Health of Ethiopian Animals for Rural Development (HEARD)

Training material on preventing and controlling contagious caprine pleuropneumonia (CCPP) for pastoralists/farmers

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Training material on preventing and controlling contagious caprine pleuropneumonia (CCPP) for pastoralists/farmers

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International Livestock Research Institute

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Introduction

Small ruminants are the main source of livelihood for millions of smallholder pastoralists/farmers in Ethiopia. Production diseases are among the major constraints to small ruminant production. Contagious caprine pleuropneumonia (CCPP) is one of the diseases that affect goat production having huge economic implications. Good management plays a significant role in control and prevention of the disease. However, smallholder pastoralists/farmers have limited awareness and knowledge of the disease and the prevention measures. Raising their awareness and knowledge through experiential training can help reduce disease incidence resulting in decreased economic losses.

Training objectives and intended outcomes

The overall objective of the training is to increase the awareness and knowledge of pastoralists/farmers about the causes and transmission of CCPP disease so that they can take appropriate measures to prevent and control the disease and reduce its economic impact.

Specifically, the training aims to:

- Explain the cause and socio-economic impacts of CCPP.
- Describe the transmission of CCPP infection.
- Identify the clinical signs of CCPP.
- Discuss CCPP prevention and control measures.

Training content

- Causative agent of CCPP
- Socio-economic importance of CCPP
- CCPP transmission
- Clinical signs of CCPP
- CCPP prevention and control

Training approach and process

The training adopts a participatory, interactive and gender sensitive approach drawing on pastoralists/farmers' knowledge and experiences. The intrahousehold impact of animal diseases and the roles of different household members in the prevention and control of diseases will be explored.

The training will use a mixed and couple's training approach to ensure knowledge application and increase outcomes. Involving development agents in community based training events will ensure better articulation of pastoralists/farmers' problems and contextualization of the training content. This will help facilitate training application (outcomes) as the development agents continue mentoring and supporting the pastoralists/farmers after the training. The participation of couples (both wife and husband) in farmer/pastoralist training events will also increase training application at the household level.

Training methods and materials

- Interactive discussions
- Conversations/experience sharing among pastoralists/farmers
- Storytelling
- Disease leaflets
- Pictures

Training duration

A complete grasp of the training content will take one day. It will be delivered in community centres to create easy access to participants. The training can be delivered in half a day session to allow pastoralists/farmers time for reflection and catering to farm and household activities (particularly women livestock keepers).

Session 1. Causative agent and economic importance of CCPP

In this section, pastoralists/farmers will learn about what CCPP is, the causative agent of the disease and socio-economic importance of the disease.

Learning outcomes

By the end of the session, pastoralists/farmers will be able to:

- Explain to other community members what CCPP is
- Recognize what causes CCPP
- Value economic losses due to CCPP
- Appreciate the intrahousehold impacts of the disease

Content

- Definition
- Etiology
- Socio-economic importance
- Intrahousehold disease impact

Methods and materials

- Interactive discussion
- Examples/scenarios
- Pictures

Duration: 1 hour

Learning activities

Activity 1. Welcome and expectations

- Welcome participants.
- Introduce yourself.
- Mention that the training is about preventing and controlling CCPP. Ask participants what they expect from the training and what they hope to change due to the training.

On a flipchart, write down pastoralists/farmers' expectations and intentions to apply the training.

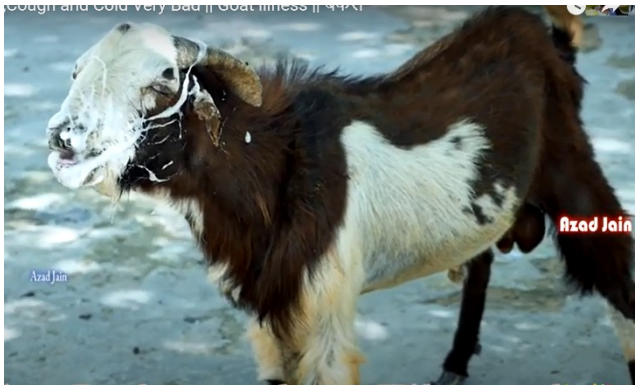
Then, explain the training objectives and expected outcomes.

Activity 2. What is CCPP and what causes the disease?

