 years training (certificate/diploma) and carry out specific tasks under direction of veterinarian.

In many countries government veterinary services have reduced significantly.

**Private sector** veterinary paraprofessionals can fill this gap. Yet they face many challenges in skills and service delivery.

# Our Vet Paraprofessionals Capacity-Building Model

Not One-Size-Fits-All



Theoretical modules, webinars, forums, quizzes



Role plays, case studies, awareness design



Biosecurity plans, on-farm implementation



## Outcome

From knowledge to practice — creating lasting behavior change at the community level



## Reach Demonstrated

Active blended cohorts across East Africa (Uganda), West Africa (Nigeria), and the Pacific (Samoa)

## Ninety Hours of Training content

Thriving and sustainable private sector VPP **business**.

Providing **preventive livestock healthcare** services.



### Preventive healthcare

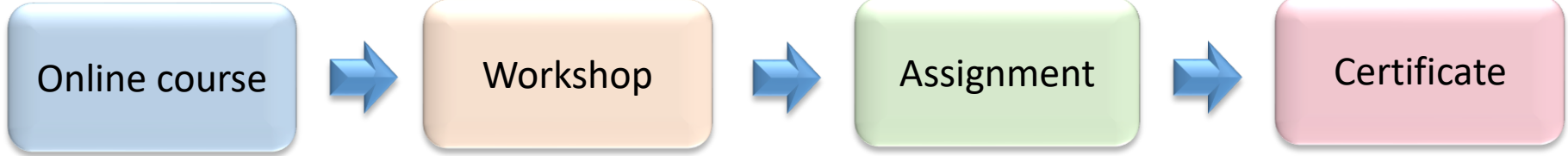
- Clinical reasoning
- Animal handling & restraint
- Control of infectious diseases
- Herd/flock health planning
- Vaccination planning and delivery
- Cold chain, storage and use of VMP
- Biosecurity
- Sustainable control of parasites



### Business skills

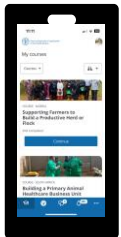
- Entrepreneurial mindset
- Record keeping
- Inventory management
- Financial management
- Communication skills
- Extension services and marketing
- Gender responsive service delivery
- Business plan development, accessing funding

