

RINGWORM IN HORSES

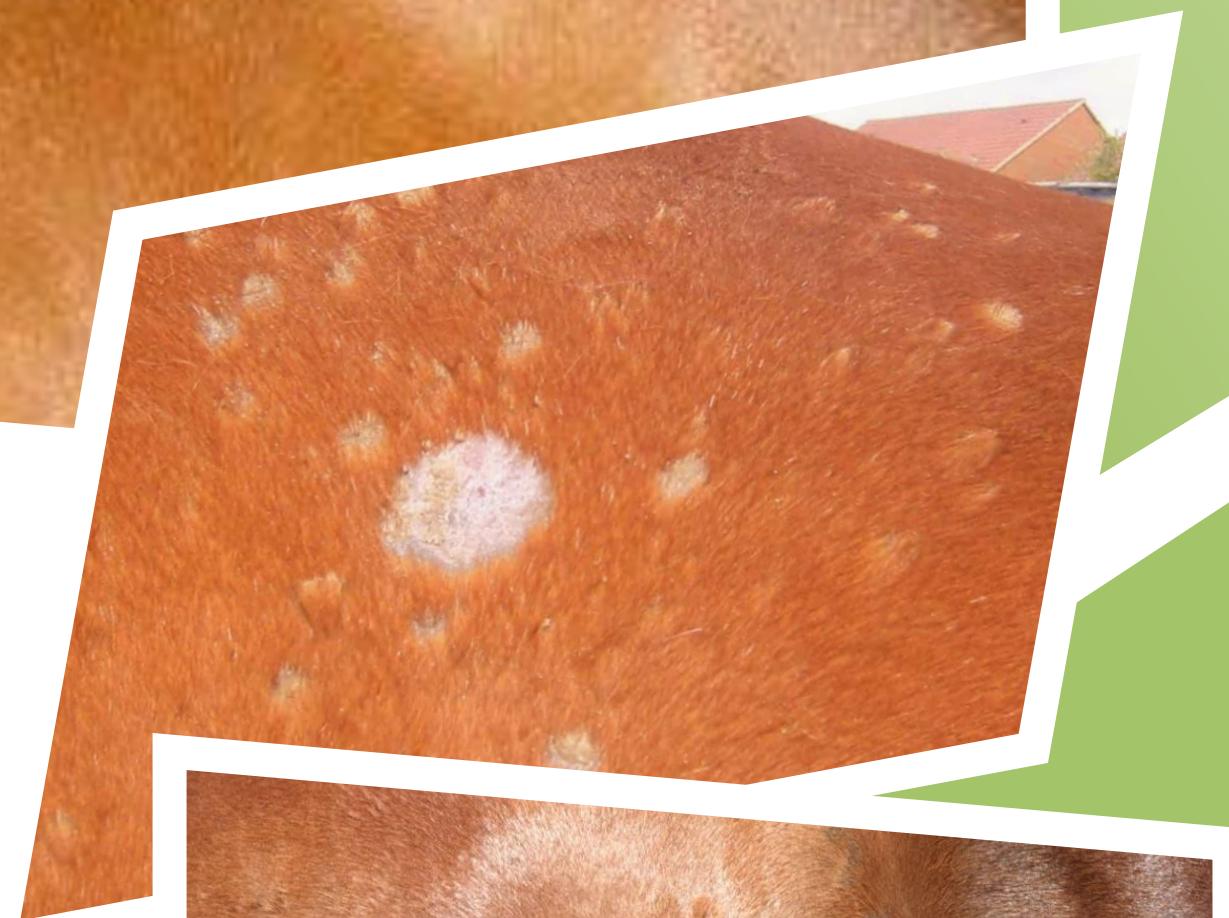
DERMATOPHYTOSIS

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INTRODUCTION

Ringworm, or **dermatophytosis**, is a superficial fungal infection affecting the skin or hair (and occasionally other keratinised structures) in horses.

In horses the primary causative fungi are *Trichophyton equinum* and *Trichophyton mentagrophytes*; other species such as *Nannizzia gypsea* (formerly *Microsporum gypseum*) and *Microsporum canis* have also been isolated.

