Poultry Disease Prevention and One Health Education

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Outline

Poultry Disease Prevention

- Background
- Project Description
- Results & Discussion

One Health Education

- Background
- Project Description
- Results & Discussion

Competencies

- Foundational
- Emphasis

Poultry Disease Prevention- Background

- Backyard flocks are important source of disease
  - Education on biosecurity and safe handling
  - Pullorum disease
    - Eradicated in commercial poultry operations
    - Testing required for exhibition birds
  - Avian Influenza
    - Outbreak in 2015 affected backyard flocks in Kansas

Poultry Disease Prevention- Project

- Pullorum testing requirement for exhibition poultry
  - Seen as a hassle
  - Lack of education to poultry raisers on pullorum disease
- Project with Kansas Department of Agriculture (KDA) working with the Division of Animal Health
  - Creating brochures with information on pullorum disease
  - Added information on biosecurity and Avian Influenza
  - Worked with marketing intern

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Kansas
Department of Agriculture

Poultry Disease Prevention- Results

PREVENTION FOR YOUR BIRDS: Biosecurity Steps

1. **Keep your distance.** Limit contact between your birds and wild birds.
2. **Keep it clean.** Always wash your hands before and after being near your birds. You can pick up germs from anything in the birds' living area.
3. **Don't bring disease home.** Isolate new birds for at least 30 days and keep birds who have been to an exhibition separated from the flock for two weeks after the event.
4. **Don't borrow disease from your neighbors.** Don't share equipment or supplies with other poultry owners.
5. **Know the warning signs.** Check your birds and let an adult know if something is wrong.
6. **Report sick birds.** If your birds are sick or dying, ask an adult to call your extension office, veterinarian or the state veterinarian.

Questions? Visit the USDA website for more information on biosecurity and bird health: healthybirds.aphis.usda.gov

SAFE HANDLING

Poultry, including chickens, ducks, geese and turkeys, carry many germs, like bacteria and viruses. One bacteria they carry is salmonella – which is zoonotic, meaning it can cause illness in people. Disease can spread to people after touching birds or anything in the area where birds live.

Safety Tips for You

- Always **wash your hands** with soap and water after touching birds or anything in the birds' living area.
- Don't eat or drink around poultry.
- Don't let poultry live inside your house, especially in the areas where you cook or eat.
- Keep the shoes you wear around poultry outside to avoid bringing germs into the house.
- Don't kiss your birds or snuggle them to your face.
- Clean poultry equipment outdoors.
- Refrigerate eggs after collection and cook them thoroughly before eating.

Questions? Visit the CDC website for more information: www.cdc.gov

Kansas Department of Agriculture
Division of Animal Health
1320 Research Park Drive
Manhattan, KS 66502
Phone: 785-564-6601
agriculture.ks.gov/animalhealth

POULTRY TESTING

For Avian Influenza and Pullorum

AVIAN INFLUENZA

Avian influenza, or bird flu, is a respiratory disease in birds. There are two main types of bird flu:

1. **Highly Pathogenic Avian Influenza (HPAI)** is severe, easily spread and can cause illness in other species.
2. **Low Pathogenic Avian Influenza (LPAI)** is mild and birds may seem healthy, but it can mutate to become HPAI.

Bird flu can be spread from contact with sick birds, migratory waterfowl, or even from people and equipment.

Symptoms of avian influenza:

- Lack of energy or appetite
- Lower egg production
- Swelling of the head, comb, eyelids, wattles or legs
- Purple coloring of the wattles, comb or legs
- Diarrhea
- Runny nose, coughing or sneezing

Did you know? Turkeys, ducks and geese can also be affected by avian influenza.

Wild birds can spread disease to your poultry. Wild birds often don't show any signs of being sick, but can still spread disease. Be sure to have a secure pen to keep your birds safe.

PULLORUM

Salmonella is a bacteria that causes the disease pullorum and can result in the death of many chicks.

Birds most commonly get sick by eating eggs infected with the pullorum bacteria. Other methods include contact with infected birds and dirty food or water.

