The contribution of agricultural research to managing zoonoses and foodborne diseases

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In 2012 the Consultative Group on International Agricultural Research (CGIAR) launched a major initiative on leveraging agriculture to improve human nutrition and health. Foodborne disease, zoonoses, and emerging diseases were identified as human health problems for which agricultural research can make a difference. Endemic zoonoses are of major importance to the health of the poorest and minor to the rich. In contrast, emerging infectious disease and food-borne zoonoses impose moderate health, and high economic, impacts on rich countries. This difference appears to be reflected in funding. Many negative impacts of zoonoses and emerging diseases are from inappropriate responses by authorities, farmers and general public rather than disease itself, and the CGIAR has a role in generating better evidence on disease priorities. Livestock populations are increasing and intensifying; we identify aspects that increase health risk and others that reduce it: overall intensification in poor countries is a significant health risk. Livestock also impair health through greenhouse gas production and environmental degradation. On the other hand, livestock offer a pathway out of poverty and a source of high biological value nutrition. Research can help ensure livestock intensification works for poor farmers and consumers and that present populations are nourished without putting future generations at risk. For many diseases with animal reservoirs, control in agro-ecosystems is more cost-effective, but it may not always feasible or acceptable. Zoonoses and food-borne diseases are rarely the most important (or limiting disease) for livestock, much disease control is a by-product of development, and integrated development-based approaches may be more appropriate and sustainable than silver bullets. CGIAR research has a key role in understanding how agricultural and veterinary involvement can improve the management of health risks that have their origin on farms and food chains.