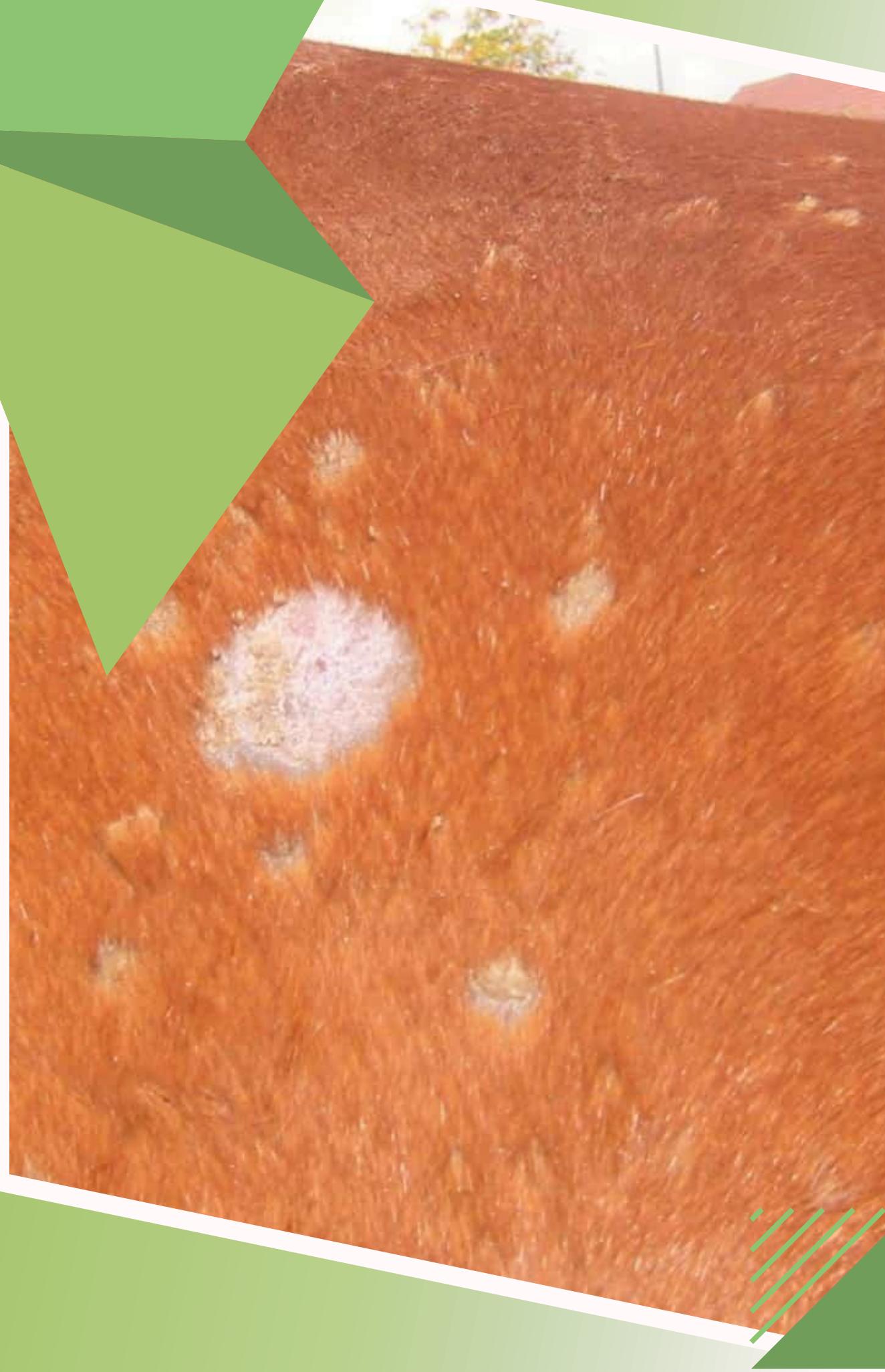


PATHOPHYSIOLOGY

Dermatophytes feed on keratin (hair/hair shafts, superficial skin). They colonise the dead cells of skin or hair shafts, but generally stop when they reach the living cells or inflamed tissue.

Transmission can occur via **direct contact with infected animals**, or **indirectly via contaminated objects** (grooming tools, tack, flooring, soil) since spores may lodge on broken hairs or shed skin/hair fragments.





PATHOPHYSIOLOGY

- > The fungus often resides in the environment (soil, stall surfaces) and gains access to the horse when conditions favour (microtrauma to skin, exposure, etc.).

