



# HORSES, LLAMAS, ALPACAS

**Changing How We Care for Large Animals**

## **HORSES**

For 60 years, Morris Animal Foundation has funded scientists around the world to find solutions to pressing equine health issues. We help horses from all walks of life, from sporting horses to pet horses to wild horses.

Our work results in better diagnostic tools and treatments for major health challenges, such as cancer, orthopedic disease and muscle disorders. Our work fuels vaccine development for infectious diseases, from past wins for Potomac horse fever to today's focus on foal pneumonia. We also provide critical funding to researchers on the hunt for genetic and environmental factors that contribute to complex diseases, such as equine metabolic syndrome (a metabolic and hormonal disorder) and osteochondrosis (a developmental orthopedic disease).

## **LLAMA, ALPACA & CAMELID**

In the late 1980s, the llama and alpaca fiber industry exploded in the United States, resulting in a large influx of these animals into the country. Large animal veterinarians scrambled to address the health needs of these unique animals. Basic information was lacking on everything from nutrition to effective parasite control to pain management.

Morris Animal Foundation stepped in and partnered with llama and alpaca industry leaders to solve these new and evolving health concerns. In 1990, the Foundation funded its first camelid health study focusing on numerous congenital defects in llamas, such as choanal atresia, a narrowing of the air passages making it difficult for young animals to breathe. We were one of only a handful of organizations that provided funding for scientists to solve these problems. Governmental organizations, focused on food animal health, were not interested in funding health research in llamas and alpacas.

# HOW WE ARE HELPING

## We are a leader in equine genetic health



In 2006, we provided funds to develop the first drafts of the horse genome, a vital tool needed in the search for genetic links to disease.

In 2007, we supported the International Equine Consortium for Genetic Research, bringing together a distinguished group of researchers from multiple institutions across the United States. This team collaborated to develop key genetic research tools still used today. Almost all modern equine genetic research can be traced back to this initiative.

Thanks to this consortium, we now have genetic screening tests for several disorders and diseases in horses, including combined immunodeficiency (that leads to enhanced susceptibility to infection) and lavender foal syndrome (a lethal neurological disorder) in Arabian horses, dwarfism (causing underdeveloped limbs and other defects) in miniature horses, and equine type 1 polysaccharide storage (a muscle disorder) in multiple breeds.

## We are a leader in infectious disease research



We provided timely funding which led to the discovery of the cause of and subsequent vaccine development for Potomac horse fever.

We provided decades of funding for foal pneumonia. Thanks to our work, today we have better diagnostics and treatments and researchers are on the brink of a vaccine strategy to prevent this serious and often fatal disease in foals.

## We are a leader in cancer research



Researchers adapted the canine melanoma vaccine for use in horses with melanoma, with impressive outcomes; treated horses had dramatic tumor shrinkage and improved quality of life.

Just released, an eye cancer screening test for Haflinger horses; researchers are working on tests for related breeds.

## We are a leader in innovation



Researchers developed a new surgical technique for recurrent laryngeal neuropathy, a cause of airway obstruction and difficulty in breathing in horses, that will improve surgery success.

Researchers are working on more effective stem-cell therapies for horses with orthopedic injuries.

We support research that explores the use of CRISPR, a groundbreaking gene editing tool, to treat and control diseases such as equine herpesvirus, that causes respiratory and neurological disease, and abortions.



## Hot Equine Health Topics Today

Improving regenerative therapy success

Wiping out foal pneumonia

Minimizing *Salmonella* outbreaks

Identifying risk factors for laminitis and equine metabolic syndrome

Finding effective treatments for asthma and related respiratory diseases

Looking for genetic factors for equine herpesvirus

Providing effective pain management drugs (where few options exist)

Finding a vaccination strategy for strangles, a highly contagious upper respiratory tract infection of horses

Tackling antibiotic-resistant infections associated with parasitic diseases and sepsis and pneumonia in foals



## Hot Camelid Health Topics Today

Building a robust alpaca genome

Screening and reducing the genetic causes of diseases and congenital disorders

Tackling antibiotic-resistant infections

# HOW WE ARE HELPING



## We are a leader in camelid genetic health

With the help of our funding, researchers constructed the first alpaca genome map. Genome mapping is an invaluable resource, offering new possibilities for therapies and treatments as well as new diagnostic methods for complex diseases. This map also is a vital health research tool for related species including llama, vicuña, guanacos and camels.

Researchers recently found genetic links between gray-colored coats and major health problems in alpacas. Based on their results, a commercial genetic screening test is under development to help improve the overall health of gray-coated alpacas.

We know the genetic cause of and have better diagnostic tools for choanal atresia, a congenital condition causing abnormal development of the nasal passages, which prevents airflow from the nose to the larynx in cria, baby alpacas and llamas.



## We are a leader in safe and effective drugs

During the recovery phase of anesthesia, camelids are highly prone to airway obstruction, which can be life-threatening. Veterinarians now have safer options thanks to our research.



## We are a leader in parasite control and prevention

Llamas and alpacas imported into new habitats, such as North America, are exposed to a new array of parasites, making worm-related deaths an increasing problem. We now have diagnostic tests and treatments to manage a diverse set of parasites in these species, including deadly brain worms.



## We are a leader in nutrition and disease prevention

Vitamin D supplements are now standard for North American herds to prevent rickets and deformity in young animals.



1959

First horse study funded



1990

First llama study funded



1992

First alpaca study funded

550<sup>+</sup>  
LARGE ANIMAL STUDIES FUNDED

7.6 MILLION

HORSES AND CAMELIDS HELPED IN THE UNITED STATES ALONE

# OUR SINGULAR APPROACH TO ANIMAL HEALTH



Driven to seek innovation & impact in underfunded sectors of animal health



Grounded in the science of animal health



Devoted to training future scientists



Dedicated to funding & conducting research to benefit companion animals & wildlife



Committed to bridging the gap between science & clinical practice

Morris Animal Foundation is a leader in unbiased research focused solely on the health of animals. We provide a unique perspective in global animal health and know first-hand how some diseases are species-specific while other diseases cross and jump species barriers. This broader world view helps us identify top global animal health concerns, and what we learn from one species may provide valuable insight to help another species, such as horses, llamas and alpacas.

We are different from many other equine health funding organizations as we do not focus on health issues solely to improve the health of performance and sport horses. If

there are populations of horses with a serious disease, disorder or emerging health problem, we are here to find solutions to help these horses.

This approach carries through to camelid populations. While we started funding llama and alpaca health to address emerging health problems in domesticated animals, we are here to help camelids worldwide, including wild and endangered species.

Wherever animals live and whether they're domesticated or wild, we are here to make sure they have the longest, healthiest lives possible.

## ABOUT MORRIS ANIMAL FOUNDATION

Morris Animal Foundation's mission is to bridge science and resources to advance the health of animals. Founded by a veterinarian in 1948, we fund and conduct critical health studies for the benefit of all animals.

Learn more at [morrisanimalfoundation.org](http://morrisanimalfoundation.org).

Contact us at [mailbox@morrisanimalfoundation.org](mailto:mailbox@morrisanimalfoundation.org), 800.243.2345 or 720 S. Colorado Blvd., Suite 174A, Denver, CO 80246.