# Methodology



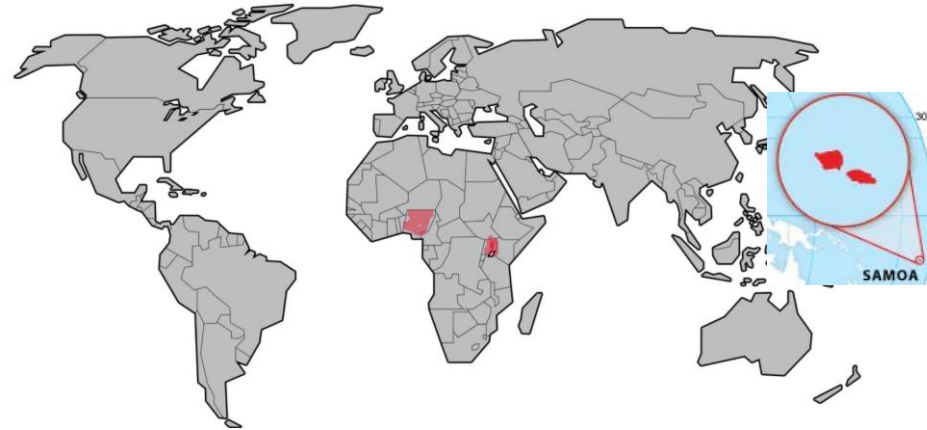
Four-week tutored self-paced learning

- East Africa
- West Africa
- The Pacific



One-week practical workshop

- Uganda
- Nigeria
- Samoa



# From Theory to Practice

Theoretical knowledge

- Online modules
- Webinars
- Discussion forums
- Quizzes

Synthesis through workshops

- Gamification
- Role play
- Case studies
- Awareness event design

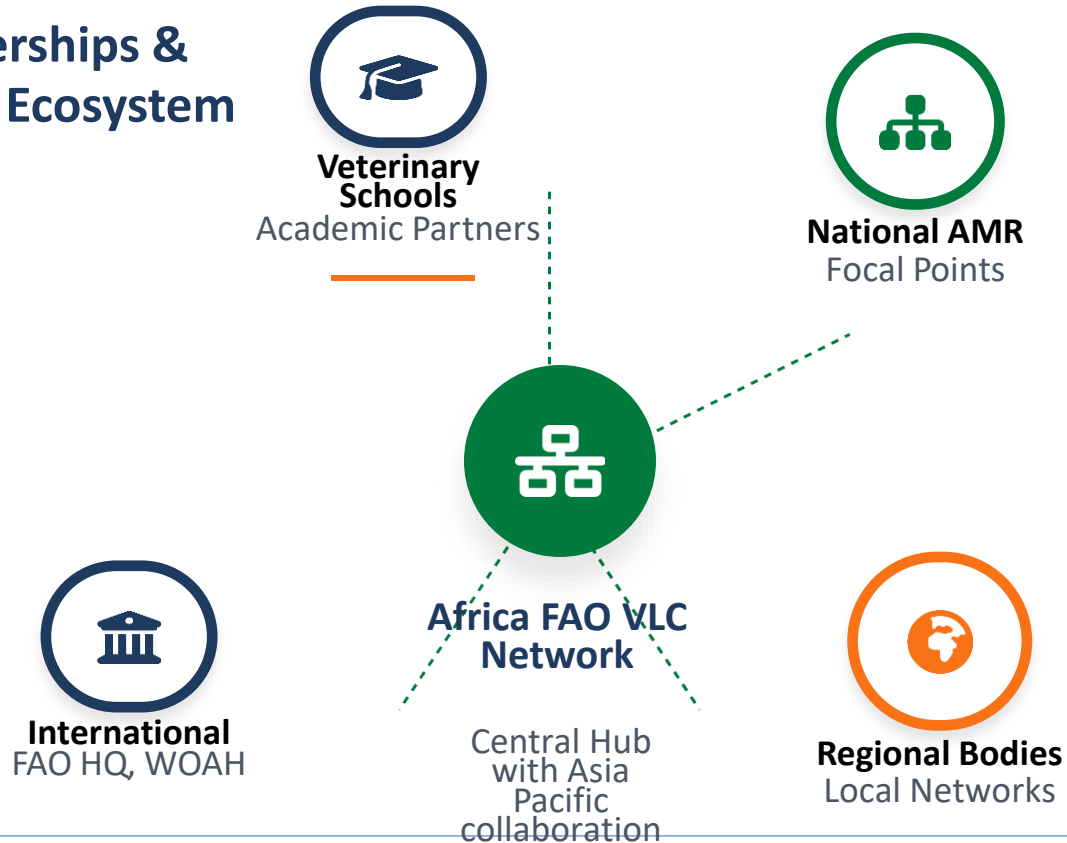
Practical field work

- Field visits
- Awareness campaigns
- Biosecurity plan development



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# AMR Partnerships & Collaboration Ecosystem



## Trainee Experience: Johnson- From Trainee to Trainer

### Impact Story: From Trainee to Lead Trainer

**Johnson Wannume | Veterinary Professional | Central Uganda**



Successfully completed Farm Biosecurity and One Health training



Impact Reach (2023)

- 180 Farmers
- 57 Veterinary professionals
- 2 Districts-Central Uganda




Recognized and promoted To Lead Trainer role


*“The training has become a professional turning point for me.”*

*- Johnson Wannume*

# Impact in Action — Success Story

## Trainee to Trainer Journey

 **Initial Training**  
Trainees complete blended AMR/biosecurity course

 **Certification**  
Official FAO certification as AMR trainer

 **Community Leadership**  
Trains local livestock keepers in responsible antimicrobial use





## Peer-to-Peer Multiplier Effect

VPP trainees becoming community change agents



## Sustained Behavior Change

-  Adoption of biosecurity protocols at farm level
-  Documented reduction in antimicrobial misuse



