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Water buffalo remain underutilized as livestock

Extensive selection and breeding programs could positively affect food security on a global scale, according to a new review in *Applied Animal Science*

Philadelphia, PA, April 22, 2019 – The global population of water buffalo is approximately 194 million heads, an increase of 18 million over the last 10 years. These animals are important sources of milk and milk products, meat and meat products, horns, and skin and serve as an important source of farm power. In a review, researchers from the United States, Egypt, Pakistan, and Indonesia detailed the current knowledge base regarding water buffalo, including phylogenetics, genomics, and economically important traits, in order to improve the state of research.

“The potential of water buffalo for human food and fiber is immense in certain parts of the world. However, the development of the species using known scientific technologies and education efforts lags behind that of some other farmed animals,” *Applied Animal Science* Editor-in-Chief Dave Beede said. “This review summarizes current knowledge and addresses potential of modern scientific approaches to improve economically important traits. The authors also offer ideas on new research and education frontiers to empower future scientists and the public to capitalize on this animal resource.”

One of the main deficits in water buffalo agriculture is a simple lack of knowledge, which acts as a barrier, preventing advances in fundamental science and technology and resulting in great economic losses globally. “Education is the most relevant factor for advancing livestock science and biotechnology,” lead author Hazem El Debaky of Mississippi State University said. By focusing on important aspects, such as growth and development, milk and meat production and quality, disease resistance, longevity, heat stress tolerance, and fertility, this review can serve as a foundational piece for those studying water buffalo.

Human population growth by the year 2050 will cause demand for animal protein to increase by two-thirds, and water buffalo is an asset described by the Food and Agricultural Organization as “undervalued.” Because of its adaptability to hot and humid climates, the water buffalo can positively address the challenges by increasing rustic livelihood, poverty alleviation, and food security.

“All of these grand challenges are in fact opportunities to develop science-based solutions,” said senior author Erdogan Memili of Mississippi State University. “With the advances in knowledge and techniques in genome biology along with the phenotypic data from ruminant livestock, researchers now have the

opportunity to tackle age-old questions through innovative, multidisciplinary and multidimensional, and collaborative studies for positive outcomes for science and society.”

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NOTES FOR EDITORS

“Review: Potential of water buffalo in world agriculture: Challenges and opportunities,” by Hazem A. El Debaky, Naseer A. Kutchy, Asma Ul-Husna, Rhesti Indriastuti, Shamim Akhter, Bambang Purwantara, and Erdogan Memili (DOI: <https://doi.org/10.15232/aas.2018-01810>), *Applied Animal Science*, Volume 35, Issue 2 (April 2019), published by FASS Inc. and Elsevier Inc.

Full text of the article is available to credentialed journalists upon request; contact Brittany Morstatter at +1 217 356 3182 ext 114 or arpas@assoqhq.org to obtain copies. To schedule an interview with the authors please contact Erdogan Memili at 662-325-2802 or em149@ads.msstate.edu.

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