TAFS

INTERNATIONAL FORUM FOR TRANSMISSIBLE ANIMAL DISEASES AND FOOD SAFETY
a non-profit Swiss Foundation

TAFS[1] Position Paper on Relaxation of the Feed Ban in the EU

SUMMARY

This document is a simplified and shortened version of the corresponding full position paper which should be consulted for additional details, arguments and all references. The full position paper is available at:
http://www.tafsforum.org/position_papers/TAFS_POSITION_PAPER_ON_RELAXATION_OF_FEED_BAN_2010.pdf

Epidemiological evidence implicated contaminated rendered meat and bone meal as the source of the BSE epidemic in the United Kingdom, continental Europe as well as a few other countries around the world. With the overall global decline of BSE cases, national governments are beginning to explore the possibility of relaxing some of the measures taken to bring the disease under control. This paper will examine the current scientific knowledge and other facets that may impact decisions regarding the feed bans.

Introduction and background

- Bovine spongiform encephalopathy was first identified in cattle in 1986 in the United Kingdom (UK), from where it subsequently spread, first to other European countries and later to additional countries worldwide. By 1988, epidemiological evidence suggested that infection was transmitted between cattle by ingestion[2] of infectious animal proteins derived from infected cattle that were rendered and included in feed. Following this finding, the feeding of ruminant proteins[3] to ruminants was prohibited in the UK[4]. However, evidence demonstrated that this feed ban was not fully effective in preventing new infections. Therefore, over the

[1] TAFS is an international platform created by a group of scientists, food industry experts, animal health regulators, epidemiologists, diagnosticians, food producers, and consumers. Its purpose is to establish and maintain lines of communication for the dissemination of reliable information to the public that can maintain confidence in the safety of food with regard to Transmissible Animal Diseases (TAD).

[2] I.e., feeding on
[3] I.e., proteins that once were part of the bodies of ruminant animals (cattle, sheep or goat)
[4] Tissues and animals that are not intended for human consumption would be routinely cooked to make them suitable to use in feed. The primary objective of this was the production of tallow.

following years, increasingly more restrictive feed bans were implemented in the UK and the European Union (EU).

- In 1988, the UK banned the feeding of ruminant proteins to ruminants. In 1990, the inclusion of specified risk materials[5] in feed for all animals was prohibited. Then in 1994, because the concept of cross-contamination had been identified, the feed ban was further tightened to prohibit the inclusion of all mammalian proteins in ruminant feed[6]. Finally in 1996, because previous measures were shown not to be totally effective, the UK prohibited the feeding of all animal proteins to all farmed animals[7].

- The first feed ban for the entirety of the EU was not implemented until 1994, when the feeding of mammalian proteins to ruminants was prohibited. Some national governments took their own actions to implement restrictions prior to the 1994 prohibition. In 2001, this feed ban was extended to include the feeding of all processed animal proteins (PAPs) to all farmed animals. Only very few exceptions were allowed under strict conditions, including the use of fishmeal for non-ruminants and the use of blood meal derived from non-ruminants for fish feed.

- Both in the UK and in the rest of the EU it was found that these total feed bans for all farmed animals were the only option to prevent the intentional or unintentional inclusion of ruminant protein in ruminant feed in the feed production process, and to exclude the possibility of on-farm crossfeeding of ruminants with non-ruminant feed containing ruminant proteins. This extreme zero-tolerance level was necessary because it was determined that cattle could be infected by as little as 1 mg of infectious tissue in their feed. Minimal levels of crosscontamination of ruminant feed with infectious materials could therefore be sufficient to cause new infections in cattle.

- Since the beginning of 2001, the reports of contaminated feed samples have reduced significantly, however, they have never dropped to zero[8]. Some very low levels of contamination of feed are considered inevitable, due to the possible inclusion of small animals (e.g. rodents,) that are killed during the harvest of the plant raw materials.

- The number of BSE cases has dropped significantly in the UK and continental Europe since the beginning of active surveillance in 2001. Very few BSE cases have been born after the 2001 feed ban, and the number of cases confirmed by year continues to decrease. At the same time, the average age at slaughter of detected BSE cases continues to increase, indicating that the exposure of the animal occurred at a time point prior to the expanded ban. These data suggest that the total feed bans (1996 in the UK and 2001 in the rest of the EU) have been effective in significantly attenuating if not eliminating the BSE epidemic in the EU.