Signs of disease in young poultry:

- Huddling near heat source
- Weakness
- White diarrhea
- White fecal paste around vent

Adult poultry may carry the pullorum disease without showing any clinical signs, which may result in death.

Why test?

Avian influenza and pullorum tests help veterinarians find sick birds earlier, prevent the spread of disease and protect other birds. If birds get sick with avian influenza or pullorum, they could die.

Testing is important to guarantee birds are healthy before going to exhibitions. This prevents pullorum and avian influenza from spreading to other birds and keeps your poultry healthy and safe.

While the U.S. commercial poultry facilities are pullorum free, this disease may still be present in backyard flocks.

In an outbreak of poultry disease, many birds die. Limiting the sale of birds and eggs helps stop the spread of disease.

Chicks are at high risk for disease. Be sure to purchase birds and eggs for hatching from a National Poultry Improvement Plan certified flock.

Poultry Disease Prevention- Results

DISEASE PREVENTION: Biosecurity Steps

1. **Keep your distance.** Prevent contact between your birds and wild birds. Limit visitor access to your flock.
2. **Keep it clean.** Always wash your hands before and after being near your birds. Clean and disinfect your shoes, clothes and equipment.
3. **Don't bring disease home.** Isolate new birds for at least 30 days and keep birds who have been to an exhibition separated from the flock for two weeks after the event.
4. **Don't borrow disease from your neighbors.** Avoid sharing equipment or supplies with other poultry owners.
5. **Know the warning signs.** Take notice if something seems wrong with your birds and ask for help.
6. **Report sick birds.** If your birds are sick or dying, call your extension office, veterinarian or the state veterinarian.

For more information on biosecurity and bird health, visit the USDA website at: healthybirds.aphis.usda.gov.

SAFE HANDLING

Poultry, including chickens, ducks, geese and turkeys, carry bacteria and viruses, also known as pathogens. Salmonella is a common pathogen spread by live poultry. Young children, elderly and immunocompromised individuals are more susceptible to illness caused by salmonella. They should not handle or touch poultry.

Safety Tips for Your Family

- Always **wash your hands** with soap and water after touching birds or anything in the birds' living area.
- Don't eat or drink around poultry.
- Don't let poultry live inside, especially in the areas where you cook or eat.
- Keep the shoes you wear around poultry outside to avoid bringing pathogens into the house.
- Don't kiss your birds or snuggle them to your face.
- Clean poultry equipment outdoors.
- Refrigerate eggs after collection and cook them thoroughly before eating.

Salmonella illness in people can cause:

- diarrhea
- vomiting
- fever
- abdominal cramps

If you suspect salmonella infection, please contact your health care provider. For more information on safe handling, visit the CDC website at: www.cdc.gov.

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POULTRY TESTING

For Avian Influenza and Pullorum

AVIAN INFLUENZA

Avian influenza (AI) is a respiratory disease in birds. There are two main types of bird flu:

1. **Highly Pathogenic Avian Influenza (HPAI)** is severe, easily spread and can cause illness in other species.
2. **Low Pathogenic Avian Influenza (LPAI)** is mild and birds may seem healthy, but it can mutate to become HPAI.

Bird flu can be spread from contact with sick birds, migratory waterfowl, or even from people and equipment.

Symptoms of avian influenza:

- Lack of energy or appetite
- Lower egg production
- Swelling of the head, comb, eyelids, wattles or legs
- Purple coloring of the wattles, comb or legs
- Diarrhea
- Runny nose, coughing or sneezing

PULLORUM

The bacteria salmonella causes pullorum disease in poultry and can result in the death of many chicks.

Birds most commonly get sick by eating eggs infected with the pullorum bacteria. Other methods include contact with other infected birds or ingesting food or water contaminated with feces from infected birds.

Signs of disease in young poultry:

- Huddling near heat source
- Weakness
- White diarrhea
- White fecal paste around vent

Adult poultry may not show symptoms while carrying the disease, but pullorum may still result in death of adult birds.

To reduce your risk of pullorum, be sure to purchase birds or fertilized eggs from a National Poultry Improvement Plan (NPIP) certified flock. These birds have a lower incidence of pullorum.

