

# Mange in Sheep and Goats

Mange is a contagious skin disease, reducing the meat quality of sheep and goats by causing skin damage characterized by marked hyperkeratosis with lesions usually starting on the head and neck, weight loss, irritation and death in severe cases.

## Epidemiology and Pathogenesis

- The distribution of mites on animals varies according to season, the infection being quiescent in reservoir sites such as axillae, groin, infra-orbital fossa and auditory canal during spring, summer and early autumn and most outbreaks occur in cold months.
- Mange mites spread through direct contact between sheep/goats or from dam to lamb/kid, while suckling.
- The mites dig tunnels beneath the skin.
- **Their saliva has potent digestive enzymes that dissolve the skin tissues.** They feed on the resulting liquids.
- Mite digging causes skin irritation, which is enhanced by allergic reactions to the saliva

Mange is mainly caused by five types of mites that describe as following:

### 1. Sarcoptic Mange

*Sarcoptes scabiei* var *ovis* infests sheep, and *S scabiei* var *caprae* infests goats worldwide

- This mite infests **nonwooly skin**, usually on the **head and face**.
- Typical of **scabies**, lesions manifest with formation of **crusts** and intense **pruritus**.
- Affected animals have decreased reproduction, meat gain, and milk yield.
- In goats, *S scabiei* var *caprae* is responsible for a generalized skin condition characterized by marked **hyperkeratosis**. Lesions start usually on the head and neck and can extend to the inner thighs, hocks, brisket, ventral abdomen, and axillary region.
- Both *S scabiei* var *ovis* and *S scabiei* var *caprae* are **zoonotic**.
- **Ivermectin, doramectin, or moxidectin** at 200 µg/kg are effective treatments

### 2. Chorioptic Mange

*Chorioptes bovis* infests sheep and goats worldwide. Prevalence of *C bovis* is more common in rams than ewes or lambs.

- Infestation of *C bovis* on goats is fairly common, with most of a herd infested.
- Distribution of lesions is the same as that in cattle, with **papules and crusts** seen on the **feet and legs**.
- **Most sheep** are subclinically infested with *C bovis*.
- However, *C bovis* can cause **exudative dermatitis** on the **lower legs** and **scrota** of rams (scrotal mange).
- If necessary, the animals can be treated using sprays or dips containing organophosphates (**diazinon, metrifonate, propetamphos**) or **pyrethroids (deltamethrin, flumethrin)** as permitted

### 3. Psoroptic Mange (Sheep Scab, Ear Mange)

*Psoroptes ovis* is a highly contagious and severe infestation of sheep worldwide.

- **Intense pruritus** leads to large, **scaly, crusted** lesions that develop in more densely **haired or woolly parts** of the body.

- Lesions begin on the back and side but may become generalized and cover a large portion of the body.
- Animals **bite, lick, and scratch** in response to the **pruritus**, which results in wool loss and secondary bacterial infection.
- If affected sheep are not treated, infested animals may become emaciated and anemic and possibly die.

Psoroptic mange (ear mange) in goats and sheep is caused by *P cuniculi*, which is likely a variant of *P ovis*.

- ***P cuniculi*** typically infests the **ears** of goats but can spread to the head, neck, and body.
- Infestation of *P cuniculi* in goats can be common, with 80%–90% of a herd infested.
- Disease can range from subclinical to scaling, crusting, inflammation, alopecia, ear scratching, head shaking, and rubbing of ears and head to alleviate irritation.
- **Ivermectin and moxidectin (200 µg/kg)** given twice with a 7- or 10-day interval, respectively, are effective therapy. **Doramectin (300 µg/kg)** given once is also effective.
- Dipping is most effective if done within 2 weeks after shearing and must be repeated after 14 days. Approved treatments for mange in sheep are: **0.3% coumaphos, 0.15–0.25% phosmet, 0.03–0.1% diazinon, and 2% hot lime-sulfur.**

#### 4. Demodectic Mange (Ovine Demodicosis, Caprine Demodicosis)

*Demodex ovis* infests sheep, and *D caprae* infests goats. Demodectic mange in sheep is not common, whereas *D caprae* are relatively common in goats.

- In goats, **nonpruritic papules** and **nodules** develop, especially over the face, neck, shoulders, and sides or udder.
- Demodectic mange in goats occurs commonly in **kids, pregnant does** and **dairy** goats.
- The nodules contain a **thick, waxy, grayish** material that can be easily expressed; mites can be found in this exudate.
- The disease can become chronic.
- Historically, in some cases, localized lesions in goats have been **treated** by incision, expression, and infusion with **Lugol's iodine** or **rotenone in alcohol**. This practice should not be continued or condoned.
- **Rotenone**, a plant-derived ketone once a popular **pesticide** and **ectoparasiticide** approved for use in organic farming.

#### 5. Psorergatic Mange (Itch Mite, Australian Itch)

*Psorobia ovis* (formerly *Psorergates ovis*) is a common skin mite of sheep in Africa, Australia, New Zealand, and South America. Most infested sheep are not affected.

- Intense **generalized pruritus** and **scaliness**, with **matting** and **loss** of wool can result from infestation with *P ovis*.
- Because of their small size, the mites are difficult to find in skin scrapings.
- This disease can cause significant economic losses by weight loss and wool damage.
- **Dipping** or **spraying** with 2–3% **lime-sulfur**, 0.2% **malathion**, or 0.3% **coumaphos** is effective in controlling the disease; 2 treatments with a 14-day interval are needed.
- **Ivermectin** given SC have been reported to be curative.