



December 8, 2017

United States Department of Agriculture  
National Institute of Food and Agriculture  
Agricultural Research Service  
1400 Independence Avenue SW  
Washington, DC 20250

Drs. Lakshmi Mutukumalli and Caird Rexroad, III,

The American Horse Council (AHC) appreciates the opportunity to express our continued support of the United States Department of Agriculture (USDA) and their continued efforts in genome sequencing for the horse and the subsequent development of powerful tools used by all equine scientists to investigate reproduction, immunology, hereditary diseases, and the molecular mechanisms underlying aspects of performance, metabolic syndrome, and musculoskeletal diseases.

### **Introduction**

The AHC is a Washington-based advocacy organization that represents individual members and over 130 equine organizations before Congress and the federal regulatory agencies. AHC member organizations include breed registries, national and state equine associations, state horse councils, recreational associations, and organizations representing race tracks, horsemen, horse shows, veterinarians, farriers, rodeos, and other equine-related stakeholders.

The AHC also includes individual horse owners and breeders, trainers, professional, amateur, and recreational riders, and commercial suppliers. Individually, and through our organizational members, the AHC represents hundreds of thousands of horse owners and others involved in all sectors of the horse industry.

The horse industry, in all its segments of racing, showing, recreation and work horses, involves 9.2 million horses, nearly 2 million horse owners, has a \$102 billion impact on the U.S. economy and supports 1.4 million full-time jobs. It involves agriculture, sport, entertainment, gaming, recreation, and work horses, all built on the breeding, training, use and enjoyment of horses and horse activities.

### **Goals**

The work being done utilizing the genomic and transcriptomic sequencing data available, which would not be available without previous federal support, is being used to improve the equine reference genome. It is important to note that a deeper understanding of the

1616 H Street NW 7th Floor • Washington DC 20006. 202-296-4031.

Email: [info@horsecouncil.org](mailto:info@horsecouncil.org). Web Address: [www.horsecouncil.org](http://www.horsecouncil.org)

equine genome will allow researchers worldwide to identify the genetic factors that determine the outcome and impact of infectious diseases. Identifying and understanding these differences can lead to development of better vaccines and therapeutic treatments. Ongoing American efforts includes studies of horse responses to equine arteritis virus, equine herpes viruses and influenza viruses. These efforts will continue to directly translate into American success on the world stage in combating these economically burdensome diseases, which will not only save horse owners millions of dollars, both in costs attributed to the detection of and response to disease outbreaks, and also the lost productivity of the animals affected.

### **Future Challenges**

Performance and athleticism in horses involve the interaction of multiple genes as well as management and environmental factors. Understanding the strength of the genetic contribution to these traits requires studies using a combination of molecular genetics, quantitative genetics and bioinformatics. The future uses of the equine genome to identify performance markers will allow the racing industry to finally address the largest internal point of contention facing the sport, the treatment, or eventual eradication, of exercise induced pulmonary hemorrhages (EIPH). EIPH, a condition found in both horses and humans, has sparked a controversy regarding the appropriate use of furosemides within the sport. This has put the United States at a disadvantage internationally, and the AHC has urged the scientific community to identify alternative treatments for this condition, or insight as to how we can address this condition in the future.

### **Industry-wide Impacts**

The horse business is built of the opportunities to improve the speed, strength and longevity of the animal itself. The importance of changing and measuring the improvements of our animal's genetics is evidenced by the thousands of years' worth of breeding records that have been documenting equine lineages around the world. Wars have been fought over these records, and with continued federal support, that same enthusiasm for development can persevere.

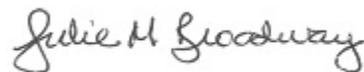
Perhaps more so than any other livestock species, breed identity defines the very nature of how an animal may be used. American breeds are the product of careful selection of individuals with relevant traits, then deliberate breeding for those traits. As those traits were consistently expressed, a new breed was established. Color, structure, pattern, size or even temperament may be the trait that was selected for, but with the work being done in mapping the equine genome, we hope that the industry may begin to unlock new potential opportunities for our established breeds, and may lead to the development of new breeds altogether. Unlike other species, i.e. pets or food animal species, the room for experimentation regarding non-competitive traits like color are hindered by the cost to maintain animals that do not achieve expected results. We hope that new technologies may help animal breeders better anticipate the potential traits of animal pairings, and thus limit the number of "experimental" animal births, and lower the number of animals going into

the “unwanted” horse pipeline, be that via export for slaughter or through the equine rescue system. The welfare of these animals is a top priority for the industry and may be the most public aspect of the equine industry at this time.

### **Conclusion**

The equine industry has a long history of depending on the efforts of our research community to move our animals, and business, forward. In the face of changing makeup of our fan base within the different disciplines, athlete health is consistently the top priority, be that equine or human. With that perspective, the AHC has asked the university and private research communities to look towards the future and address tomorrow's concerns today, and the research being done in equine genomics is critical to their ability to keep our industry healthy, nimble and relevant. Without the continued unbiased support from the Federal government, this critical information would be beyond the grasp of an industry as diverse, and by nature divergent, as the equine industry. In an effort to highlight the importance of this work, the American Horse Council is working with research groups and universities around the country to host a National Equine Research Forum in 2018 to develop the pathways needed to more adequately provide industry support for research efforts, and to more effectively direct industry concerns and interests to both NIFA and ARS. We hope that the USDA will be well represented during this important conversation, of course with a priority on both NIFA and ARS leadership being in attendance. Please contact the American Horse Council with any other questions concerning this or any other topic related to the horse industry.

Sincerely,

A handwritten signature in cursive script that reads "Julie M. Broadway".

Julie M. Broadway CAE ®,

President