Importance of Testing

AI and pullorum tests are used for surveillance. This allows veterinarians to know if and where disease is present, which may warrant limitations on poultry sales, exhibition and travel.

While U.S. commercial poultry facilities are pullorum disease free, it may still be present in backyard flocks. Testing birds prior to exhibition limits the potential spread of disease.

Outbreaks of either AI or pullorum would cause significant damage to the U.S. poultry industry, including massive economic losses, restrictions on exports, and reduced supply of poultry and eggs.

Testing Information

Birds must be pullorum tested by a certified tester within 90 days of exhibition. For information on when or where poultry testing will take place, contact your local extension office.

Poultry Disease Prevention- Discussion

- Biosecurity for the Birds
- National Poultry Improvement Plan
- Better education for backyard poultry raisers improves biosecurity, reduces the risk for avian disease, and prevent outbreaks
- Improving the knowledge of backyard flock raisers can help protect the national food supply, poultry industry, and trade

One Health Education- Background

- Four week course in Tanzania
  - Three weeks of immersive activities
- One Health education
  - Lectures
  - Case studies
  - Group discussions
  - Field exercises
- Capstone
  - Develop a project proposal to influence future HALI project initiatives
  - Presentation to stakeholder panel

Dar es Salaam

- One Health Foundations
  - Cultural sensitivity
  - Effective community engagement

- Agriculture-Nutrition Linkages
  - Nkuku4U Conference on Poultry and Nutrition
    - Animal protein sources key for adequate nutrition in childhood

Mafia Island

- Marine Conservation and Community Development
  - Ecosystem changes
  - Fishing impacts
  - Climate change
  - Environmental health
  - Proximity of wildlife, livestock, and people
  - Shared resources

Chole Island Visit

- Only have a primary school on the island
- Have a dispensary, very limited health clinic, and one doctor
- Seaweed farming, bee keeping, and other income-generating activities through marine park
- Electricity limited to solar panels
- Entire island community uses the same well for water

Juani Island

- Conservation efforts
- Environmental pollution
- Green sea turtles hatching

Dar Fresh Dairy

- Large commercial dairy
  - Pasteurization and packaging
- Cows, camels, sheep, and goats
  - Dairy cows maintained separately, rest of livestock comingled
  - Only cow milk was pasteurized
  - Camel milk consumed by workers and owners
- Concerns
  - Limited biosecurity measures
    - No footbaths or shoe covers
  - Lack of flow
  - Lack single point of entry

Bagamoyo

- Zoonotic Disease
  - Pathogen transmission dynamics at human-animal-environment interface
  - Animal sampling
  - Endemic and epidemic diseases
  - Surveillance and risk mitigation
  - Human health improvements
  - Biosecurity
  - Outbreak investigation
  - Vaccine development
  - Vector ecology
  - Disease prioritization

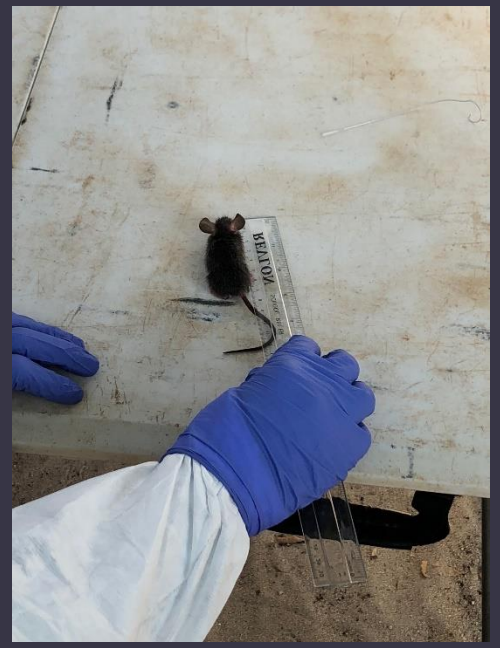
Ifakara Health Institute

- Human health
  - HIV/AIDS
  - TB
  - Maternal & child health
  - Clinical trials
  - Laboratory
- Training & capacity building
- Insectary

