

aken with an iPhone 12 in Samburu. October 2023

The challenge

- There is a pressing need for sustainable solutions to combat antimicrobial resistance in livestock, particularly in goat farming.
- Mastitis in goats is a major health issue, affecting animal welfare, reproduction, and contributing to greenhouse gas emissions.
- Mastitis has traditionally been managed through antibiotics and good farming practices, but antibiotic resistance in *Staphylococcus* strains is making treatment more difficult.

Our innovative approach

Using bacteriophages (viruses that infect and kill bacteria): They are ecologically safe, do not cause side effects, are ubiquitous, are more specific than antibiotics, and have the advantage of co-evolving with their bacterial host, reducing the emergence of long-term resistance.



pacterial cell (areen). mp.de/newsroom/news/detail/light-shed-on-the-atomic-resolution-structure-ofphaae-dna-tube-a-methodological-milestone]

Artistic representation of phages of the family Siphoviridae (vellow and blue) that infect a





Harnessing bacteriophages for mastitis prevention in goats in Kenya

- Unlike broad-spectrum antibiotics, phages are disrupting the overall microbial balance.
- Phages are not affected by antibiotic resistance antibiotics.
- Phages are naturally occurring in the environment and safe for animals, humans, and plants.
- They can be isolated locally, making them prevalent in Kenya, ensuring maximum efficacy.



highly specific to the bacteria they infect and replicate within the host, reducing the risk of

mechanisms and can offer an alternative to

(e.g., in water and soil), making them eco-friendly

customizable to target Staphylococcus strains

Outcomes

Next steps



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 Using phages could reduce the incidence and severity of mastitis infections in goats.

Improved goat health, increased productivity, and reduced economic losses for farmers can result from effective mastitis management.



• The use of bacteriophages as an alternative to antibiotics requires thorough research and robust scientific evidence to ensure safety and effectiveness.

• Develop a phage cocktail with the best phage candidates that target key Staphylococcus strains causing mastitis in goats.





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