The proposal on the (European) table

- Recognizing the successes in the control efforts for BSE, in 2005 the European Commission (EC) published the TSE Roadmap. This Roadmap laid out the short, medium and long term

[5] These are the highest risk tissues by virtue of infectivity detected. See http://www.tafsforum.org/position_papers/TAFS_POSITION_PAPER_SPECIFIED_RISK_MATERIALS_2009_feb.pdf for details.
[6] Tests available at the time could not identify such contamination.
[7] Until then, feed intended for pigs and poultry still contained ruminant protein, and remained potentially infectious, albeit at much reduced levels.
[8] Note that the term ‚contaminated' refers here to the origin of tissue, i.e., ruminant, not to the presence or absence of infectivity.

strategic goals of the EC in relation to TSE control measures. For the feed ban, the Roadmap defined the strategic goal as the relaxation of certain measures when certain conditions are met. In particular, four issues requiring re-consideration were identified:

- Presence of bone fragments in sugar beet pulp and other feeding stuffs
- Presence of fishmeal in milk replacer for ruminants
- Lifting feed ban provisions for non-ruminants
- Possible need for future provisions on tallow

The first two elements have already been dealt with, as laid out above. There is no scientific evidence that indicates a current need for provisions on tallow. The TSE Roadmap has been revised and a 'TSE Roadmap 2' has been adopted by the European Commission . In this document, two future policy options are mentioned regarding the feed ban:
1) A tolerance level for PAP in feed for farmed animals may be proposed.
2) Feed ban provisions for non-ruminants may be lifted. While intra-species recycling as well as feeding PAPs of ruminant origin to any livestock will remain forbidden, non-ruminant proteins in feedstuff intended for non-ruminants might be reauthorized. Specifically, the feeding of porcine[9] proteins to poultry and poultry proteins to pigs is under consideration.

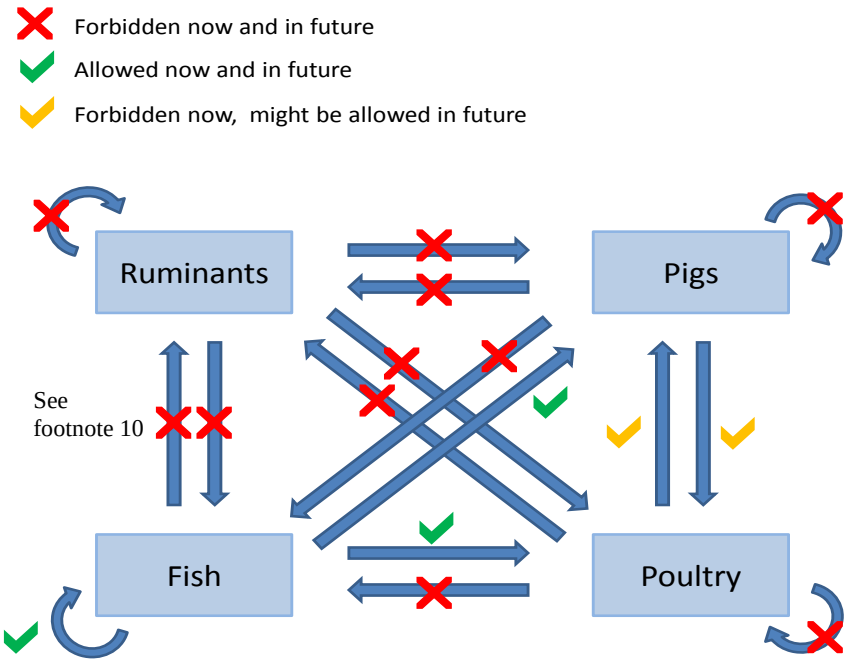

Figure 1:
Schematic and simplified representation of feed ban provisions of farmed animals according to EU TSE Roadmap 1 (current) and 2 (future).

[9] I.e., originating from swine
[10] With the exception of fish meal in milk replacers

Arguments in favor and against the proposed relaxation

Pro	Contra
Considerations regarding disease control and epidemiology	
By 2010, the BSE epidemic appears to be phasing out. In 2001, 2,167 BSE positive cases were detected within the framework of the EU surveillance activities. By 2008, this number had fallen to 125, 17 times less. This also implies that the probability has diminished significantly that infected cattle erroneously enter the feed production chain.	In Europe there seems to be general support for the opinion that feeding any animal proteins to ruminants[10] should remain forbidden to ensure that the BSE epidemic will not be revived and to respect the herbivorous nature of cattle and sheep. That particular feed ban was at the core of the hugely successful control of the BSE epidemic in Europe.
Even in the fact of a partial relaxation so that pigs and poultry tissues can still be recycled, it is entirely likely that SRM exclusion will continue. So, even should some future cross-contamination take place, it will be without the presence of high risk tissues.	
The full feed ban proved necessary and successful in bringing the BSE under control. The open question is whether releasing it (partially) would bear the risk of allowing a new BSE/TSE outbreak to start all over again.	

