

Southern Africa, an at-risk region for the peste des petits ruminants (PPR): the need of integrated modelling

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Peste des petits ruminants (PPR) is an acute and highly contagious viral disease that predominantly affects small ruminants (sheep and goats). PPR has a widespread distribution spanning West, Central and East Africa, the Arabic peninsula, the Middle East and southern Asia. The potential and real economic impacts of PPR outbreaks are high and often disproportionately affect the poorer sections of the society. This is especially evident in developing countries where sheep and goats play an integral role in subsistence farming to supply food or goods for trade.

Since rinderpest has been eradicated, PPR has become one of the principal infectious diseases of livestock in Africa. FAO and the World Organisation for Animal Health (OIE) are currently activating the international community targeting the eradication of PPR by 2030.

PPR poses a risk to about 50 million sheep and goats in the entire Southern Africa region particularly because Tanzania and DRC have declared outbreaks in the recent years. The official services of the region need to develop strategies on how to limit the spread of the disease in the event of introduction in PPR free countries. Indeed, most of the countries are not well prepared for the diagnostic, disease containment, and legislation issues.

Based on collection of available data and estimation of parameters regarding the small ruminants demography, the type of husbandry, the legal and illegal movements and trade, and role of other potential hosts including wildlife, modelling approaches -i.e. quantitative risk assessment (QRA) and multicriteria decision analysis (MCDA) - are undertaken at the regional level in order to quantify the risk of introduction and to map the suitable areas for PPR spreading and maintenance.

The pathways of introduction are described and several at-risk areas are characterized. A zoning process is proposed at the regional level. The outputs of the models could support the prevention of disease incursion in PPR free areas and the definition of management options: risk-based surveillance and control strategies, capacity building of stakeholders and adaptation of sanitary policy.