## Scalability Evidence



East Africa



West Africa



Consistent Outcomes



# Strategic Vision: Long-Term AMR Mitigation Through Virtual Learning



## Scaling the Model

Expanding decentralized VLC reach to underserved African sub-regions with high AMR burden and low veterinary density



## Research-Practice Integration

Inviting academic and research partners to co-develop evidence-based AMR modules and evaluate impact at scale



## Policy Alignment

Strengthening linkages between VLC training outcomes and national AMR Action Plan implementation indicators



## Partnership Network

Building sustainable collaboration ecosystem across veterinary schools, governments, and international organizations



Thank  
You

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## Existing AMR Course Pages & Community of Practice Networks

Gerald Mucheru,

[Click in the master view to edit meeting title, place and date](#)

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## Farm Biosecurity & One Health Course

- Study time: 11 hours.
- Duration: 4 weeks.
- Languages available: Arabic, English, French, Portuguese, Spanish.
- Target audience: Animal health paraprofessionals working with small-scale farmers.
- The course has been adapted for Eastern, Western, and Northern Africa, as well as the Pacific. It is suitable for adaptation to other regions.



Farm biosecurity and One Health for veterinary paraprofessionals

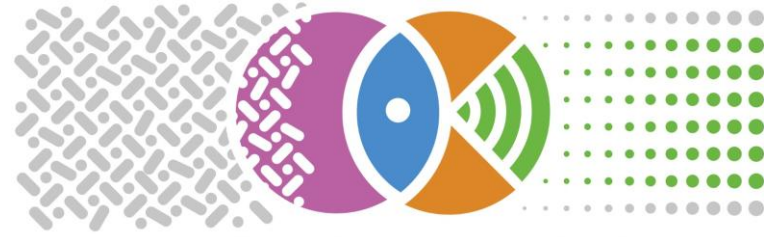
Course QR  
Code



## InFARM Online Courses

- InFARM ([International FAO Antimicrobial Resistance Monitoring system](#)) global FAO-led digital platform. collect, analyze, and share data on AMR and AMU.
- Scope: animals, aquaculture, and increasingly plant production
- Purpose: fill critical data gaps in agrifood systems, promote a One Health approach, bridging data with human health surveillance (WHO-GLASS)

InFARM Open Access course QR Code



The International FAO Antimicrobial Resistance Monitoring System (InFARM)



## Epidemiology for AMR Monitoring & Surveillance in Healthy Food Animals

- Study time: 10 hours.
- Duration: 3 weeks.
- Languages available: English.
- Topics covered:
  - Sampling for AMR surveillance in bacteria from healthy food animals and their products.
  - Sample collection and transport.
  - AST data management, analysis, and reporting

Epidemiology for AMR  
Course QR Code

Epidemiology for Antimicrobial resistance monitoring and surveillance in healthy food animals



## Lab Testing for AMR & Surveillance

- Study time: 15 hours.
- Duration: 4 weeks.
- Topics covered:
  - Isolation and identification methods for *Salmonella* spp. and *Escherichia coli*
  - Isolation and identification methods for *Enterococcus* and *Campylobacter*
  - AST
  - AST data management, analysis, and reporting

Lab Testing for AMR  
Course QR Code

Laboratory testing for Antimicrobial resistance monitoring and surveillance in healthy food animals



## FAO Assessment Tool for Labs & AMR Surveillance Systems (ATLASS)

- Study time: 6 hours.
- Duration: 3 weeks.
- Target audience: ATLASS laboratory focal points, laboratory managers, specialists in antimicrobial susceptibility testing, individuals interested in becoming ATLASS assessors, and those responsible for AMR surveillance activities.
- Topics covered:
  - Overview of the ATLASS tool.
  - Using the ATLASS laboratory and surveillance modules.
  - Outputs from the ATLASS laboratory and surveillance modules.
  - Planning and conducting an ATLASS mission.