Pro	Contra
Disease considerations	
	The inclusion of non-ruminant feed in the BSE feed ban regulations was not a result of scientific, but rather of practical considerations. If allowed, ruminant feed might have been contaminated with non-ruminant feed (which legally contained proteins of ruminant origin until 1996/2001 in UK/EU) due to the complexity of the rendering and feed industry. In addition to erroneous contamination, non-ruminant feed might be contaminated with ruminant proteins through labeling errors or even fraud if parallel production systems were in allowed in the future. Any such contaminations could not be reliably detected with currently available tests.
Even if PAPs would, unlawfully or unintentionally, end up in ruminant feed, they would pose no known TSE risk under the assumption of two important, jointly sufficient conditions: 1) That the PAPs stem exclusively from non-ruminants. With the complete ban of ruminant material being rendered into feed for farmed animals this assumption is very likely to be met, although pet feed could be a source of contamination.	
2) That non-ruminant proteins can under no circumstances trigger the development of TSE diseases in ruminants even if fed to them. According to an EFSA opinion there is no evidence to suggest the contrary and EFSA considers the risk of transmitting BSE to pigs utilizing poultry PAPs (and vice versa) as negligible. Despite massive exposure at least until 1990 in the UK there is no evidence of a TSE like	On the other hand, there is also only weak evidence to actively support the scientific validity of this assumption. Additionally, pigs have been shown to be susceptible to infection with TSE-material of ruminant origin by parenteral[11] challenge, but experimental transmission of BSE to pigs by the oral route has been unsuccessful. Given the current paucity of the experimental evidence, the condition

[11] I.e., not through the digestive system, but by injection

disease in any pig.	cannot be considered completely satisfied, since the absence of evidence does not constitute evidence of absence.
No spontaneous development of TSE-like disease has been observed in pigs. By far most, if not all, pigs slaughtered for human consumption do not live to be even 1 year old.	It is plausible to assume that pigs can develop such diseases as a very rare event and if left alive long enough. Multiplied by the number of live pigs – close to 1 billion worldwide – that would result in a non-negligible number of pigs with TSE if circumstances in the population concerned enabled processed pig protein to be recycled into ruminants..
In conclusion, it is not entirely clear at this time whether and under what conditions pigs can develop TSEs, i.e. BSE-like diseases.	
This loop can be prevented if all gastrointestinal tracts and their contents are removed and discarded before the rendering of animal by-products.	If pig-meal is allowed as feed to poultry and vice versa then a closed loop of material could be established provided that undigested pig proteins contained in the gastrointestinal tract of poultry is fed back to pigs or the other way round. This requirement would be – like all other risk reduction measures – subject to error and fraud (and may be considered disproportionate in countries where avian or porcine gastrointestinal tracts are valuable commodities) in the absence of any identifiable risk, but add to the redundancy of risk management.
Closed rendering-feed-loops can potentially give rise to TSE-risks. Therefore, such loops should be prevented.	
The feeding of ruminant protein to ruminants which gave rise to the BSE epidemic is the best evidence for potential propagation of a disease via this route. With respect to pigs and poultry however this remains purely a theoretical risk.	Experimental evidence suggests that certain species may carry TSE- infectivity without becoming clinically ill or otherwise being able to be identified as infected.
It is impossible, therefore, to exclude that animals (or humans) get infected from consuming other animals which showed no indication of being infected themselves.	
	With currently available tests, there are three problems that would face official feed controls if the non-ruminant feed ban were to be relaxed: – First, all diagnostic tests have a certain limit of detection. That implies that very low levels of contamination of feed samples with prohibited substances would not be detected. This situation is not different from the current situation. – Second, the current official diagnostic method, classical microscopy, cannot distinguish between different terrestrial animal species. It could therefore not be verified whether the new feed regulations for pig and poultry feed are implemented correctly, i.e. it cannot be verified that ruminant proteins are not included in feed and that intra-species feeding is not occurring. The implementation of the feed ban for ruminants can still be verified, because a zero tolerance for PAPs in ruminant feed continues to be in place. – Third, it is impossible to guarantee 100% sampling of non-homogenous material.
Diagnostic testing options are insufficient to verify with certainty that a (partial) feedban is strictly respected.	

