LIVESTOCK HEALTH MANUAL
HALI PASTORALIST
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An interdisciplinary team of researchers from the Health for Animals and Livelihood Improvement (HALI) Project collaborated with pastoralist communities living near the south-eastern border of Ruaha National Park in Tanzania to identify key diseases impacting livestock herd health and to create this illustrated livestock health manual. Content on zoonotic disease transmission routes (pages 6-7) was adapted with permission from the HALI Wildlife Health Handbook. Some illustrations for general animal health information and specific diseases were adapted with permission from the PACE Manual for Community Animal Health Workers. Abigail Ahmed, One Health web and graphic designer at the University of Nebraska-Lincoln (UNL), designed and illustrated the manual and Kelly Kretchmer contributed the cover layout.

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Additional Resources
GENERAL INFORMATION
HEALTHY AND SICK ANIMALS

Healthy Animals

• Bright, alert, calm, pays attention to environment
• Good body condition
• Smooth, shiny hair
• Soft and smooth skin

• Eating and drinking normally
• Feces not very loose or very hard
• Regular walking, no lameness
• Shiny and moist nostrils
• Regular and silent breath

• Liquid urine, yellow color
• Normal milk production
• In chickens: sleek feathers, stand up, normal egg production

Sick Animals

• Dull, tired, unresponsive, restless, doesn’t join group
• Thin
• Shaggy, dull hair
• Rough skin, bare in some places
• Lack of appetite

• Liquid or very hard feces, tail area covered with feces
• Dry, cracked nostrils or too much saliva
• Irregular and noisy breath
• Dark urine, streaked with blood

• Lameness
• Slow body growth
• Decreased milk production
• In poultry: ruffled feathers, drooping wings, legs collapsed, decreased egg production
WHAT CAUSES DISEASE?

Diseases that are spread from animal to animal, from the environment to animals or people, or from animals to people are caused by small organisms called pathogens or germs. We can see a few of these pathogens like worms in the feces of animals, but most of them are too tiny to see without special tools like microscopes. Different types of viruses, bacteria, fungi, and parasites can cause disease in people and animals and can be spread, treated, and prevented in different ways. Some diseases can lead to death, while others may make the animal or person weak and tired. Doctors, community health workers, veterinarians and livestock extension officers are trained to understand these pathogens and diseases to help keep animals and people healthy.

LIVESTOCK DISEASES

Transmission Routes

There are many sources of animal diseases. Remember, the diseases affecting animals and people can change over time and can change with climate.

- Direct contact with sick animals.
- Touching aborted fetuses or birth fluids.
- Being bitten by sick animal.
- Objects that have been in contact with sick animals like veterinary tools, buckets, or even clothing and shoes.
- Being bitten by mosquitoes or ticks or tsetse flies that can carry diseases.
- Some diseases can be transmitted by contacting the breath, feces, or body fluids of a sick animal.
- Environmental sources like water or pasture used by sick animals.
Preventing Livestock Diseases

If your animals are sick, talk to your extension officer. The government and the HALI project recently trained the extension officer in your area on understanding, treating, and preventing diseases. The extension officer can tell you about medicines and vaccines to treat or prevent diseases. If you buy or are given new animals, keep them separate from the rest of your herd for at least one week.

Zoonotic Diseases

Transmission Routes

There are many diseases can be shared by animals and people. These diseases can be transmitted from animals to people in many ways. Sometimes the same disease can cause different signs in animals and people, so it can be hard to see that animals can make people sick.

By drinking unboiled water from sources shared with livestock or wildlife

By being bitten by mosquitoes or ticks that can carry diseases between animals and people

By slaughtering sick animals or eating undercooked meat.

By direct contact with a sick animal or drinking unboiled milk

Some diseases can also be transmitted by contacting the breath, feces, or body fluids of a sick animal or person

By touching aborted fetuses or birth fluids
Prevention of Disease Transmission between Animals and People

Boil your milk and water before drinking it or giving it to anyone in the household (especially children).

Wash your hands with soap after using the bathroom, after working with animals, and before preparing food or eating.

Try to reduce the use of water from water sources that are used by livestock and wildlife.

It’s important to have meat inspected by an extension officer and to cook meat thoroughly.
ILLNESSES IN
COWS
SHEEP
& GOATS
Animal Symptoms
Brucellosis typically affects goats, sheep, and cows. Symptoms in animals include: abortions or stillbirths, retained afterbirth, infertility, enlarged testicles, swollen udders, decreased milk production, swollen joints, lameness, occasional fever, and weight loss.

Transmission
In animals, brucellosis can be transmitted through contact with aborted fetuses, vaginal discharges, or through contact during mating. In humans, the disease can be transmitted through drinking raw milk, eating undercooked meat, using animal urine, or helping an infected cow give birth without wearing gloves.

