

CATTLE-AIV

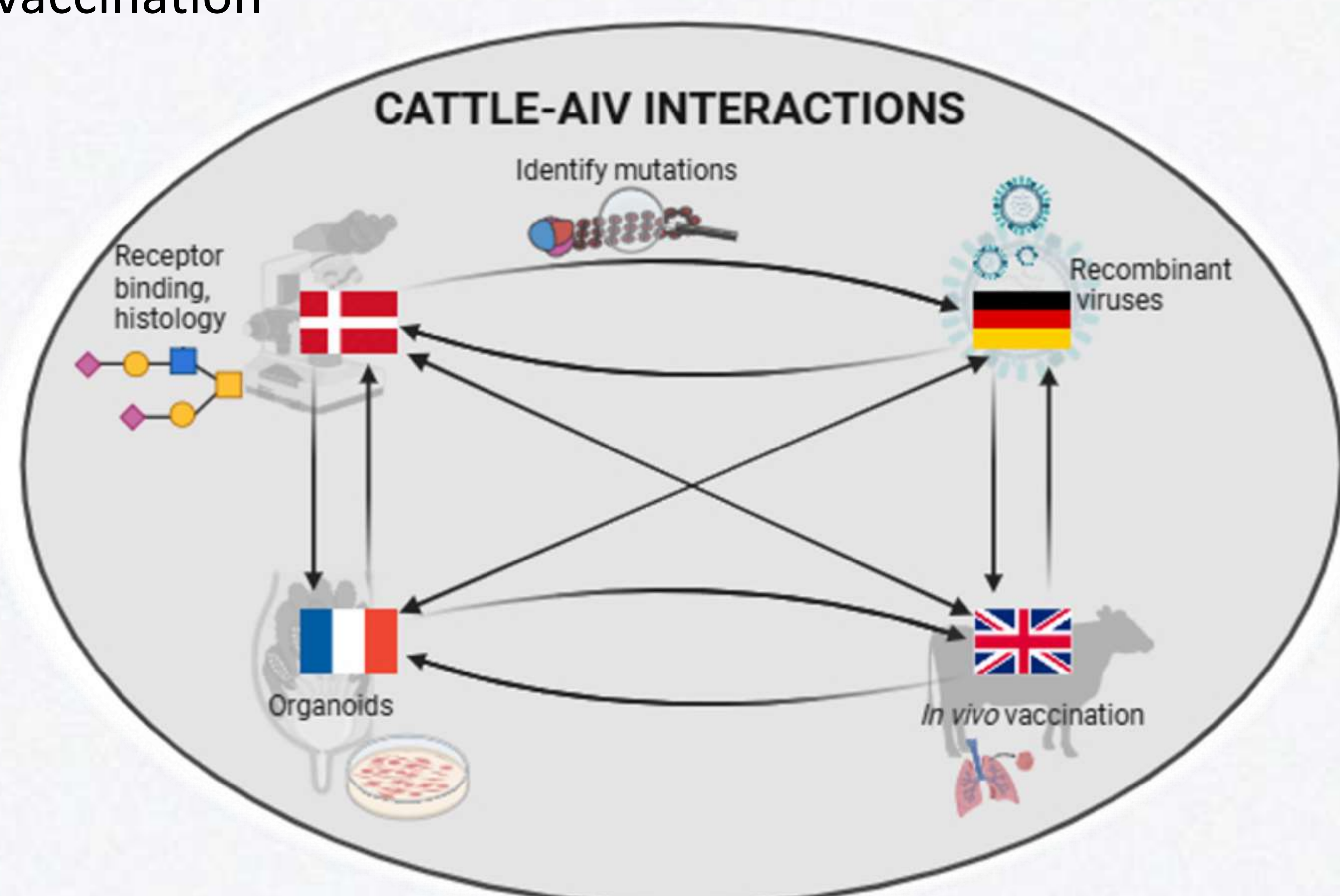
Comprehensive Analysis of Transmission, Tropism, and Livestock Epidemiology of Avian Influenza Viruses

