Microbiological Risks from Alternative Feed Sources

INTRODUCTION

The EU FP7 project "Quality and SAfety of Feeds and Food for Europe" (Q-SAFFE; www.qsaffe.eu) aims to provide Europe with a framework for improving the quality and safety of animal feeds entering at ports from outside the EU as well as products produced within Europe. Its objective is to provide better ways of preventing contamination, preventing fraud, identifying and assessing new risks and providing scientific evidence of the risks of transfer of microbiological and chemical contaminants from feed to food.

Identification of pathogens which could be present in feedstuffs currently being used or proposed as alternatives to conventional animal feeds was the aim of a review conducted for the QSAFFE project by the Food and Environment Research Agency, York.

METHOD

770 references were obtained; for most, abstracts were available. References to non-relevant information such as analytical methods and effect of feeding regimes on growth were discarded. References to feedstuffs which are obviously not alternative, such as fish meal or soya meal, were discarded. The final list fell into two categories: marine plant-derived and terrestrial plant-derived

RESULTS OF REVIEW

Marine plant-derived alternative animal feed	**Microbial risk**
Algal residues	range of bacterial spp
Seaweed meal	*Vibrio* spp
Terrestrial plant-derived alternative animal feed	
Amaranthus cruentus leaf meal	*E. coli*
Canola meal	*Salmonella* spp
Citrus pulp	*Salmonella* spp, *E. coli*, *Listeria* spp
Cocoa meal	*Salmonella* spp
Copra meal	*Salmonella* spp
Corn starch	*Salmonella* spp
Cottonseed meal	*Salmonella* spp
Distillers dried grains	*Salmonella* spp
Dried tomato pomace	*Salmonella* spp
Linseed meal	*Salmonella* spp, *E. coli*,
Moringa leaves	*Salmonella* spp, *E. coli*, *Listeria* spp
Palm kernel cake	*Salmonella* spp
Panicum turgidum	*Salmonella* spp
Peanut meal	*Salmonella* spp
Poppy seed meal	*E. coli*
Salicornia seed meal	*Vibrio* spp
Sea buckthorn berries and leaves, and extracted substances	*Salmonella* spp, *E. coli*, *Listeria* spp
Solid state fermented potato pulp	*Listeria monocytogenes, Bacillus* spp *Salmonella* spp, *E. coli, enteric viruses, protozoan parasites e.g. Cryptosporidium*
Sugar beet pulp	*Salmonella* spp, *E. coli*, *Listeria* spp
Sunflower meal	*Salmonella* spp
Telfairia occidentalis leaf meal	*Bacillus subtilis*
Velvet bean meal	*Salmonella* spp, *E. coli*, *Listeria* spp

CONCLUSION

Salmonella appears to be the main organism of concern in the identified novel feedstuffs. The Q-SAFFE project plans to perform a survey of feedstuffs for *Salmonella*, and will include samples of the above novel feeds where available. The survey will utilise the LAMP-based method currently being optimised within the project (see presentation by Martin D'Agostino in Plenary Session 4).

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Acknowledgement

The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7 2007-2013) under Grant Agreement No 265702.