Animal Sampling in Bagamoyo

- Insect traps

- Rodent traps



Iringa

- Wildlife Health & Stakeholder Engagement and Research Methods & Education
  - Human nutrition
  - Water, sanitation, hygiene
  - Food safety
  - Livestock value chains
  - Livestock biosecurity
- Poultry Farm tours and assessment
  - Feed
  - Breeding stock
  - Disease prevention
  - Housing

Tungamalenga

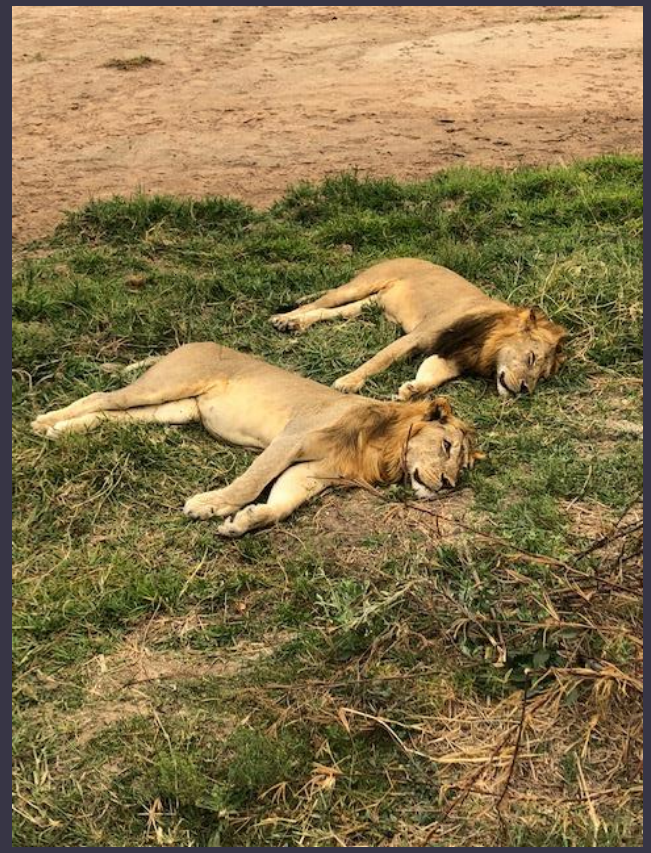
- Wildlife Health & Stakeholder Engagement and Research Methods & Education
  - Community health care
  - Wildlife and livestock sampling
  - Land management
  - Wildlife interface management
  - Ecotourism
- Met with NGOs
  - Wildlife Connection
  - Ruaha Carnivore Project

Tungamalenga

- Livestock sampling
  - Maasai sheep, goats, cattle
  - Blood sample, tag, temperature, milk sample
- Visited Maasai boma
- Visited HeHe village
- Bat sampling
  - Weight, oral swabs, rectal swabs, blood samples
  - Juice before releasing

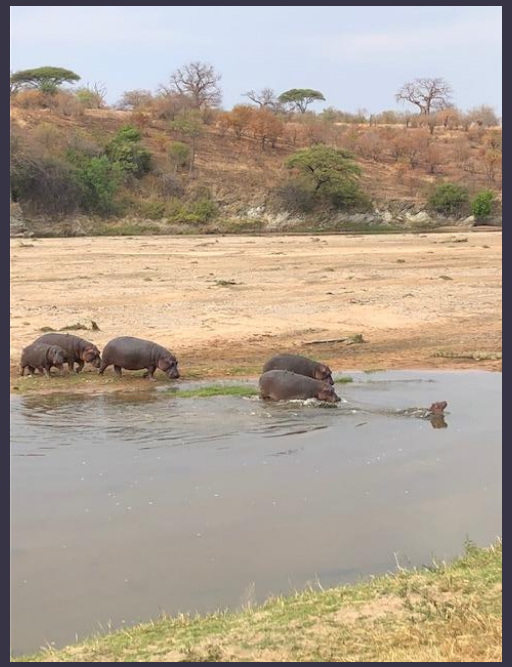
Ruaha

- Wildlife Health & Stakeholder Engagement and Research Methods & Education
  - Sustainable tourism
  - Wildlife sampling
  - Wildlife surveillance
  - Ecosystem dynamics



