

# Vaccines R & D 2021: Re-Emerging Livestock Diseases in the 21st Century: Alternate Strategy of Subunit Vaccines for Johne's Disease and Bovine Tuberculosis in Beef and Dairy Cattle

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## Abstract

Infectious animal diseases, such as Johne's disease (JD) and bovine tuberculosis (bTB) has been a challenge to the livestock sector and regulators globally. These diseases pose human health risks, could result in loss of public confidence in the food system and affect international trade competitiveness of the livestock sector. Despite industry-led and government initiatives and programs aimed at preventing and reducing financial losses associated with JD and bTB outbreaks, JD has remained endemic in many parts of the world while there has been incidental outbreaks of bTB. Vaccination has been a popular strategy successfully used in controlling infectious diseases. However, some whole-cell based vaccines have not been overly effective in the prevention and control of JD and bTB, while some do not receive required regulatory approval in some jurisdictions. For example, while studies (e.g. Kohler et al. 2001) have shown that it is difficult to differentiate animals that receive vaccines for JD from those that are infected, JD vaccines have been found to interfere with serological diagnosis of bTB (Muskens et al. 2002). The later has led to the ban of MAP vaccines in some countries that are battling with tuberculosis (Chaubey et al. 2016). The paper will focus on JD and bTB in beef and dairy cattle, assess alternate strategy of subunit vaccines with companion diagnostics in achieving a satisfactory immune response for JD and bTB, examine farmers' willingness to pay for the vaccines, identify appropriate policy choices that would enhance animal vaccines production and adoption by the private sector, and the implications for global food security.

## Biography

Dr. Ugochukwu is an Agricultural Economist and Senior Policy Fellow at the Centre for the Study of Science and Innovation Policy of the University of Saskatchewan, Canada. He has 17 years of professional experience in government and agri-food sector with expertise in international development, food security, rural development, agricultural value chains and market development, project management, M&E, policy analysis, stakeholder engagement, capacity building and international trade. His research has focused on food security and safety, vaccine genomics, market development, value chains, technology adoption and commercialization. He has participated in various research projects funded by governments and international donor agencies. He has published more than 25 papers in renown international peer reviewed journals and consulted for several international agencies, including: USAID, World Bank, IFAD, African Development Bank, and Agriculture and Agri-Food Canada