

Climate change and Role of Animal Science Research in Food Security and Sustainability

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Strengthening animal agricultural research is essential to sustainably address the global challenge of food security. The global demand for food from animal agriculture is anticipated to nearly double by 2050. Although there is uncertainty regarding the degree and geographical variability, climate change will nonetheless impact animal agriculture in diverse ways, from affecting feed quality and quantity to causing environmental stress in agricultural animals all over the world.

However, animal agriculture affects and is affected by these changes, in some cases significantly, and must adapt to them in order to provide the quantity and affordability of animal protein expected by society. This adaptation, in turn, has important implications for sustainable production. Increased demand is due, in part, to a predicted increase in world population from 7.2 billion to between 9 billion and 10 billion people in 2050.

The United Nations Food and Agriculture Organization (FAO) estimates that there will be a 73 percent increase in meat and egg consumption and a 58 percent increase in dairy consumption over 2011 levels worldwide by the year 2050. I would like to add about food security specifically dairying issues in Pakistan. As we know that dairying is considered an important component of animal agricultural and milk the main product of dairying, is an important article of daily diet. For a long time in Pakistan, dairying could not attract the attention of public sector functionaries. Thus, raising of dairy animals and dairy farming is being practiced using the obsolete and highly traditional techniques. These techniques are being used mostly in Pakistan, India, Bangladesh, Sri Lanka. That is why, the milk yield of a large majority of our region buffalo/cows is hardly 1/4th of those of the dairy animals of most of the European countries, USA and Canada.

No consistent efforts seem to have been put in; to introduce scientific element in the management, feeding and breeding of dairy animals. Diseases also adversely affect yield of present dairy animals. Extension services to advise farmers about modern husbandry practices concerning dairy animals/dairy farming are inadequate. These conditions mostly prevail in south Asian region including Pakistan, Afghanistan, India, Bangladesh, Sri Lanka, Nepal, Bhutan and Maldives and it could pose a serious threat of food security and sustainability for the malnourished people of this region.

According to UN Standing Committee on Nutrition's World Nutrition Situation 5th report. Estimates show that stunting "affects more than 147 million preschoolers in developing countries", Stunting, wasting and micronutrient malnutrition is endemic in Pakistan. These are caused by a combination of dietary deficiencies; poor maternal and child health and nutrition; a high burden of morbidity; and low micronutrient content in the soil, especially iodine and zinc. Most of these micronutrients have profound effects on immunity, growth, and mental development. They may underlie the high burden of morbidity and mortality among women and children in Pakistan".

Potential waste products from the production of human food, biofuel, or industrial production streams can and are being converted to economical, high-value animal protein products. Alternative feed ingredients are important in completely or partially replacing high-value and unsustainable ingredients, particularly fish meal and fish oil, or ingredients that may otherwise compete directly with human consumption.

Decisively, the challenges to be met go beyond research into enhanced animal agricultural productivity. Research will be required into how to anticipate and meet significant changes in the global environment impacting on animal agriculture, how to improve equitable distribution of animal agricultural products today and in the future, and how best to improve engagement and respectful bidirectional communication between those engaged in animal agriculture and the public. Ensuring sustainable agricultural growth will be critical to addressing this global challenge to food security.

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