- > Once the infection is present, the host's immune response (especially cell-mediated immunity) will gradually halt spread; resolution may occur as host immunity builds up.

SYSTEMS AFFECTED

The primary system involved is the integumentary system (skin, hair, superficial keratinised structures).



There is no deep systemic invasion in typical cases of equine ringworm; it remains superficial.

SIGNALMENT —



- > All ages of horses can become infected, but younger animals and those with compromised skin or immune function tend to be at higher risk.

- > No specific breed predisposition, but management, exposure, and immune status play a key role.

SIGNS



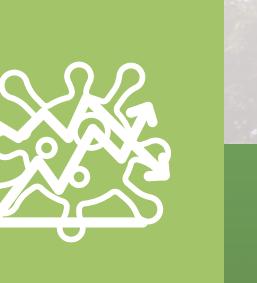
LESIONS

Lesions typically appear as circular or irregular areas of:

- Alopecia (hair loss)
- Broken hairs
- Scaling
- Crusting
- Mild inflammation (erythema)

COMMONLY AFFECTED AREA

- Girth and saddle regions (“girth itch”)
- May spread to:
 - Neck
 - Flanks
 - Chest
 - Head



INFECTION CHARACTERISTICS

- Contagious (horse-to-horse, via contaminated objects or surfaces)
- Zoonotic in some cases (can spread from horse to human)

PHYSICAL EXAMINATION FINDINGS



Circular or irregular areas of hair loss (alopecia) with broken, stubby hairs.

Scaling and crusting of the skin within the lesion; sometimes mild erythema.

On palpation: usually non-painful or mild irritation; often no deep tissue involvement.

The remainder of the skin may appear normal; the lesions are often well-demarcated.

Lesions often appear at the girth or saddle area but can occur elsewhere

In group settings, check other horses as multiple may be affected.

CAUSES

- > The causative agents are dermatophyte fungi, especially *Trichophyton equinum* and *T. mentagrophytes* in horses.

- > The fungi live in soil or are carried on hair/skin of animals; they can survive in the environment on fomites like grooming tools, tack, rugs, stalls.

- > Infection is more likely when there is exposure plus a break in the skin barrier or other predisposing factors.



RISK FACTORS

➤ AGE AND IMMUNE STATUS

- Young horses with less developed immunity
- Older or immunocompromised animals

ENVIRONMENTAL CONDITIONS

- Damp, humid conditions
- Prolonged wet skin or sweating under tack

➤ CLOSE CONTACT AND GROUP SETTINGS

- Shared tack, grooming equipment, or stabling
- Recently introduced animals to a group