Tallinn, 21/4/2026

1. INTRODUCTION

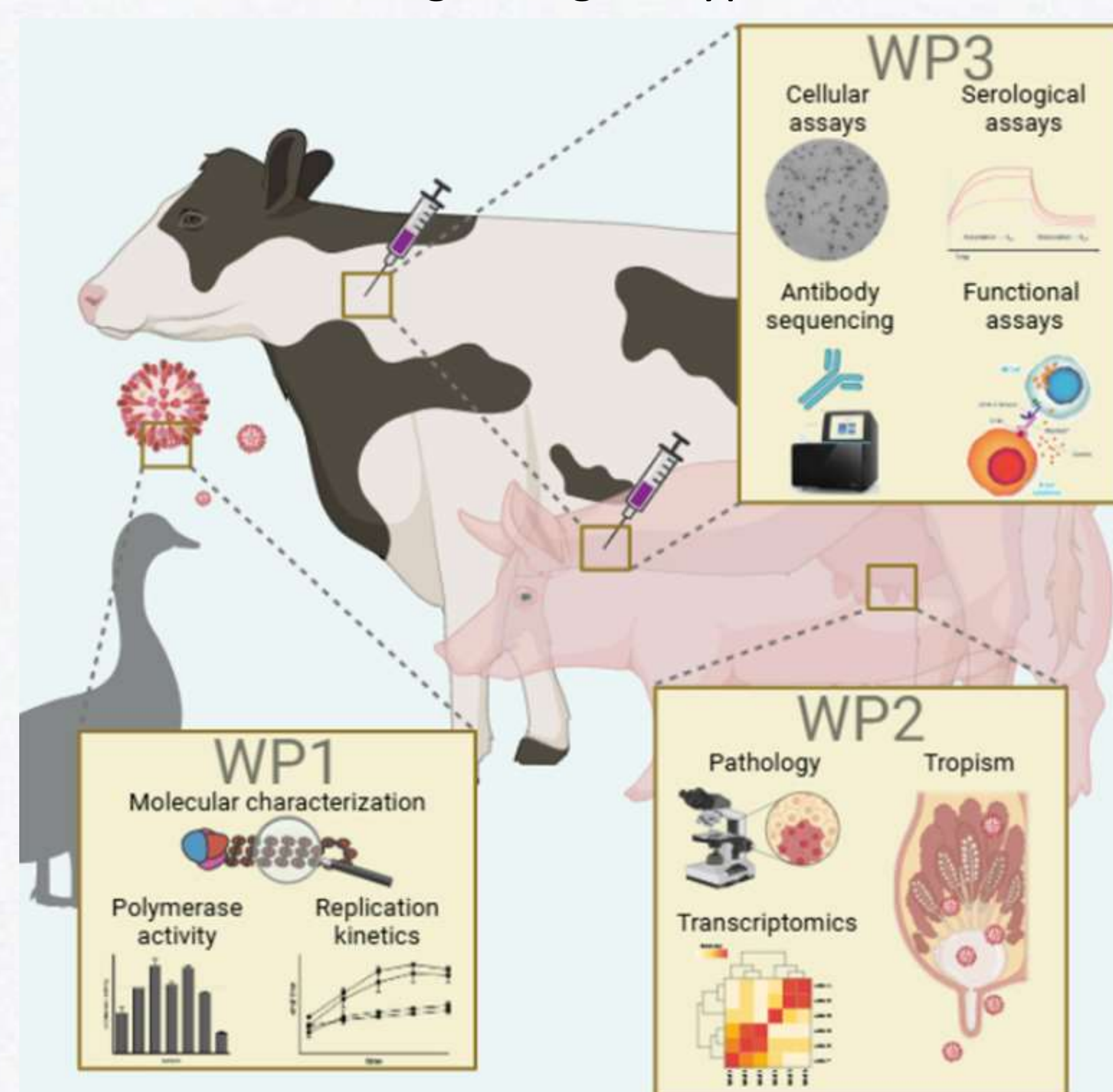
Highly pathogenic avian influenza viruses (HPAIV) pose escalating risks to animal health and welfare, and this project addresses these challenges by identifying viral determinants, assessing susceptibility and immune responses in cattle and pigs, and providing concrete outputs such as host-specific risk assessments and improved preventive strategies, while also addressing the major knowledge gap concerning the performance and practical use of H5 vaccines in livestock species to strengthen preparedness for emerging H5 threats.

Keywords: influenza, HPAIV, livestock, immunology, vaccination



2. INPUT

We would appreciate input from JIP colleagues on interpreting emerging adaptive mutations across several viral genes, such as assessing their implications for host range, mammary-gland replication and zoonotic risk, and comparing vaccine-induced immunity across livestock species, as these areas involve uncertainties and knowledge gaps highlighted by recent cattle outbreaks and evolving viral genotypes.



3. OUTPUT AND TECHNICAL COLLABORATION

We can offer JIPs viral genomic data, analyses of adaptive mutations, mammary-gland organoid and tissue datasets, and vaccine-response data from cattle and pigs, as well as our diagnostic, virological and immunological techniques. Our project will generate complementary insights into viral evolution, mammalian tropism and immunity, and we see opportunities for shared analyses, coordinated sampling strategies and joint use of advanced laboratory methods.

This project will leverage unique samples and cutting-edge technological capabilities to foster interdisciplinary and international collaborations, ultimately contributing to food security and the One Health approach, given the zoonotic potential of the virus.

4. POSSIBILITIES AND FURTHER COLLABORATIONS

Our end-users include dairy farmers, veterinarians, risk assessors and public-health stakeholders, who will benefit from timely insights into HPAIV evolution, mammary-gland replication, vaccine performance and cross-species risks.

We see opportunities to work with JIPs on coordinated dissemination to livestock sectors, including joint communication and practical outreach such as podcasts or targeted briefings.