In an interactive discussion, ask participants to identify common goat diseases. Explore what they think causes the diseases they have identified.

Show the image below and ask participants to discuss it in pairs or trios.

- What do you see in the picture?
- What is the problem?
- What causes the problem?
- How does it reflect the situation in this community?



Source: https://www.youtube.com/watch?v=27L-Y2umnPE

Source: https://www.ivis.org/library/recent-advances-goat-diseases/contagious-caprine-pleuropneumonia

Find out the local term for 'CCPP' and why it is named like that.

Then, explore what participants think CCPP is and what causes the disease. Ask: What causative agent and conditions can expose goats to CCPP infection?

Then, communicate the following points to supplement their understanding using the translated CCPP training PowerPoint and disease leaflet:

Main learning points:

- Contagious caprine pleuropneumonia (CCPP) is a severe respiratory disease affecting goats.
- CCPP is highly contagious, rapidly spreading and seriously fatal disease in goats.
- It causes a severe and devastating acute respiratory disease with high morbidity and mortality in goats in the native population.
- CCPP is caused by a microorganism called Mycoplasm.

Activity 3. Socio-economic importance of CCPP

Ask pastoralists/farmers to mention what they think are the impacts of CCPP on goat production and their livelihood.

Use the following discussion questions:

- What is the effect of the disease on goat production?
- What is the effect of the disease on your livelihood?

- How does the disease affect men and women differently?

Building on participants' understanding of the impacts of CCPP on goat production and their livelihoods, communicate the following points.

Main learning points:

- CCPP has a considerable socio-economic impact in infected territories and causes severe financial losses to the pastoralists/farmers.
- The financial losses due to CCPP emanated from:
    - High mortality rate from the disease.
    - Production losses due to morbidity (reduced milk production) and the costs for treatment and vaccination.

Session 2. CCPP transmission

In this session, pastoralists/farmers will learn about the transmission of CCPP infection. They will learn about the sources and routes of infection and the conditions that expose goats to CCPP infection.

Learning outcomes

By the end of the session, pastoralists/farmers will be able to:

- Identify the sources of CCPP infection
- Identify the transmission pathway of CCPP
- Recognize conditions that expose goats to CCPP infection

Content

- Source of infection
- Route of infection
- Predisposing factors

Methods and materials

- Interactive discussion
- Storytelling/experience sharing
- Cases/scenarios

Duration: 2 hours

Learning activities

Activity 1. Sources of CCPP infection

Find out what pastoralists/farmers think are the sources of CCPP infection.

Ask them:

- Where do you think goats get CCPP infection?
- What is the seasonality of CCPP infection?

On a flipchart, write down farmers' expectations and intentions to apply the training.

Discuss the following points to supplement their understanding of the sources of CCPP infection.

Main learning points:

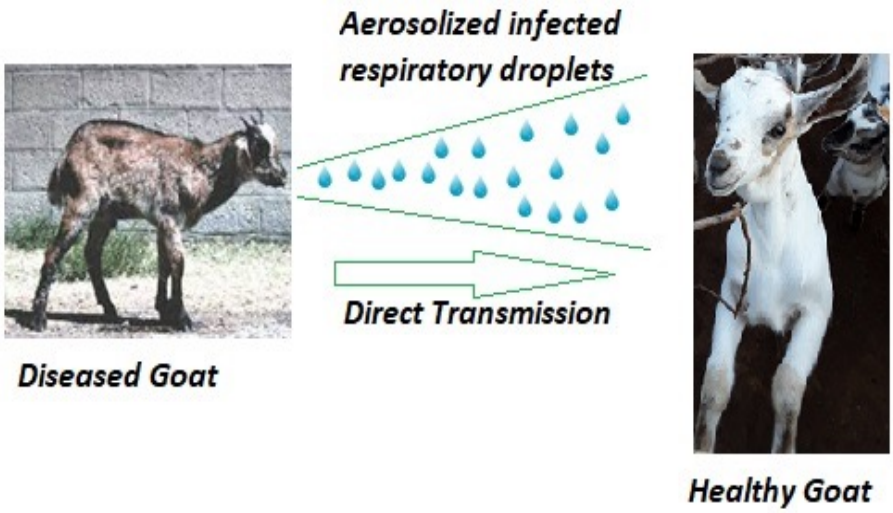
- Commonly the infection is brought into the flock by a carrier or infected animal.
- Aerosolized infected respiratory droplet from the carrier or infected animal is the major source of the disease (direct contact with those animals).
- The organism does not survive for long outside the animal body and transmission requires very close contact (contagious).

