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### **In-depth mineral review provides foundational resource for dairy scientists**

*Absorption and utilization of macro- and microminerals detailed in a new review from the Journal of Dairy Science®*

**Philadelphia, March 1, 2018** – Life is dependent on minerals. Accordingly, the diets of animals must contain certain minerals in both large amounts, via macrominerals, and small amounts, via microminerals. In a thorough and wide-ranging [review](#) published in the [Journal of Dairy Science®](#), Jesse Goff, DVM, PhD, professor and Anderson Chair in Veterinary Medicine at Iowa State University, examined necessary minerals as well as the mechanisms for their absorption in cows, providing insight into these vital elements.

“By understanding the mechanisms involved in movement of minerals from the diet into the blood of the animal, I hope the reader might gain some insight into factors that impair or enhance mineral utilization by animals,” Dr. Goff said. “With that knowledge, a nutritionist may have a better idea of when the diet needs more or less minerals, and whether the form of the mineral used in the diet needs to be altered to better meet the needs of the cow.”

In the review, Dr. Goff summarizes each of the seven macrominerals, calcium, phosphorus, sodium and chloride, potassium, magnesium, and sulfur, as well as several important microminerals, including cobalt, copper, iodine, iron, manganese, molybdenum, selenium, zinc, and chromium, that together contribute to a complete dietary nutrient profile for the cow. Two mechanisms of mineral absorption, paracellular absorption and transcellular absorption, are also discussed in great detail. Importantly, Dr. Goff also reviews factors such as the complex interactions that can interfere with mineral uptake and compromise the effectiveness of a diet in promoting health and productivity of cows.

Others in the field have already hailed Dr. Goff's work as a foundational piece of scholarship. For instance, David Beede, PhD, professor emeritus in the Department of Animal Science at Michigan State University, described the review as a unique piece of research with no equivalent as up to date.

"This invited review is a go-to reference for mineral nutrition and dietary factors affecting fundamental physiology and mineral status of the animals serving mankind. The nine pictorial models illustrating gut transport mechanisms of different mineral ions are especially helpful to the fundamental understanding of mineral nutrition," Dr. Beede said.

The review is openly available online at [www.journalofdairyscience.org/article/S0022-0302\(18\)30061-4/fulltext](http://www.journalofdairyscience.org/article/S0022-0302(18)30061-4/fulltext).

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#### **Notes for editors**

The article is "*Invited review: Mineral absorption mechanisms, mineral interactions that affect acid–base and antioxidant status, and diet considerations to improve mineral status,*" by Jesse P. Goff (<https://doi.org/10.3168/jds.2017-13112>). It will appear in the *Journal of Dairy Science*, volume 101, issue 4 (April 2018) published by FASS Inc. and Elsevier.

Full text of this article is available to credentialed journalists upon request. Contact Eileen Leahy at +1 732 238 3628 or [jdsmedia@elsevier.com](mailto:jdsmedia@elsevier.com) to obtain copies. Journalists wishing interview the author should contact Jesse P. Goff, PhD, Iowa State University, at [jpgoff@iastate.edu](mailto:jpgoff@iastate.edu).

#### **About the *Journal of Dairy Science*®**

The *Journal of Dairy Science* (JDS), official journal of the American Dairy Science Association®, is co-published by Elsevier and FASS Inc. for the American Dairy Science Association. It is the leading general dairy research journal in the world. JDS readers represent education, industry, and government agencies in more than 70 countries, with interests in biochemistry, breeding, economics, engineering, environment, food science, genetics, microbiology, nutrition, pathology, physiology, processing, public health, quality assurance, and sanitation. JDS has a 5-year Impact Factor of 2.855 according to the 2016 *Journal Citation Reports*®, published by Clarivate Analytics (2017). [www.journalofdairyscience.org](http://www.journalofdairyscience.org)

#### **About the American Dairy Science Association (ADSA)**

The American Dairy Science Association (ADSA) is an international organization of educators, scientists, and industry representatives who are committed to advancing the dairy industry and keenly aware of the vital role the dairy sciences play in fulfilling the economic, nutritive, and health requirements of the world's population. It provides leadership in scientific and technical support to sustain and grow the global dairy industry through generation, dissemination, and exchange of information and services. Together, ADSA members have discovered new methods and technologies that have revolutionized the dairy industry. [www.adsa.org](http://www.adsa.org)

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