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Contagious Animal Diseases – the science behind trade policies and regulations,

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The global trade of animal and animal products is increasing which is reflecting an increased consumer demand of meat. When comparing the value of different trade commodities, trade of food is in the middle segment. Even so, when there are outbreaks of contagious animal diseases these may have large effects on trade, economy and domestic food production, one example being the collapse of the Vietnamese export market during the outbreak of Highly Pathogenic Avian influenza. Even if the global trade of animal products has increased most products are consumed within the country where they are produced. There are also huge differences between countries and continents. The global trend described above is also seen in Sweden. The import of bovine meat increased five-fold during the last two decades, whereas export doubled. The majority of the import of agricultural products is from EU countries.

The world trade organization (WTO) is founded on the principle of free trade. However, this principle does not hold entirely due to the risks related to free trade. Risks and benefits with food trade, i. e. animal health risks vs. access to larger high-price markets, and public health risks vs. food security, need to be balanced to account for potential risks to human and animal health. To manage and quantify risks and benefits risk analysis is an important tool also taking economic assessment into account. The principles of the SPS (Sanitary and Phytosanitary) agreement under the WTO allow the importing country to stop trade if there is a health risk for humans, animals and/or plants. These risks have to be shown using scientific methods (i.e. risk analysis). The common agricultural policy within the EU is to have free markets and open borders and the primary goal of legislation is to facilitate trade. Science has therefore to be embedded in appropriate legislative acts to control for contagious animal diseases. Refining legislation is seldom the primary goal of scientists who usually are not oriented towards business and trade, although science is a necessary tool for drafting appropriate legislation. Science usually focuses on the animal diseases and does not take other aspects, such as economics and social factors, into account. The complexity of science means that there are seldom simple solutions to challenges as regards contagious animal diseases. Usually there is limited data behind estimations of costs due to outbreaks of severe contagious animal diseases. More facts are needed when estimating costs related to production, distribution and consumption, and also to lost benefits associated with consuming animal-derived food as well as loss of economic values due to disease for individuals and society as a whole.

One example of science implemented in policy is the amendment of the EU decision as regards the discriminatory tests for classical swine fever. Another example is the refinement of control of Foot and Mouth Disease (FMD) within and between herds using vaccination-to-live and not only vaccination-to-cull. This was based on science combining viral challenge trials with epidemiological modeling. However, scientific evidence has to be very solid as ‘what can go wrong will go wrong’. This was the case during the FMD outbreak in the UK in

the early 2000's when epidemiological modeling resulted in unrealistic scenarios. This is an example of the difficulties in gathering good quality data during an ongoing outbreak.

The situation is different in low-income regions where smallholder livestock keepers dominate. These smallholders are expected to commercialize their operations even more in the future, but still to produce mainly for local informal markets. Animal disease is a bottleneck in livestock production in low-income regions and the annual mortality of African livestock is high. This is however not reflected in the OIE official statistics as the reporting capture only a small fraction of the total animal mortality. In low-income regions, international trade matters very little even if the demand of livestock products will continue to increase. More regulations do not automatically lead to reduced public health risks, rather the contrary have been observed. The focus should be more on risks and less on hazards.

When scientists and policymakers are dealing with complex problems as regards contagious animal diseases a holistic perspective should be embraced and cross-disciplinary collaboration is important. These were lessons learnt during the BSE/vCJD outbreak when emerging science had to be integrated with emergency preparedness planning.

Concluding remarks:

- There is a need to build a more solid bridge between science, policies and regulations. Solid scientific evidence is needed to refine and improve current legislation to control and prevent outbreaks of severe contagious diseases.
- Trade of animals and animal products are of great global economic importance and will increase even more. Even so, trade of meat only accounts for a small fraction of the total consumption of animal products. There are huge regional differences and lessons learnt in one region may not be applicable in another region.
- A more systems' thinking is needed and science should not only take into account animal disease, but also, for example, economics and social science.

The seminar was organized by the Centre of Global Animal Diseases, the Swedish University of Agricultural Sciences. (www.slu.se/cgd)