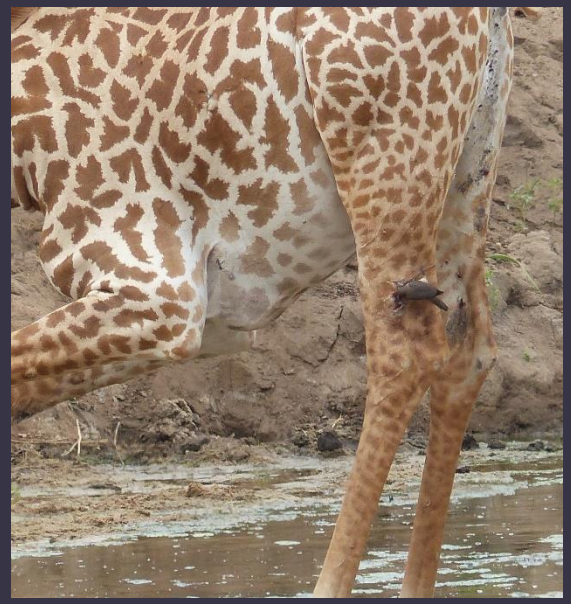
Ruaha

- Anthrax in hippopotamus
  - Seasonal
  - Cause
  - Other animals affected
- Non-human primate sampling
  - Methods
  - Precautions



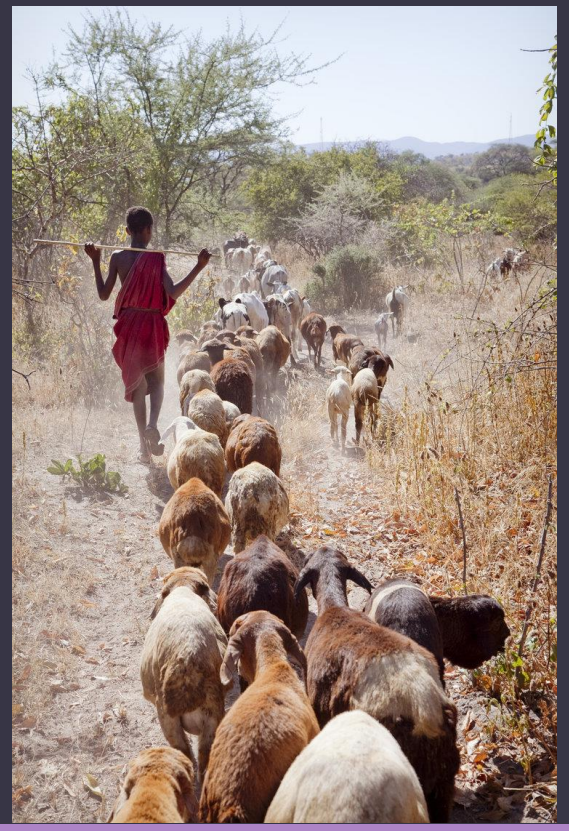
Ruaha Giraffe Skin Disease Surveillance

- Divided into teams and given designated areas
- Completed survey on each giraffe seen
  - Age
  - Gender
  - Description of location giraffes seen
  - Other animals in area
  - Presence of ox peckers
  - Description of lesions



One Health Education- Project

- Finite project that fits within the overall scope of Health for Animals and Livelihood Improvement (HALI)
  - Attainable
  - Achievable
  - Sustainable
- Small groups of 4-5 based on interest in topic
- Create budget and concept note
- Give ten minute presentation to stakeholders