Human Symptoms
Human symptoms of brucellosis include: fever that comes and goes, headache, chills, aching joints and back, general weakness, abortion, infertility in women, painful/swollen testicles in men, and weight loss. Symptoms can be confused with malaria.
Prevention in Animals
Isolate cows at calving and sick animals from the herd. Burn or bury afterbirth, aborted fetuses, and all birth membranes. Slaughter cows that abort repeatedly.

Prevention in People
Boil milk thoroughly before drinking, never use urine from animals, and always wear gloves when helping a cow to give birth. Wash hands thoroughly after handling animals, especially when they are giving birth.
RIFT VALLEY FEVER

Animal Symptoms
Rift valley fever typically affects goats, sheep, and cows. Symptoms in animals include: fever, discharge from the nose, not eating, weakness, diarrhea, vomiting, abortions, and death in newborns, especially kids and lambs.

Human Symptoms
Human symptoms include: fever, weakness, nausea, dizziness, headache, aching joints and back, abortions/infertility in women, painful swollen testicles, and weight loss. In severe cases, symptoms may include hemorrhages, eye disease, brain infection, or death. Symptoms can be confused with malaria.

Transmission
Mosquitoes transmit the disease from animal to animal. Mosquitoes can also pass the disease to people, but more people are infected by contact with sick animals, or through meat, blood, or milk from sick animals.

Treatment
Tell your extension officer about abortions and deaths. Vaccines are available from the government for animals. If you suspect that you might have Rift Valley fever, go to the health clinic to see a doctor.
Prevention in Animals
In order to help prevent the spread of disease, isolate cows at calving. Separate all sick animals from the rest of the herd and do not mix herds. Burn or bury afterbirth, aborted fetuses, or stillborn calves and their membranes. Slaughter cows that abort repeatedly.

Prevention in People
It is important to always boil milk from cows, sheep, and goats before drinking and to never use urine from cows that abort. Always wear gloves when helping a cow with calving and wash hands thoroughly after handling animals.
FOOT AND MOUTH DISEASE (FMD)

Animal Symptoms
Symptoms of FMD include: wounds in the mouth (especially on top of the tongue and roof of the mouth), salivation, wounds on top and between hooves, lameness, wounds on teats, weight loss, decreased milk production, and rapid respirations in calves that can cause death.

Transmission
Cows, goats, and sheep can contract the disease through contact with infected animals (nasal discharge, urine, feces), air, dust, or contaminated objects. Calves can become infected through milk.

Treatment
Ask your livestock extension officer for medicine to treat sick calves. Gently wash wounds with water from boiled tamarind leaves or honey.

Prevention
Separate all sick animals from the rest of the herd and do not mix herds.
Animal Symptoms
Symptoms of trypanosomiasis include: fever, enlarged lymph nodes under skin, pale membranes, hair loss on tail, tears, weight loss, and decreased milk production.

Transmission
Tsetse fly bites transmit the parasite to cows, sheep, and goats. Trypanosomiasis only affects animals in this region. In some areas of Tanzania, humans can get trypanosomiasis too.

Treatment
If you start treatment early, medicines are available. Ask your livestock extension officer.

Prevention
Try to avoid areas with tsetse flies. Spray or pour on insecticides to prevent tsetse fly bites.
FOOTROT

Animal Symptoms
Symptoms of footrot include: wounds on the bottom of hooves or between toes. Mild to severe lameness can also occur. Goats may graze on their knees. More common during wet, muddy times of the year.

Transmission
Animals can accidentally cut or scrape their feet on sticks or sharp rocks and this can turn into an infected wound. The wound then contaminates the mud or dirt, spreading the disease to other animals that walk through the contaminated areas.

Treatment
Ask your extension officer for medicine available to treat footrot.

Prevention
Do not mix healthy and sick animals. Do not buy lame animals to add to your herd. Avoid keeping animals in wet, muddy conditions. Dry and clean the boma thoroughly.
Animal Symptoms
Symptoms of worms include: diarrhea, swollen belly, rough hair, poor growth, weight loss, and sometimes visible worms in feces. Worms are more common in young animals.

Transmission
Livestock infected with gut worms shed worm eggs. Other livestock grazing in the area eat the worm eggs and become sick after 3–4 weeks.

Treatment
There are medicines available including Albendazole, Levamisole, and Fenbendazole to treat cattle, sheep, and goats for worms.

Prevention
Animals should be treated for worms every 3 months.
ILLNESSES IN COWS
Types of Tuberculosis
There are two types of tuberculosis: human tuberculosis that is mostly transmitted from person to person and bovine tuberculosis that mostly is transmitted from animal to animal and also can be transmitted to humans.

Human Symptoms
Symptoms of tuberculosis in humans include: long-lasting cough, fever and sweating at night, weight loss, not feeling well, and swollen areas on the neck.

Animal Symptoms
Symptoms of tuberculosis in animals can include: long-lasting cough, weight loss, loss of appetite, dull hair color, and decreased milk production. However, animals often have no signs.