FAO Assessment Tool for Laboratories and AMR Surveillance Systems (ATLASS)

FAO ATLASS Tool  
Course QR Code



## FAO Progressive Management Pathway for Terrestrial Animal Biosecurity (FAO-PMP-TAB)

- Study time: 3 hours.
- Target audience: Technical and management staff responsible for promoting biosecurity and/or prevention of animal diseases, including zoonoses, at national level.
- Topics covered
  - Introduction to the FAO-PMP-TAB.
  - Planning for the implementation of the FAO-PMP-TAB at country level.
  - Available tools to implement FAO-PMP-TAB.
  - **FAO-PMP-TAB Community of Practice (CoP).**



Introductory course to the FAO's Progressive Management Pathway for Terrestrial Animal Biosecurity

FAO PMP-TAB  
Course QR Code



## Poultry Farmer Field Schools

- Strengthen the knowledge and skills of existing Farmer Field School (FFS) facilitators and master trainers
- Raise awareness on good animal husbandry practices, antimicrobial resistance (AMR), and strategies to reduce antimicrobial use (AMU).
- Study time: 24 hours.
- Duration: 6 weeks.
- Target audience:
  - Trained FFS facilitators and master trainers.
  - The course can be adapted to other regions where family poultry production is practiced.



Poultry Farmer Field School refresher course for facilitators and master trainers

Poultry FFS  
Course QR Code



## VPP Courses: Growing Your Business through Preventive Livestock Healthcare

- Duration: 9 months. (3 units each 30 hours)
- Target audience: VPPs supporting small-scale livestock farmers.
- Course structure:
  - Blended-combines online learning with practical, field-based workshops.
  - Online component: self-paced interactive modules, regular live small-group training sessions, and practical, tutor-marked assignments,
  - Designed for smartphone access in low-connectivity environments.
  - Participants paired with a mentor to help apply the learnings to their own businesses.



Growing your business through preventive livestock healthcare

FAO VPP Course  
QR Code



## Community of Practice Page – AMR and Lab Innovators

- inclusive, international, and multi-stakeholder community
- brings together laboratory experts, researchers and all actors involved in the detection and characterization of AMR
- generation of AMR data for guiding therapeutic treatments, surveillance, improving research outputs, creating innovative solutions for AMR laboratory diagnostics.
- promotes shared global vision, building consensus, knowledge exchange for harmonization of methods and seeding innovative solutions.



Community of Practice on antimicrobial resistance laboratory innovators

CoP AMR  
QR Code



## Reducing the Need for Antimicrobials in Farms (RENOFARM)

- Network of experts and actors in the agrifood sector
- driving innovation, sharing knowledge and best practices to transform agrifood systems to be healthier, sustainable & less reliant on antimicrobials.
- Facilitate implementation of FAO's ten-year global initiative to reduce the need for antimicrobials on farms (RENOFARM).
- Initiative follows the Five Goods (5Gs): Good Health Services, Good Production Practices, Good Alternatives, Good Incentives, and Good Connections.



RENOFARM  
CoP QR Code



## Community of Practice for the progressive management pathway for terrestrial animal biosecurity

- create an inclusive and multidisciplinary global community.
- community members share and co-create knowledge, experiences & evidence
- to promote guidance on best practices related to biosecurity along terrestrial animal value chains
- contribute to sustainable terrestrial animal sector(s) using a One Health approach.



Community of Practice for the progressive management pathway for terrestrial animal biosecurity

PMP-TAB  
CoP QR  
Code



## Community of Practice: Acaricide Resistance and Tick Control

- international, multi-stakeholder community
- brings together stakeholders across sectors and disciplines
- assists in controlling ticks and preventing acaricide resistance
- integrated approach.
- promotes shared global vision, builds consensus, and contributes to the implementation of integrated tick and acaricide resistance management in livestock.



Acaricide Resistance  
CoP QR Code





# Thank You

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