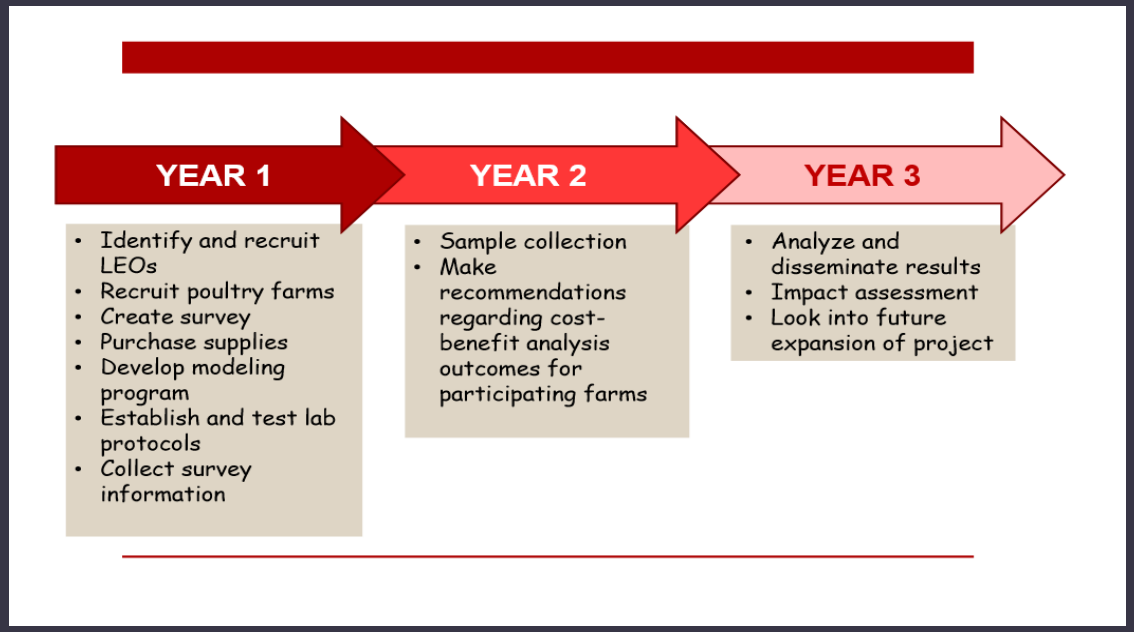


One Health Education- Results

- Antimicrobial Resistance in poultry in Iringa Town, Tanzania
  - Background
  - Limited studies
  - Problem
    - Inappropriate use of antibiotics in humans and animals
    - No systematic surveillance for common pathogens
    - Regulations are not strict or enforced
    - High level of disease
    - Poor waste management and hygiene

One Health Education- Results

- Antimicrobial Resistance in poultry in Iringa Town, Tanzania
  - Goals
  - Timeline
  - Methods
  - Budget
  - Potential Funding Sources



One Health Education- Discussion

- AMR Capstone Project
  - Establish incidence and prevalence of *E. coli* and *Salmonella* related to poultry in Iringa Town
  - Disease prevention
    - Management, biosecurity, nutrition
  - Improved antimicrobial stewardship
- One Health
  - Determine factors of disease and address in a multifaceted approach
  - Prevent and control disease
  - Improve communication of preventive measures
  - Develop surveillance

Competencies- Foundational

Number	Competency
2	Select quantitative and qualitative data collection methods appropriate for a given public health context
6	Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels
8	Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
20	Describe the importance of cultural competence in communicating public health content
21	Perform effectively on interprofessional teams

Competencies- Emphasis

Number and Competency		Description
1	Pathogens/pathogenic mechanisms	Evaluate modes of disease causation of infectious agents.
2	Host response to pathogens/immunology	Investigate the host immune response to infection.
3	Environmental/ecological influences	Examine the influence of environmental and ecological forces on infectious diseases.
4	Disease surveillance	Analyze disease risk factors and select appropriate surveillance.
5	Disease vectors	Investigate the role of vectors, toxic plants, and other toxins in infectious diseases.

Acknowledgements

Committee: Dr. Ellyn Mulcahy, Dr. Justin Kastner, Dr. Kathryn Reif

MPH Office: Dr. Ellyn Mulcahy, Barta Stevenson

Preceptor: Dr. Tarrie Crnic

One Health Course Coordinators: Dr. Jennie Lane, Dr. Woutrina Smith, Dr. Jonna Mazet, Dr. Michael Wilkes, Mwokozi and all the of hosts and guest speakers

Questions?