Activity 2. Routes of CCPP infection

Building on the previous activity, ask pastoralists/farmers what they think about how the CCPP infects goats.

Show the image below and ask:

- What do you see in the picture?
- What is happening in the picture?
- Why is it happening?



Key messages:

- The disease is readily transmitted by inhalation.
- Inhalation of infected aerosols is the main route of transmission.

Activity 3. Predisposing factors

Find out what pastoralists/farmers think can expose goats to CCPP infection. Explore their understanding of the interdependence between the host, agent and the environment.

Show the image and ask:

- What do you see in the picture?
- What is happening in the picture?
- Why is it happening?

Then, discuss the predisposing factors for CCPP transmission.

Explore farmers/pastoralists' goat management practices including housing, hygiene, herd size and isolation of sick animals.

Discussion questions?

- What host related factors can predispose CCPP transmission?
- What is the condition of housing for goats? Does it have adequate space?
- Do you isolate sick goats from the flock? If yes, how and for how long?
- Do you prevent your flock from mixing with others at watering point?
- Do you quarantine new goats before mixing them into the flock? If yes, how and for how long?
- What is the seasonality of CCPP incidence? In what season of the year is a higher incidence of CCPP? Why?
- Do you vaccinate your flock against CCPP? If yes, how many times per year?

Key messages:

- Host related factors:
    - Herd size (rapidly spread in the dense herd)
    - Vaccination status of the animal (high in native population)
- Environment: season of the year (high in the rainy season and cold environment)
- Husbandry practice:
    - Mixing flocks at a watering point
    - Introducing new animals into the herd
    - Presence of other species in the flock
    - Close contact between goat flock and wild animals

Session 3. Clinical signs of CCPP

CCPP has clinical manifestations. In this session, pastoralists/farmers will learn about the clinical symptoms of CCPP.

Learning outcomes

By the end of the session, participants will be able to:

- Monitor the health condition of goat flock.
- Identify clinical signs of CCPP.

Content

- Clinical symptoms of CCPP

Methods and materials

- Pictures
- Experience sharing/storytelling

Duration: 2 hours

Learning activities

Activity 1. Clinical signs of CCPP

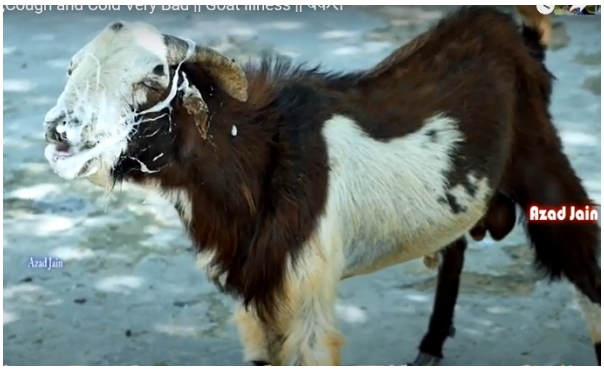
Show the image below and ask pastoralists/farmers to identify what they think are the clinical symptoms of CCPP in goats from their experience.

Discussion questions:

- What do you see in the picture?
- What is happening in the picture?
- Does this happen in your goat flock?

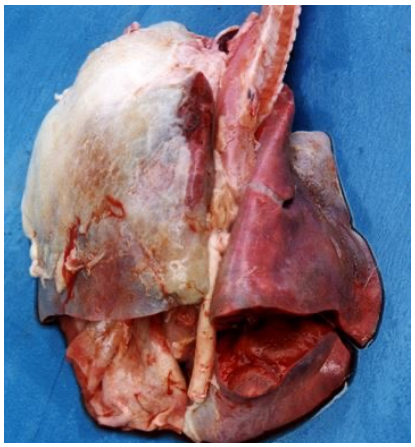
Source: https://www.youtube.com/watch?v=VLSCTvFpFyw

Source: https://www.slideshare.net/FarahIsseMumin/contagious-caprine-pleuropneumonia-xanuunka-sanbabka-ariga



Source: https://www.youtube.com/watch?v=27L-Y2umnPE

On postmortem examination, the lung of goat affected with CCPP shows fibrinous covering over the lobes, consolidation and discolouration (appear grey).



