



## A Revolution in Animal Health Monitoring using Artificial Intelligence for Goats and Sheep

AMERICAN CONSORTIUM FOR SMALL RUMINANT PARASITE CONTROL

### Food for thought

Have you ever thought about a future where the technology that drives your favorite applications and virtual assistants on your smartphone may also help your goats and sheep? It is no longer an abstract idea. The use of artificial intelligence (AI) in livestock health monitoring is taking science fiction and putting it into the real world. Discover how AI is revolutionizing the way we track the health of goats and sheep, benefiting both the animals and farmers.



### What, Exactly, is AI's Role in Livestock Care All About?

Envision yourself tending a flock or herd of sheep or goats while also monitoring their emotional state and general health. Isn't it a challenging job? Presenting AI - the ultimate ally in the realm of animal welfare. Health indicators can be tracked, early symptoms of illness may be spotted, and even potential health problems can be predicted with the help of AI. It is as if you have your own animal health expert who is extremely perceptive, alert, and never sleeps.



### The Key to Happy, Healthy Animals: Early Detection

Among the many amazing applications of AI in animal health monitoring is its capacity to detect early indicators of sickness. This can change the game entirely, as animals experience less pain and suffering and the farm incurs fewer losses when diseases are detected early. In order to help farmers catch problems early, AI systems can track things like movement patterns, food intake, and other health markers.

### Personalized Medical Care? Sure thing!

Artificial intelligence detects that each sheep and goat is special in its own way. With the use of AI, we can sift through mountains of data on each animal to develop unique treatment programs. Precision agriculture considers the unique requirements of each animal, as opposed to a cookie-cutter approach. With the help of AI-assisted procedures, you may provide your flock or herd with the care they require, whether that's dietary recommendations, medicine plans, or even breeding assistance.



**By utilizing sophisticated algorithms, AI can forecast parasite outbreaks and provide recommendations for the optimal times for treatment or prevention.**

### Eliminating Uncertainty in Parasite Control

Parasites are a major problem for farmers raising sheep and goats, but AI has the potential to change that. By utilizing sophisticated algorithms, AI can forecast parasite outbreaks and provide recommendations for the optimal times for treatment or prevention. This ensures that you are always one step ahead of difficulties, rather than merely responding to them. Parasite forecasting is like having a weather forecast, only it pertains to your farm's health and the well-being of your animals.

### Fostering Unity Within the Neighborhood

The fact that AI has the ability to support farmers is one of the most encouraging things about using it to track animal health. The best way for farmers to learn from each other and enhance their methods is to share insights, data, and experiences. Artificial intelligence has the potential to improve the entire agricultural community, not just individual farms, by facilitating unprecedented levels of knowledge exchange and cooperation.

### The Final Analysis

Improving the lives of both farmers and their animals is the true purpose of incorporating AI into health

monitoring systems for goats and sheep. The goal is to create a more cohesive farming community, eliminate uncertainty in animal care, and offer individualized health programs. The future looks brighter for goats, sheep, and their caretakers thanks to AI, the unheralded hero of modern agriculture. With the aid of AI, here's to happier days and healthier flocks and herds.

### References

Rose, H., Caminade, C., Bolajoko, M. B., Phelan, P., van Dijk, J., Baylis, M., ... & Morgan, E. R. (2016). Climate driven changes to the spatio-temporal distribution of the parasitic nematode, *Haemonchus contortus*, in sheep in Europe. *Global change biology*, 22(3), 1271-1285.

Bolajoko, M. B., Rose, H., Musella, V., Bosco, A., Rinaldi, L., Van Dijk, J., ... & Morgan, E. R. (2015). The basic reproduction quotient (Q0) as a potential spatial predictor of the seasonality of ovine haemonchosis. *Geospatial health*, 9 (2), 333-350.

Khanyari, M., Suryawanshi, K. R., Milner-Gulland, E. J., Dickinson, E., Khara, A., Rana, R. S., ... & Morgan, E. R. (2021). Predicting parasite dynamics in mixed-use Trans-Himalayan pastures to underpin management of cross-transmission between livestock and bharal. *Frontiers in Veterinary Science*, 8, 714241.

Panda, S. S., Terrill, T. H., Mahapatra, A. K., Morgan, E. R., Siddique, A., Pech-Cervantes, A. A., & van Wyk, J. A. (2023). Optimizing *Sericea Lespedeza* Fodder Production in the Southeastern US: A Climate-Informed Geospatial Engineering Approach. *Agriculture*, 13(9), 1661.

Panda, S.; Terrill, T.H.; Siddique, A.; Mahapatra, A.K.; Morgan, E.R.; PechCervantes, A.; Van Wyk, J.A. Development of a Decision Support System for Animal Health Management Using Geo-Information Technology: A Novel Approach to Precision Livestock Management. Preprints 2024, 2024020944. <https://doi.org/10.20944/preprints202402.0944.v1>



Written by Aftab Siddique, PhD, Fort Valley State University, Fort Valley , Georgia  
Reviewed by Tom Terrill, PhD, Fort Valley State University, Fort Valley, Georgia  
Editing and images by Susan Schoenian

*Timely Topics were written by members of the American Consortium for Small Ruminant Parasite Control. They are for educational and informational purposes only. They are not meant as a substitute for professional advice from a veterinarian or other animal science professionals. Some treatments described in the articles may require extra label drug use, which requires a valid veterinarian-client-patient relationship. For a complete list of Timely Topics, go to <https://www.wormx.info/timelytopics>.*