

Qualitative risk assessment of the dissemination of foot-and-mouth disease through transportation of sheep and fresh mutton/lamb within the European Union

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Problem

- Increased international trade and decreased transit times for transports of live animals and animal products
- Increased risk of cross-border transmissions of highly infectious diseases like Foot-and-Mouth Disease (FMD)
- Virus transmission can occur by transportation of infected sheep or by fresh sheep meat
- Mild symptoms makes it difficult to detect clinical FMD in adult sheep

Methods:

- Representation of transportation of live sheep and meat in a risk tree (Fig. 1);
- Literature search for the identification of potential risk factors;
- Expert interrogation for assessing the relevance of potential risk factors, which were grouped into risk sections
- Qualitative assessment of the impact of highly relevant risk factors on primary path (Fig. 4 & 5) (score 0=irrelevant, 1=possible risk reduction, 2=possible risk elimination, 3=risk elimination) and secondary path (score 0=irrelevant, 1=unlikely to be influential, 2=likely to be of minor influence, 3=likely to be highly influential)

Objectives / Risk question

The goal of this study was to document, whether the transport of fresh sheep meat (mutton/lamb) had a lower risk of FMD dissemination and could be an alternative to transportation of live sheep

Fig. 1 Primary path in risk tree for live sheep transportations

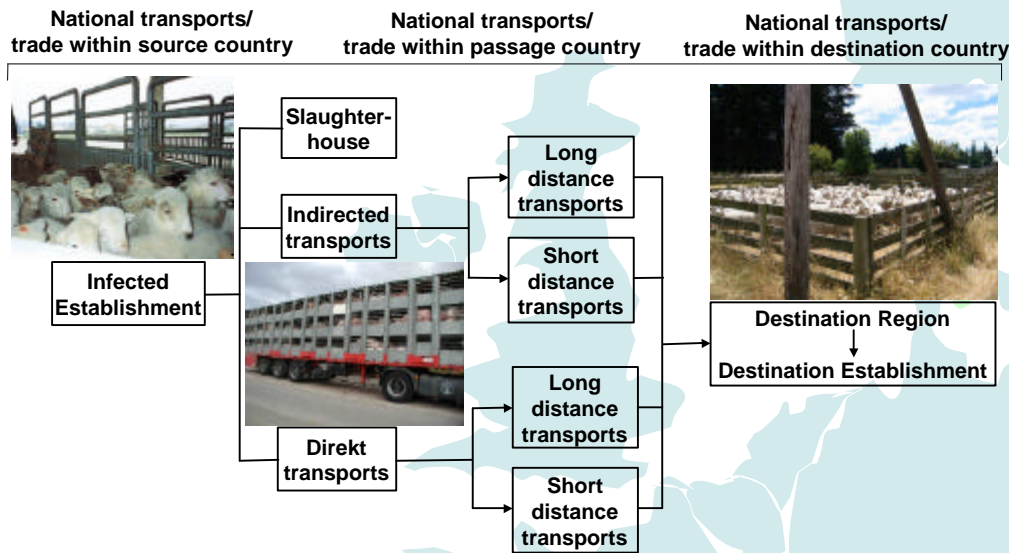
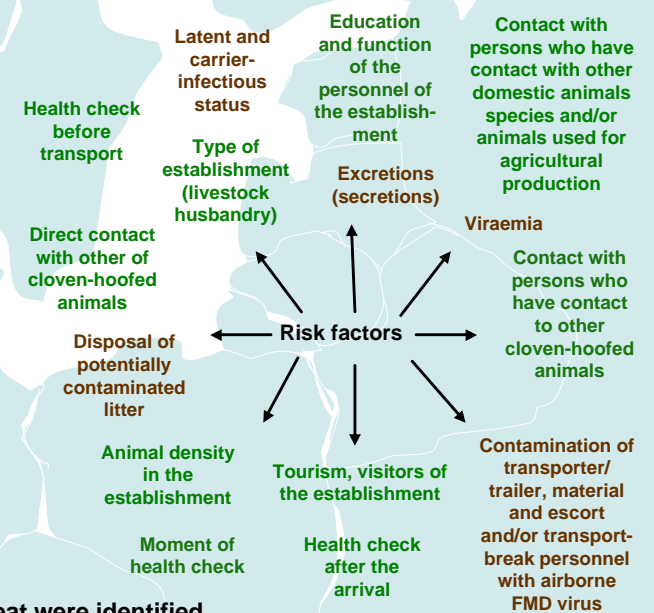


Fig. 2 Risk factors for live sheep transportations grouped by risk sections „transported goods“ and „source establishment“



Results:

- 80 potential risk factors for transmission by live sheep and 67 risk factors for fresh meat were identified.
- 39 risk factors were assessed by experts to be “highly relevant” for live sheep transportation (Fig. 3), most belonging to risk sections **“transported goods”** and **“source establishment”** (Fig. 2).
- 10 risk factors were assessed by experts to be “highly relevant” for fresh mutton/lamb transportation, most belonging to risk section **“destination establishment”**.
- For live sheep, the risk sections “source establishment” and “transport route” contained the most risk factors considered to be unable to prevent risk of virus transmission within the primary path, if eliminated (Fig. 4).
- For fresh mutton/lamb, the risk sections „transporter condition“ contained the most risk factors considered to be unable to prevent risk of virus transmission within the primary path, if eliminated.

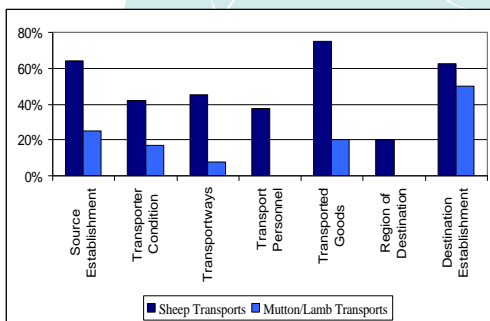


Fig. 3 Risk factors assessed by experts to be „highly relevant“ for transportation of live sheep and mutton/lambs by risk sections

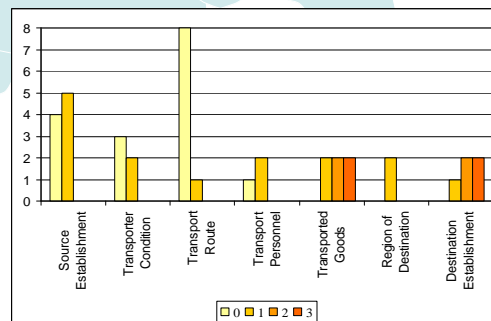


Fig. 4 Relevance of risk factors for elimination of FMD transmission risk through transportation of live sheep by risk sections in primary risk path

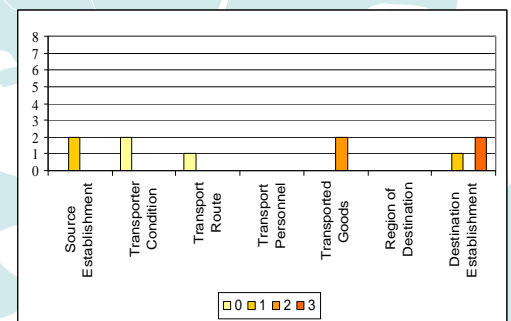


Fig. 5 Relevance of risk factors for elimination of FMD transmission risk through transportation of fresh mutton/lamb by risk sections in primary risk path

Conclusions

The transport of live sheep included the most “highly relevant” risk factors, which are likely to be difficult to control by risk management.

The risk of dissemination of FMD by transportation of live sheep appears to be higher than by transportation of fresh mutton/lamb.