The Board on Agriculture and Natural Resources (BANR) is the program unit of the National Academies of Sciences, Engineering, and Medicine that oversees a portfolio of activities on agricultural production and matters related to natural resources, including conservation, forestry, fisheries, wildlife, and land and water use. The Board’s purview includes research, education, extension, and workforce issues related to food, agriculture, and natural resources.

**CURRENT ACTIVITIES**

**Creating the Future Workforce in Food and Agriculture:** A committee will plan a workshop to discuss strategies to recruit, educate, and develop individuals in the scientific disciplines supporting the food and agriculture (including forestry) enterprise. The context for the workshop is the evolving nature of jobs in food and agriculture and the changing demographics of workforce candidates. The meeting, which will be held in early 2016, is envisioned as a catalyst for collective action by different stakeholders, including public and private employers and educators.

**Revisiting Brucellosis in the Greater Yellowstone Area:** The study will evaluate the available scientific literature and other information on the prevalence and spread of Brucella abortus in the Greater Yellowstone Area (GYA) in wild and domestic animals and examine the feasibility, time-frame, and cost-effectiveness of options to contain or suppress brucellosis across the region. The study will examine factors associated with the increased occurrence of brucellosis transmission from wildlife to livestock, examine disease management activities and vaccination strategies being undertaken or considered at the state, regional, and federal level, and evaluate the biological, animal-health, and public-health effects of those activities. The committee also will examine the current state of existing brucellosis vaccines and those vaccines under development for bison, cattle, and elk, as well as the effectiveness of currently available vaccination protocols and delivery mechanisms. The committee list and upcoming events can be viewed here: [http://dels.nas.edu/banr](http://dels.nas.edu/banr)

**Genetically Engineered Crops:** The study will conduct a broad review of available information on genetically engineered (GE) crops in the context of the contemporary global food and agricultural system, examining the history of GE crops, and building on previous National Research Council (NRC) reports on food safety, environmental, social, economic, regulatory, and other issues. The study will look at the scientific underpinnings of purported benefits and negative effects of GE crops, and identify where there are uncertainties and information gaps. The 18 month study began in September of 2014. SIGN UP for study updates at [http://nas-sites.org/ge-crops/](http://nas-sites.org/ge-crops/)

**Nutrient Requirements of Beef Cattle (8th Revised Edition):** They study will review the scientific literature on the nutrition of beef cattle in all life phases and in different types of production systems. The report will include the newest research on the amounts of amino acids, lipids, minerals, vitamins, and water needed by beef cattle and a summary of the composition of feed ingredients (including new ingredients such as biofuel co-products), mineral supplements, and feed additives. The report will review nutritional and feeding strategies to minimize nutrient losses in manure and reduce greenhouse gas production. The report is due out in the Spring of 2016.

**Nutrient Requirements of Dairy Cattle (8th Revised Edition):** A study will review the scientific literature on the nutrition of dairy cattle in all life phases and in different types of production systems. The report will contain recent research on the amounts of amino acids, lipids, fiber, carbohydrates, minerals, vitamins, and water needed by dairy cattle, and summarize research on pasture and grazing; the effects of mycotoxins; the composition of feed ingredients (including biofuel co-products), mineral supplements, and feed additives. The study will review nutritional and feeding strategies to minimize nutrient losses in manure and reduce greenhouse gas production and include a discussion of the effect of feeding on the nutritional quality and food safety of dairy products. The 2-year study began formally in July of 2014.

For more information on a current BANR study, contact Robin Schoen, BANR Director, rschoen@nas.edu.
This report develops an analytical framework for assessing effects associated with the ways in which food is grown, distributed, marketed, and consumed in the United States. The framework recommends that proposed alternatives to the current system be analyzed for simultaneous effects on health, environment, and social well-being, using appropriate measurement methods. Impacts of alternatives should be examined across the entire food supply chain, recognizing the dynamics and feedback loops within the system. The report will be useful to analysts and policy-makers.

Sustainability Considerations for the Future of Animal Agriculture Science Research (2015)
This report identifies critical areas of research and development, technologies, and resources (including human resources) needed to advance the field of animal agriculture, nationally and internationally. To sustainably increase world production of animal protein to meet the growing global demand in the face of climate change, the report recommends interdisciplinary research on social and environmental factors, as well as animal welfare, in addition to traditional research on productivity.

A Review of the USDA Agricultural and Food Research Initiative (AFRI) (2014)
This study assessed USDA’s relatively new flagship competitive grant program and offered recommendations to strengthen the program as it entered its fifth year. The report examines prospects for meeting goals and outcomes, explores how the program’s priorities are set, and considers AFRI’s role in advancing science in relation to other grant programs. The program may be trying to do too much with too few resources.

Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward (2013)
This report reviews the science that underpins the Bureau of Land Management’s oversight of free-ranging horses and burros on federal public lands in the western United States, concluding that constructive changes could be implemented. Evidence suggests that horse populations are growing by 15 to 20 percent each year, a level that is unsustainable for maintaining healthy horse populations as well as healthy ecosystems. However, promising fertility-control methods are available to help limit this population growth.

WHO AND WHAT IS THE BOARD ON AGRICULTURE AND NATURAL RESOURCES?

For more information about BANR, go to http://dels.nas.edu/banr

The work of BANR is guided by 22 advisors who meet biannually to anticipate emerging issues at the interface of science and policy. BANR has a 6-member staff team that supports the work of experts on ad hoc study and workshop committees.

Norman R. Scott, BANR Chairman, Cornell (Emeritus)
Charles W. Rice, BANR Chair Elect, Kansas State University
Peggy F. Barlett, Emory University
Harold L. Bergman, University of Wyoming
Susan Capalbo, Oregon State University
Gail L. Czarnecki-Maulden, Nestle Purina Pet Care
Richard A. Dixon, University of North Texas
Gebisa Ejeta, Purdue University
Robert B. Goldberg, University of California, LA
Fred Gould, North Carolina State University
Gary F. Hartnell, Monsanto Company

Gene Hugoson, University of Minnesota
Molly M. Jahn, University of Wisconsin-Madison
Robbin S. Johnson, Cargill Foundation
James W. Jones, University of Florida
A.G. Kawamura, Solutions From the Land
Stephen S. Kelley, North Carolina State University
Julia L. Kornegay, North Carolina State University
Jim E. Riviere, Kansas State University
Roger A. Sedjo, Resources for the Future
Kathleen Segerson, University of Connecticut
Mercedes Vázquez-Añón, Novus International, Inc.