
**WORKSHOPS: CRAFTING USAID'S
LIVESTOCK RESEARCH AGENDA-
ANIMAL SCIENCE PRIORITIES
UNDER FEED THE FUTURE**

0781 Feed the Future research strategy and USAID's global livestock investments. S. Moon Chapotin* and J. Turk, *U.S. Agency for International Development, Washington, DC.*

This presentation will outline major program areas under the Feed the Future research strategy, which encompasses global investments in aquaculture, poultry, and livestock production systems. It will summarize recent and current livestock research and value chain investments by USAID. USAID is currently conducting priority setting for livestock value chain research aimed at informing future investments. This presentation will also describe how stakeholders can provide input and advice about the research priorities as well as the role of U.S. universities and colleges in USAID-supported research activities.

Key Words: USAID, livestock research, value chain

0782 Nutritional value of animal source foods.

L. Iannotti*, *Institute for Public Health, Washington University, St. Louis, MO.*

Animal source foods (ASF) reinforce household food security. One of the most difficult and least accounted values of livestock is their nutritional value. From the early 1970s to the 1990s, meat and milk consumption in developing countries grew by more than twice the rate in developed countries. On a global basis, foods of animal (including fish) origin provide about 17% of the energy and more than 35% of the dietary protein for humans. Most importantly, the biological value of protein in animal source foods is about 1.4 times that of foods from plants and animal proteins are 20 to 30% more digestible than plant proteins (96 to 98% vs. 65 to 70%). In rural areas of developing countries, diets of children are primarily crop-based and often deficient in vitamin A, vitamin B-12, riboflavin, calcium, iron and zinc—vitamins and minerals that are essential for human health and are more bio-available in animal source foods. Vitamin A in its usable form and vitamin B-12, for example, critical for the normal functioning of the brain and nervous system, are present only in animal-source foods. Iron is more easily absorbed by humans from meat than from vegetables, zinc has a role in the metabolism of RNA and DNA, riboflavin plays a key role in energy metabolism, calcium is an essential nutrient for cell physiology and bone mineralization, and iron is necessary for hemoglobin and myoglobin production.

Key Words: animal source foods, nutritional value, protein

0783 Research needs for inclusive livestock markets in developing countries. J. Yazman*, *U.S. Agency for International Development, Washington, DC.*

The global population is predicted to reach 9.6 billion by 2050. Nearly all of future population growth will be in urban areas, with some 50% of the developing world's population living in more than 425 cities with 1 million residents or more. Urban families in developing countries, with higher average incomes, generally consume diets higher in animal-source foods (ASF) than rural families. ASFs in developing countries reach consumers through various market value chains, often with weak enforcement of public health regulation. Disease hazards and risks inherent in traditional ASF food marketing systems are not well-understood. These challenges, along with complex trade pathways, will make traceability by developing world livestock producers difficult and prevent engagement in the growing global trade in ASFs. Increasingly consumers across the globe are linking their food choices to environmental and social equity attributes and, specifically with respect to ASFs, assurance of humane treatment of animals at farm level through to harvest. End market intermediaries often enforce private standards that associate their ASFs with a range of best management practices or adhere to accepted global standards. USAID's Feed the Future Initiative seeks to link smallholder and pastoralist livestock producers to increasing local, regional and global ASF demand. Research supported by Feed the Future will enable increased competitiveness and market linkage through new technologies and improved management practices of herds and flocks that incorporate environmental standards, reduce greenhouse gas generation, and eliminate health hazards and risks all along ASF value chains.

Key Words: animal source food (ASF), Feed the Future, USAID

0784 The indispensable role of mixed small holder systems in global food and nutritional security.

J. Smith*, *International Livestock Research Institute, Washington, DC.*

By the time global population stabilizes at around 10 billion in the 2050, about 60% more food will be needed than is produced now, and about 75% of that must come from intensification as the agriculture land frontier has been largely reached. In this quest to produce much more food sustainably, small holder mixed crop livestock systems, where more than half of the food in the developing world is currently produced, will play a critical role. Studies by ILRI (2009) show that globally these mixed systems produce about 50% of the cereals, and 60% and 70% of the meat and milk, respectively. Once connected to markets, small holder mixed systems respond rapidly to the application of new interventions—both technical and institutional. It is such mixed systems that are expected to undergo the greatest transition (growth/intensification) in

the coming decades, transforming to more market-oriented systems and at the same time presenting a major opportunity to ensure that the transition is positive not only for food security but for livelihoods, economies, people's health, and the environment. Because of increasing natural resource scarcity and the effect of increasing climate variability, meeting global food and nutritional security will be extremely challenging, but the transformation of mixed crop livestock systems also offers an enormous opportunity for poverty reduction and rural transformation through stronger participation of small holders in the global food economy.

Key Words: food security, nutritional security, global population

0785 Africa livestock futures and one health.

D. Carroll*, *U.S. Agency for International Development, Washington, DC.*

The current trend of a rapid increase in the demand for animal products in Africa is not yet matched by a similar trend of increased production. The increase in demand will grow in the next three decades— at least. There will be efforts to produce more animal products to fulfill the demand. At the same time, livestock are critical to people's nutrition, food security, livelihoods and resilience in many parts of Africa. There would be widespread benefits if marginal farmers were to be able to respond to (and profit from) the increased demand. An unmanaged increase in production, as witnessed in Asia between 1960 and 2000, could bring adverse consequences, including pressure on natural resources such as water and land, increased greenhouse gas emissions, and increased threats of zoonotic diseases. If animal-derived pathogens are readily transmissible between humans and cause illnesses with high fatality rates, serious outbreaks— or even pandemics— will occur. This session will examine work underway to assess options for livestock futures in Africa based on plausible assumptions of growth through 2050 of 1) consumption of animal origin foods, 2) production of livestock and products (i.e., both demand and supply sides), 3) possible consequences and risks of the different scenarios, and 4) policy options that could, if applied, reduce or mitigate the potential adverse consequences of each scenario.

Key Words: Africa, food security, livestock

0786 The role of new technologies in increasing livestock production. D. Nkrumah*, *Bill and Melinda Gates Foundation, Seattle, WA.*

In the next 30 yr, the world's population is projected to grow by nearly 2 billion and will become more urbanized, with a more skilled workforce. The good news is that global prosperity and affluence will increase. The challenge is that food supply will need to more than double to meet the increasing demand. Specifically, the demand for animal-sourced foods needs to more than double to meet the demands of the newly affluent. With fewer and fewer people engaged in agriculture, and for the sake of the planet, animal production growth cannot continue to come from the deployment of more animals and land. Some have argued that current organic systems may be for the rich and curious and could not produce enough food to feed the world in the future. Past technologies that allowed us to advance productivity may not be enough to bring about future intensification, especially for small holders who live in areas that require attention to climatic adaptability and disease resiliency. Instead, changes in total factor productivity needs to occur through significant changes in current techniques. To transform current near-subsistence small holder production systems, we need technological innovation to drive the needed sustainable productivity increases. We require collaborative global research teams to come up with new ways of developing and adapting modern concepts in biotechnology to create the next-generation of animal genetics, health, and livestock nutrition systems. These technologies will then have to be deployed affordably through context-relevant mobile communication and digital platforms to increase accessibility.

Key Words: livestock production, food supply, biotechnology