HYGIENE AND SKIN INTEGRITY

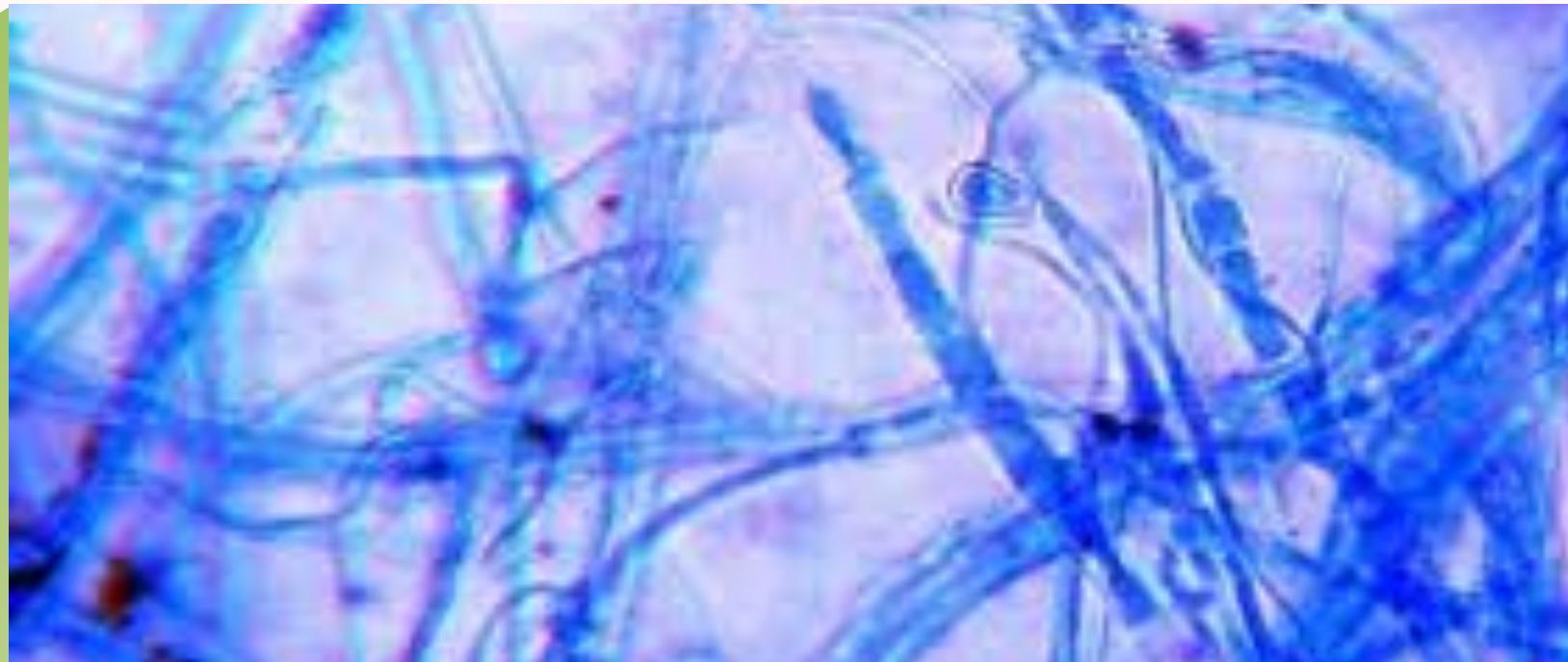
- Poor grooming or hygiene
- Broken hairs, skin abrasions
- Nutritional or general health compromise

➤ CONTAMINATED ENVIRONMENT

- Exposure to spores in soil, bedding, blankets, or grooming tools
- Spores are hardy and can persist in the environment

DIAGNOSIS

LABORATORY TESTS



> The most accurate method is fungal culture of hairs and skin scrapings from affected areas.

Direct microscopic examination of hair or skin scale (looking for fungal hyphae or spores) may allow earlier diagnosis.

- Note: Lesions should not be wiped with alcohol before sampling, since it may reduce culture yield.

Some laboratories may use PCR assays for dermatophyte DNA

> Sample should include recently active margin of lesion, broken hairs, crusts, scales for best yield.

DIFFERENTIAL DIAGNOSIS

Dermatophilosis (rain scald):

- Bacterial skin infection in horses
- May mimic superficial fungal infections

Other skin conditions:

- Contact dermatitis
- Allergic reactions
- Nutritional deficiencies affecting coat/skin

Alopecia due to non-infectious causes:

- Physical trauma (e.g., tack rubs, girth sores)
- Parasitic infestations (mites, lice)
- Immune-mediated dermatoses (e.g., *Pemphigus foliaceus*)

Bacterial folliculitis / furunculosis:

- Presents with hair loss, pustules, or crusts

Important note:

- Ringworm may co-occur with or be masked by other conditions
- Confirmatory diagnostics are helpful



TREATMENT

Preferred treatment:

- Twice-weekly, whole-body, leave-on rinses with:
 - Lime sulfur (1:16)
 - Enilconazole (1:100)
 - 2% miconazole / 2% chlorhexidine shampoo
- Continue until mycological cure (negative fungal culture or PCR)

Systemic oral antifungals:

- **Generally avoided due to high cost**

Adjuvant topical treatments (on non-rinse days):

- Enilconazole spray (stable for 7 days)
- 2% chlorhexidine / 1% ketoconazole spray
- 2% chlorhexidine / 1-2% miconazole spray

For lesions near eyes:

- Use 1-2% miconazole vaginal cream daily

Avoid bleach:

- It is irritating and poses a human health risk

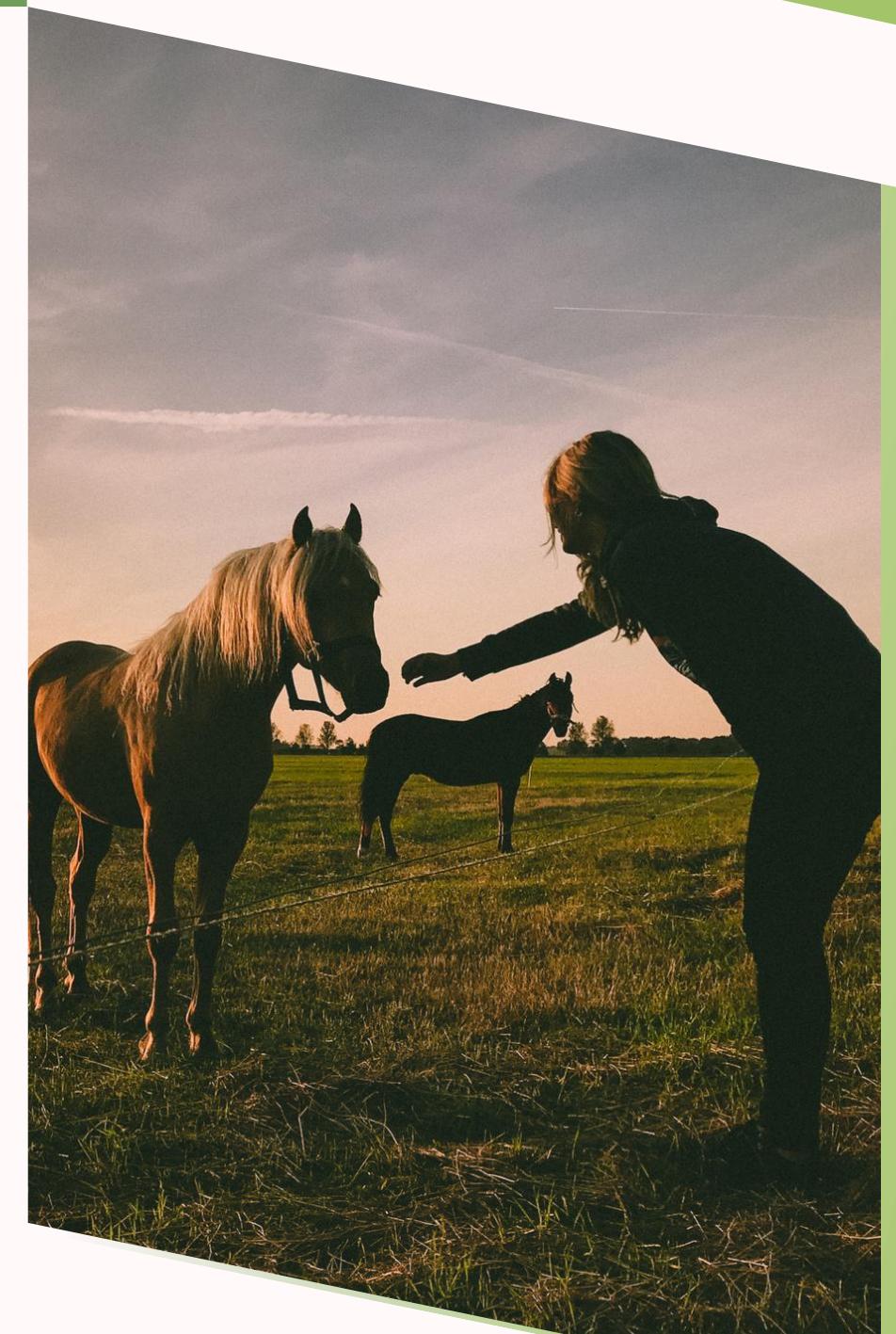


POSSIBLE COMPLICATIONS

- > Spread to other horses or animals:
Risk of herd infection due to environmental contamination

- > Zoonotic transmission:
Can spread to humans; important biosecurity concern

- > Delayed treatment risks:
 - More extensive lesions
 - Longer duration of infection
 - Increased cost and hygiene demands



