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“Bridging the gap between increasing knowledge and decreasing resources”

Planting the Orchard: ILVAC – An ILRI Livestock Vaccine Initiative

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Abstract

High mortality and morbidity rates due to livestock diseases are an impediment to the livelihoods of smallholder farmers who struggle to attain nutritional and economic security. Vaccines are among the most successful medical and veterinary disease interventions known. The easy vaccines, the ‘low-hanging fruit’ have by and large been made. To crack the ‘difficult-to-make’ vaccines we need to invest in planting an orchard of basic ‘vaccinology’ research, take advantage of paradigm shifts that are occurring in biosciences and harvest from a deeper understanding of diseases and the processes that protect against them. Unfortunately, livestock vaccine research often lacks a critical mass of researchers and is insufficiently funded, contributing to the dearth of vaccines accessible to smallholder farmers in developing countries.

We propose to take advantage of rapid advances in biosciences and vaccine development, and new quantitative laboratory tools that make comparisons among vaccine studies feasible, to expand the livestock vaccine pipeline and produce a new generation of vaccines. High-priority disease targets include the major livestock diseases African swine fever (ASF), contagious bovine pleuropneumonia (CBPP), East Coast fever (ECF), peste des petits ruminants (PPR) and zoonotic diseases, which are transmitted between livestock and people such as Rift Valley fever (RVF).

The vaccine initiative provides a rare opportunity to unite high-quality basic laboratory facilities with highly relevant fieldwork with access to a diverse range of pathogens and exotic and indigenous livestock species. The initiative also proposes to facilitate strategic collaborations between partners engaged in human and livestock vaccine research, providing synergies and links that have been missing in the past. Two main public good outputs will accrue from the vaccine initiative: candidate vaccines for livestock diseases of high priority to smallholder farmers and increased knowledge in the field of vaccinology. Towards these goals, the vaccine initiative will encompass research in the pathway from discovery to delivery.

Keywords: Africa, livestock diseases, vaccines