



Rapid risk assessment tool (RRAT) to assess exotic animal disease introduction risks

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Objective

- An automated tool to evaluate animal disease risks allowing for:
 - Rapid analysis of incursion risk of a multitude of diseases
 - Prioritization of diseases for risk management and early warning
 - Insight in source countries and pathways to support preventive measures and risk-based surveillance
 - Updates for real-time analysis

Approach

- Relational database in R and SQLite to link data on disease outbreaks worldwide, international trade flows and infectivity (Fig. 1)
- Semi-quantitative risk scores between 0 and 1 to rank diseases, source countries and pathways

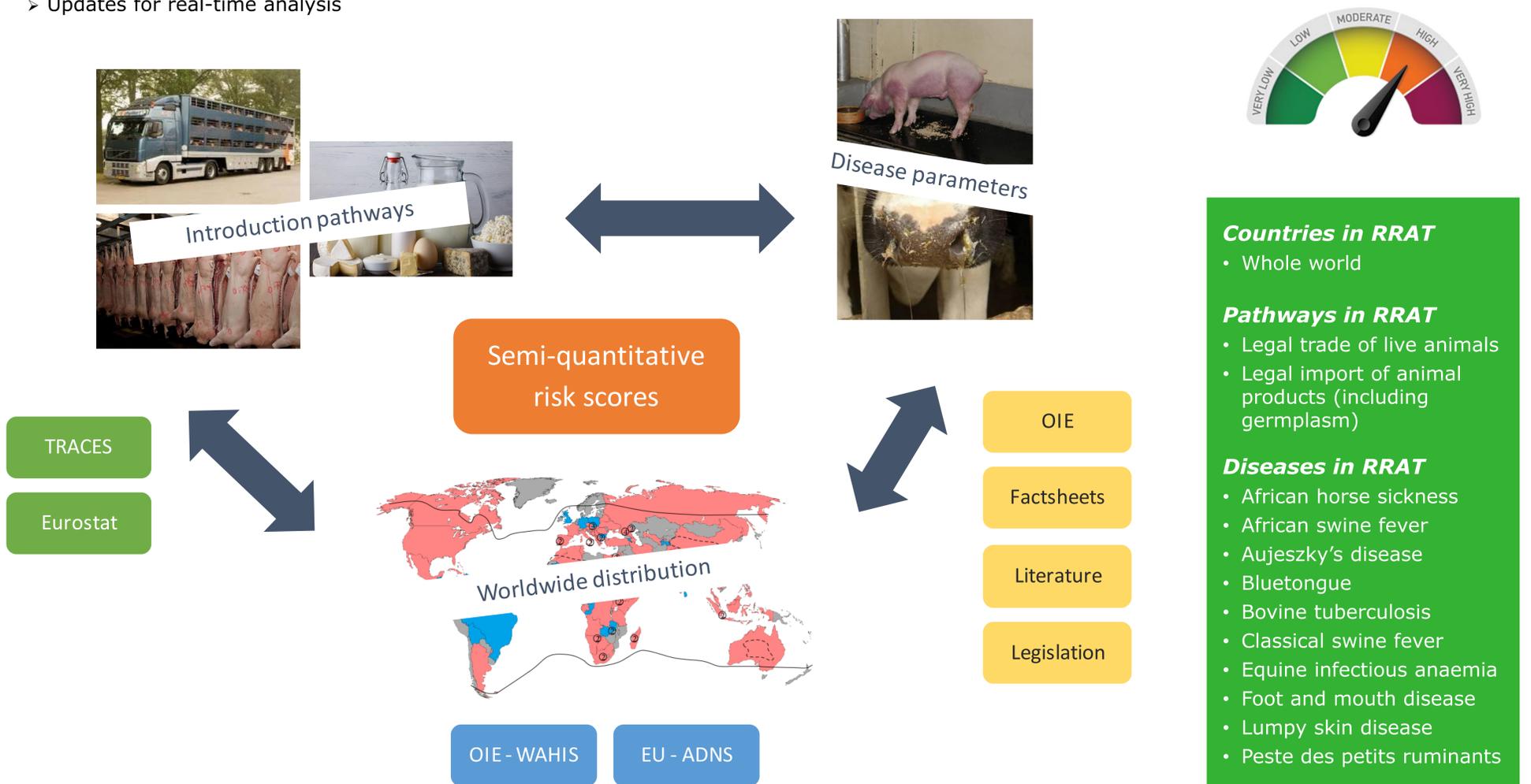


Figure 1. Outline of RRAT and databases used

Calculations

- Binomial process considering (1) the number of animals/products imported, (2) the probability of entry into the country and (3) the probability of first infection of native animals (Fig. 2 and 3)

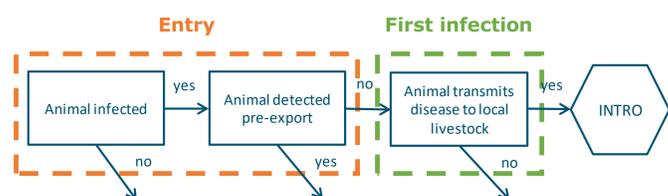


Figure 2. Scenario tree to calculate the probability of entry and first infection for trade in live animals

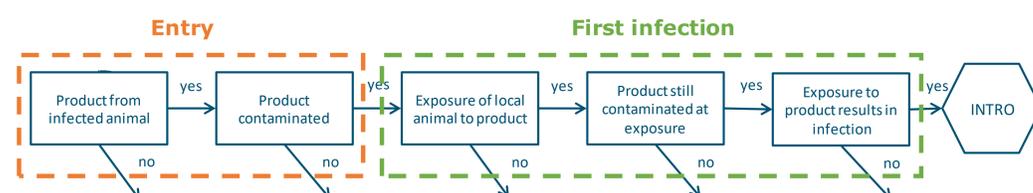


Figure 3. Scenario tree to calculate the probability of entry and first infection for import of animal products

Results

- Preliminary results for the Netherlands in the 2016 situation
- Results can be analysed in more detail for source countries, animal species, and animal products

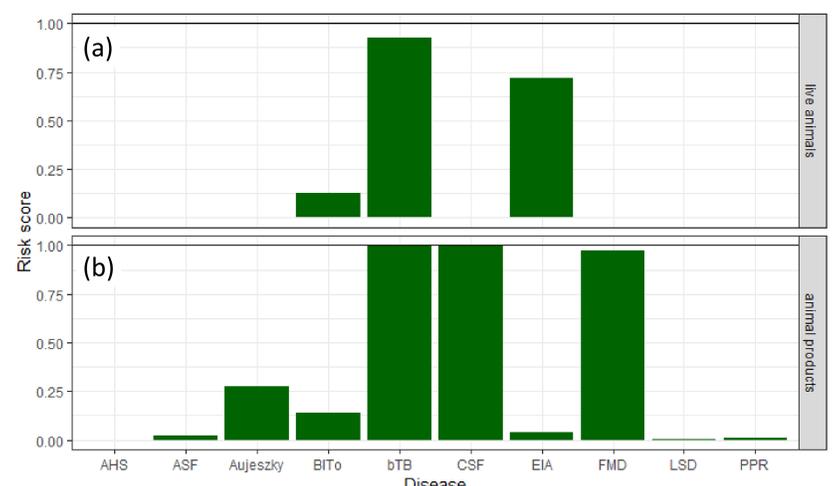


Figure 4. The risk of having a new first infection in the Netherlands for each disease resulting from (a) trade in live animals and (b) import of animal products