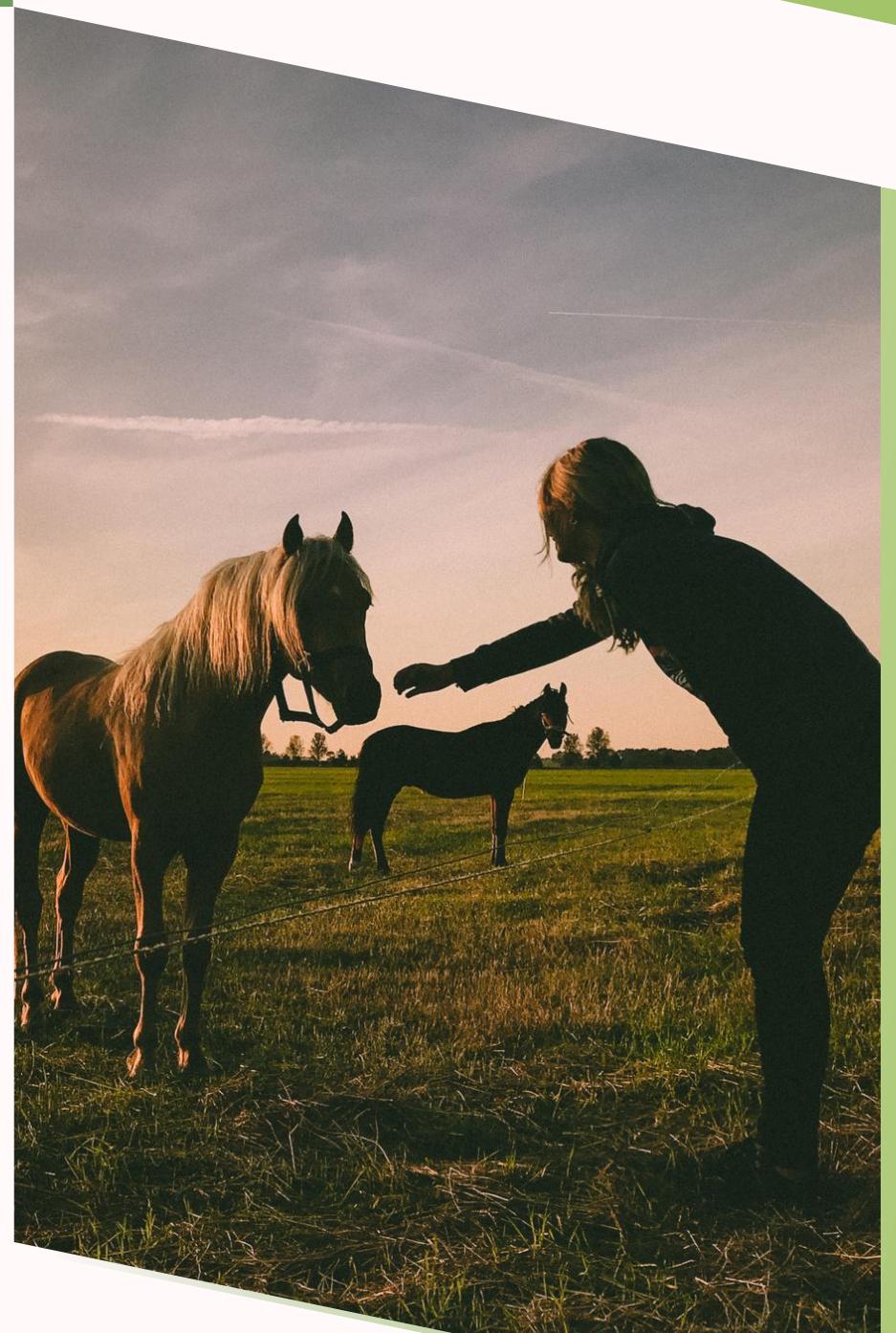
POSSIBLE COMPLICATIONS

- > Secondary bacterial infections:
May occur if lesions are scratched or traumatized

- > Hair regrowth changes:
Possible changes in hair color or texture (usually minor)

PROGNOSIS

- Generally good with proper topical treatment and hygiene
- Some cases may self-resolve in healthy animals as immunity develops



PREVENTION AND CONTROL



INFECTION CONTROL IN STABLES

- Monitor new arrivals
- Avoid sharing tack/grooming tools without cleaning
- Maintain stable hygiene (bedding, soil, wooden surfaces)



ENVIRONMENTAL MANAGEMENT

- Spores persist long-term on wood, soil, and tack
- Environmental decontamination is as important as treating the horse



MOVEMENT RESTRICTIONS

- Horses with ringworm may be excluded from competitions or travel until cleared.
- Handlers should use gloves, wash hands, and clean gear to prevent zoonotic spread.

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THANK YOU