Source: https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.88092

Main learning points:

The clinical findings in CCPP are restricted to the respiratory system and include:

- Fever
- Anorexia and loss of body condition
- Frequent, violent and productive cough and laboured respiration

- Nasal discharge (serofibrinous straw coloured to thick mucopurulent)
- Dyspnoea (shortness of breath)
- Lagging and lying down a lot (but the animal can stand and walk)
- In the terminal stages: mouth breathing, tongue protrusion and frothy salivation with death in 2 or 3 days.
- Under adverse climatic conditions, the disease may occur in a septicemic form with little clinical or post-mortem evidence of pneumonia (sudden death).

Session 4. Prevention and control of CCPP

In this session, pastoralists/farmers will learn about prevention and control measures for CCPP infection.

Learning outcomes

By the end of the session, participants will be able to:

- Isolate sick animals from the flock.
- Seek professional advice on CCPP treatment options.
- Regularly vaccinate the goat flock.
- Separate own goat flock from other flocks at watering points.

Content

- Regular vaccination and veterinary advice
- Isolation and treatment of sick goats
- Separate watering troughs
- Quarantine new animals

Methods and materials

- Illustrations
- Sharing experience/storytelling
- Buzz sessions

Duration: 2 hours

Learning activities

Activity 1. Veterinary advice and vaccination

Facilitate discussion about participants' perceptions and practices of goat vaccination.

Discussion questions:

- What is vaccination and how does it work?
- Do you think vaccination treats sick goats?

- When should goats get vaccinated against CCPP?
- Do you contact the local veterinary office when you observe any disease symptoms in your goat flock?

Building on participants' experiences, communicate the following points.

Main learning points:

- Vaccination with an inactivated mycoplasma F38 vaccine induces an immune response that is effective in reducing morbidity and mortality rates.
- Immunity is generally short lived and needs annual revaccination.
- Maternal antibodies may interfere with the development of immunity and kids born to does that have been vaccinated while pregnant should themselves not be vaccinated prior to 3 months of age.
- Vaccine produced by NVI is available in 100 ml vials for 100 doses.
- Vaccinate 1 ml/goat subcutaneously (thoracic wall area is advisable).

Activity 2. Herd biosecurity

Find out participants' practices regarding herd biosecurity including isolation of sick animals, quarantine new animals, hygiene and watering practices. Encourage participants to share their experiences.

Discussion questions:

- How do you isolate sick goats, newly purchased goats and goats returned from market unsold?
- Do you separate your goat flock from other flocks at watering points?
- What is the housing condition for your goats?

Then, communicate the following main points.

Main learning points:

- Prevent close contact with another flock at the watering point
- Prevent close contact with infected animals
- Prevent close contact with wild angulates (animals)

Activity 3. Chemotherapy

Find out the treatment practices of pastoralists/farmers for CCPP cases.

Discussion questions:

- Do you self-treat your animals?
- Do you procure drugs on your own?
- What steps do you take to treat sick animals?

Main learning points:

Treatment of cases of CCPP with:

- Tylosin tartrate 10 mg/kg BW or long acting oxytetracycline (20 mg/kg/d) is highly successful in limiting the severity of the disease.
- The severity of the disease is reduced but treated animals still 20% remained infectious.
- Dihydrostreptomycin sulphate at a single dose of 20, 30, 40 or 50 mg/kg BW intramuscularly was able to cure goats without creating carriers.
- Streptomycin was able to cure CCPP affected goats on day 3 both in natural and experimental infections besides that treated goats completely developed immunity to ccpp.

Activity 4. Summary of main points and action plans

Recap the main learning points and communicate key action messages that pastoralists/farmers should take to prevent and control CCPP in goats.

Ask a few female and male pastoralists/farmers to reflect on their learning experiences and identify key take home action messages.

Then, encourage them to identify practical actions that they can take to prevent and control CCPP in goats.

The Health of Ethiopian Animals for Rural Development (HEARD) project is financed by the European Union.

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