Pro	Contra
Consumer considerations	
It should carefully be ascertained whether consumers are willing to accept the partial lifting of the feed ban for non-ruminants. Consumer acceptance should be investigated by established consumer science methods and judgments on consumer acceptance should be made on scientific evidence thus established and not on personal opinions and impressions. Also retailer acceptance needs to be investigated.	
Pigs and poultry are omnivorous species and animal-based feed is thus part of their natural diet.	Some consumers may view cross-feeding of pig and poultry material with some suspicion, especially if this results in intraspecies feeding (i.e., pig protein crossing back into pig feed).
These concerns should be taken seriously, because they could lead to a loss of consumer confidence if not addressed adequately. Timely and clear communication will be needed to discuss with consumers the rationale for the relaxation of the feed ban both with regard to BSE risk and with regard to acceptable feeding practices.	

Pro	Contra
Nutritional considerations	
In contrast to ruminants, pigs and poultry are both omnivorous species, and thus feeding animal proteins to them does not per se violate their natural dietary habits. Also, animal proteins are composed in a way that closely matches the nutritional needs of other animals – closer than plant-based proteins.	
Animal proteins are a valuable feed material for omnivorous animals.	

Pro	Contra
Economic and ethical considerations	
Use of animal proteins as feed ingredient is also an economic use of a valuable product. In 2002, the EC estimated that 16 million tons of animal by-products would have to be destroyed annually as a result of the feed ban. In the light of a quickly intensifying competition for resources between the demands for human food, animal feed and biofuels, such a large-scale destruction of biological material will appear to many as a regrettable loss if not irresponsible waste. The quantitative dimensions of this loss are hard to estimate, but the direct economic effects were assessed at €1.5 billion due to loss of value of animal by-products, €0.7 billion due to replacement costs of animal by-products by other feed ingredients and another €3 billion due to cost of disposal of animal by-products.	
The destruction of valuable animal proteins comes at very substantial economic costs.	
The growing demand worldwide for animal protein in the human diet is putting increasing pressure upon the environment and upon the availability of human food crops, as available land is needed for the production of animal feed. The removal of large quantities of animal protein from the animal feed system as a result of feed bans such as those in place to control TSE's in farm animals only exacerbates this pressure. It thus raises serious questions about the fair allocation of resources for human food worldwide, as well as questions of environmental ethics and sustainability.	These ethical concerns need, of course, to be balanced against the ethical implications of any increase in the risks to human health that might result from the re-introduction or continued practice of recycling animal protein in the animal feed system.
For many people, the substantial wastage or non-use of animal products, raise additional ethical issues for the very system of animal farming and slaughter. This system places substantial stress and suffering upon many animals, especially under the conditions of highly intensive farming, transportation and slaughter of animals. These practices, which for many people already approach the limits of ethical justification, are ethically compromised even further if significant portions of the animal protein obtained by this use of animals are wasted.	
Several ethical aspects have to be balanced against each other when considering a relaxation of the feed ban, including food security (maximized food production from available resources) and food safety (absence of health risks from food consumption).	

Key issues to deal with before the feed ban for non-ruminants can be relaxed
In our opinion, several key requirements need to be met before the feed ban for non-ruminants can be relaxed:

- The feed industry needs to ensure the following:
  - Ruminant materials remain excluded completely from the entire feed chain. This requires a complete and reliable traceability system for both ruminant and non-ruminant materials.
  - Intra-species feeding is prevented entirely. This requires that pig and poultry by-products are prevented from mutual cross-contamination by dedicated separate logistical pathways from slaughterhouses through rendering and feed production processes.
  - No animal proteins are included in ruminant feed. This requires that the ingredients for and the production of ruminant feed is completely separate from the ingredients for and the production of non-ruminant feed.

- Scientific knowledge required:
  - Diagnostic tools must be developed with the capacity to verify compliance with any revised feed ban. These tools must be able to differentiate between PAPs from different animal species, and – in case it is decided to implement a tolerance level for contamination of feed – they must be able to determine if the level of contamination exceeds the defined tolerance levels.
  - More research is needed to support the assumption that non-ruminant proteins cannot induce TSE-like diseases in ruminants, even if these diseases circulated among different non-ruminant species beforehand.

- The authorities need to ensure the following:
  - Competent authorities have the means and capacity to monitor the feed industry closely and assess their capacity to comply with the remaining feed ban regulations BEFORE any changes are allowed to proceed.
  - Legislation is in place to hold the industry liable in case of breaches of the remaining feed ban.
  - Appropriate diagnostic tools are registered and validated to verify compliance with the feed regulations.

In the view of TAFS, taking into consideration all of the scientific and epidemiological knowns and unknowns, the fact that the requirements as listed above are currently not met and acknowledging the potential for fraudulent behavior, a relaxation of the feed ban at the present time would not eliminate all risks. We feel strongly that maintenance of the ban is the only means to drive the level of risk toward zero.