The Role of Livestock Production for a Growing World Population

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The world population keeps growing, and will reach about 9 billion in 2050. The increase will mainly be in the developing world as will be income growth. Taken together, by 2050, population growth and income growth may lead to food consumption levels that are equivalent to the consumption of 12 billion people at the level of today's 6.9 billion. As a consequence, animal production needs will grow dramatically. If productivity in animal production does not increase, or human consumption patterns do not change, the proportion of animals to humans will proliferate accordingly and a bigger human population will coexist with a much bigger animal population than today. This poses growing environmental and health challenges.

The growth in productivity of animal production has been strong in past decades, in economic terms as well as in terms of physical input – output relations, such a milk yield per cow, feeding and breeding efficiencies of pigs and chicken, etc. The competition between animal feed and human staple food in the markets will be more important as the demand for biomass increases in an energy hungry world. Externalities of animal production, such as infectious diseases risks within the animal population and between animals and humans may also increase. Furthermore, the effects of climate change implications of animal production via direct and indirect green house gas emissions, partly related to land use change will be a factor. A comprehensive productivity concept that internalizes such externalities needs to be considered, not just efficiency ratios per animal. At the same time, the preference for animal welfare will rise and will add complexities to traditional productivity concepts. In the context of growing animal production, increased externalities, and changing rules of the game in animal production, productivity must be accelerated even further, and science will have to play a key role. Typically, higher efficiency in animal production also has less adverse environmental externalities, and modern production systems assure higher food safety and animal health standards.

The great diversity in production systems around the world – large scale and small scale - is an opportunity. Animal production is a key income source of the poor in many regions of the developing world. The livelihood of many small farmers depends on livestock. About one billion people keep livestock, and 60 % of rural households draw income from livestock production. Policy should be cautious with pushing for quick change in scales of production, especially in the ruminant sectors, which tends to be pro poor.

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Changes in consumption are under way at a global scale. Relatively speaking, meat consumption shifts toward poultry and pork. Aquaculture is part of the change, too. Income and relative prices of (animal) products are important drivers of change and will have an effect on future consumption patterns. In terms of countries or regions, the big drivers of change in livestock based food consumption are China and India, with Africa following in the future. However, deep behavioural alterations on a per capita basis in animal products consumption – holding income constant – have been slow so far and are likely to remain so. Human taste changes very slowly. Human kind has been eating animal products for millennia, and this is deeply rooted in human evolution as part of our food chain. We also need to keep in mind that animal products are critical for human health and are difficult to substitute in healthy diets. New research reconfirms that. An appropriate and affordable component of animal products must be part of healthy diets of people around the world.

A sustainable strategy for the livestock economy - being an important part of the emerging bio-economy - requires working on both fronts: productivity change and consumption change. Such a mixed strategy requires not only the right price signals but also sound strategies pursued by the food processing industry and increased support for the related public research systems. In the coming decades a big push is needed to enhance livestock productivity for global food and nutrition security.