Transmission
Tuberculosis is spread through aerosol (breathing in particles from a sick animal or person), close contact, drinking raw milk, handling infected carcasses, or eating uncooked meat.
Treatment
If you suspect that you have Tuberculosis, visit a health clinic to receive medicine.

Prevention
Always boil milk from goats and cows. If an animal has a persistent cough, isolate it from other animals or slaughter the animal.
Animal Symptoms
Symptoms include: extending the neck, coughing, decreased milk production, nasal discharge, standing with legs held away from the body, and weight loss.

Transmission
Contagious bovine pleuro-pneumonia is transmitted only between cows. This illness can be transmitted through aerosol or direct contact between cattle.

Treatment
If you see symptoms in your cattle, ask your livestock extension officer for medicine. Vaccines are available from the government.

Prevention
Separate all sick animals from the rest of the herd and do not mix herds.
CONTAGIOUS CAPRINE PLEURO-PNEUMONIA

Animal Symptoms
(Contagious caprine pleuro-pneumonia is typically found in goats and sometimes sheep, which is referred to as contagious ovine pleuro-pneumonia). Symptoms include: extending the neck, coughing, decreased milk production, nasal discharge, standing with legs held away from the body, and weight loss.

Transmission
Contagious caprine pleuro-pneumonia is transmitted only between goats. This illness can be transmitted through aerosol or direct contact between goats.

Treatment
If you see symptoms in your goats or sheep, ask your livestock extension officer for medicine. Vaccines are available from the government.

Prevention
Separate all sick animals from the rest of the herd and do not mix herds.
Animal Symptoms
Symptoms of orf include: scabs on the muzzle, mouth, and lips of goats or sheep. Scabs can sometimes occur on the udder. Not eating and weight loss. Orf usually occurs in kids and lambs 3-6 months old.

Transmission
Orf is spread through contact with infected animals. This disease can also make people sick.

Human Symptoms
Symptoms of orf in people include: scabs or wounds on fingers, hands or arms. These sores will usually go away without medicine.

Treatment
Ask your extension officer to treat the scabs with iodine. You may need to feed the animal soft foods if it has trouble eating due to the scabs. Animals usually recover in 2-3 weeks.

Prevention
Keep sick animals separated from healthy animals. Wear gloves and wash hands when treating sick animals.
Animal Symptoms

Circling disease affects goats and sheep and is transmitted through feces from infected dogs. Symptoms in goats or sheep include: turning repeatedly in circles, difficulty eating, weight loss, poor growth, and death.

Transmission

Dogs shed worm eggs. Goats and sheep eat the worm eggs while grazing and become sick after weeks to months. The disease continues to spread if dogs eat the infected brain or other organs from the slaughtered goats or sheep.
**Prevention**

Bury or burn the brain and any other remains from slaughtered infected animals to prevent dogs from eating the infected organs.

**Treatment**

Talk with your livestock extension officer if you have concerns about Circling Disease. Dogs can be treated with medicine to kill the worms before they infect other animals. No treatment exists for sheep and goats, because the cysts are in the brain.
ILLNESSES IN POULTRY
Animal Symptoms
Symptoms of Newcastle disease include: lying down, discharge from eyes and nose, sneezing, difficulty breathing, greenish diarrhea, loss of balance, paralysis, collapse of legs, swollen crest and red spots on the skin, and decreased egg laying. Newcastle disease causes many deaths. Not all symptoms may be present.

Transmission
Newcastle disease can spread to chickens and people. The disease spreads through contact with feces, discharge from nose, or through contact with the mouth or eyes of sick birds. Transmission to people is not common, but can cause mild eye infections.

Treatment
No medicine is available to treat Newcastle disease. Tell your livestock extension officer about the sick birds.

Prevention
Vaccines are available from the government. Talk to your extension officer about vaccinating chickens before they are sick.
**Animal Symptoms**
Symptoms of fowl pox include: nodular, dark colored swellings on combs and wattles. This disease usually makes chickens sick for about one week and can cause death.

**Transmission**
Fowl pox is transmitted between chickens through contact. Fowl pox is not transmittable to people.

**Treatment**
Talk to your extension officer about treating the nodules with iodine.

**Prevention**
No vaccines are available to treat fowl pox. The best prevention for the spread of fowl pox is to avoid mixing flocks of chickens.
ILLNESSES IN DOGS
Animal Symptoms
Rabies affects warm-blooded animals and people. Rabies is commonly transmitted from dogs to humans. Symptoms in dogs include: strange behavior such as fearfulness or aggression, difficulty swallowing, excessive drooling, staggering, and seizures. However, animals can be infected and show no signs.

Transmission
Rabies is spread through direct contact with an infected dog’s saliva, usually following a bite, scratch, or lick. In dogs, rabies is always lethal once symptoms appear.
**Human Treatment**
Wash bite wounds immediately with soap and water. Go to the health clinic as soon as possible to get injections that will save your life.

**Prevention**
Vaccinations are available to prevent dogs from getting rabies. Always avoid dog bites and control stray dogs.