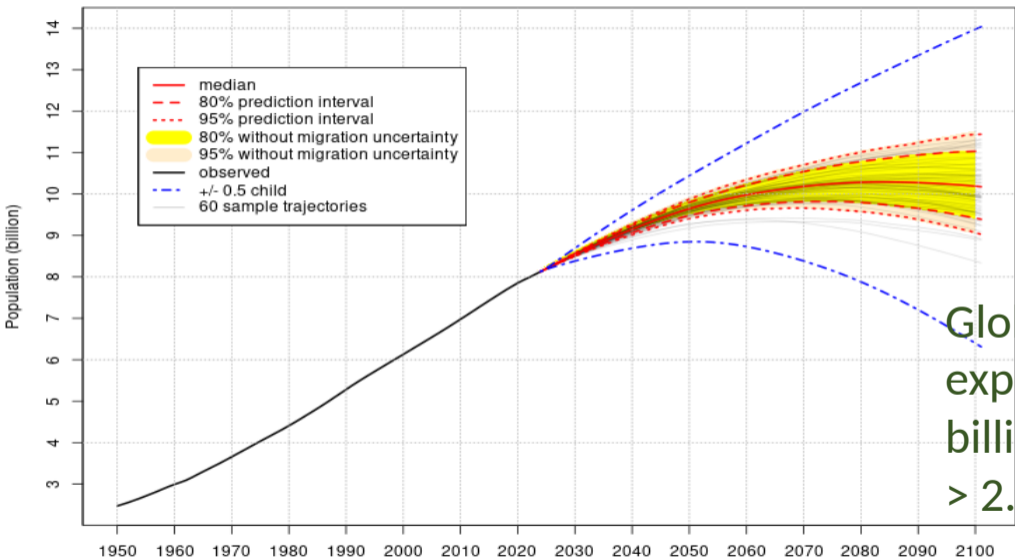


Animal Feed Between Food Safety and Halal Compliance: Toward a Unified Framework to Ensure Trust and Integrity from Farm to Fork

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Landscape

World: Total Population



Global population
expected to reach 9.8
billion by 2050
> 2.8 billion Muslims

Feed Safety VS Food Safety

Feed VS Food Safety

Feed safety : assurance that **feed**, administered according to its intended use, will not cause adverse health effects to the animals or to food of animal origin (FAO/IFIF Feed Manual, 2020)



Food safety

Assurance that **food** will not cause adverse health effects to the consumer when it is prepared and/or eaten according to its intended use. (CXC 1-1969, rev 2020).



Why Feed Safety Is Important

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In Islamic dietary law, halal encompasses not only the end product but the entire production process, including feed.

Impact on the quality and safety of the meat and the cultivation of aquatic organism (aquaculture)

Haram (Prohibited): Pork derivatives, blood meal, alcohol.

Why Feed Safety Is Important



Animal Feed

Good animal feeding plays a vital role in animal health & welfare and in the production of safe and quality products of animal origin.



Antimicrobial resistance

Antimicrobial resistance (AMR) is a major global threat of increasing concern to human and animal health. It also has implications for both food safety and food security and the economic well being of millions of farming households.



TFAMR8

Ad hoc Codex Intergovernmental Task Force on Antimicrobial Resistance
04/10/2021 - 16/10/2021 | Virtual.



Production of Feed Ingredients

Production Method	Example Feed Ingredient	Description
Chemical	DL-Methionine	Synthetic amino acid from petrochemical precursors.
Bioprocessing	L-Lysine	Fermented with microbes; halal status depends on substrate.
Mining	Calcium Carbonate	Mineral sourced from limestone; used for calcium supplementation.
Extraction	Tocopherols (Vitamin E)	Extracted from plant oils via solvents.
Primary Production	Soybean Meal	Derived from mechanically processed soybeans; common protein source.

Sources of feed contamination



Natural occurrence

- Mycotoxins
- Water, soil and air pollution



Processing aids

- Plant protection agents
- Pest control agents
- Technological agents



Chemical and microbiological

- Dioxins
- Heavy metals
- Salmonella
- Fungi
- Biogenic amines



Cross contamination

- During process
- During transport
- During storage



Regulatory classification of an feed ingredient has an impact of the hazard management

	 Feed Material	 Feed Additive
Sodium Butyrate	✓	✓
Dicalcium phosphate	✓	✓
Magnesium chloride	✓	✓
Magnesium sulfates	✓	✓
Dipotassium phosphate	✓	✓

Examples

Additive/ Ingredient	Halal Compliance Concern
Vitamin D3 (Cholecalciferol)	Halal if from lanolin or halal fish; non-halal if from pork or non-Zabiha animals.
Vitamin B2 (Riboflavin)	May be haram if from pork liver; halal if synthetic or fermented with halal media.
L-Lysine	Mushbooh if fermentation media contain haram substances; needs certification.
Bacillus subtilis	Depends on fermentation substrate; haram if animal-based (e.g., pork peptones).

Vitamins for animal feed are strain-specific in the EU.

Check fermentation organisms and media sources.

Non-halal inputs may be hidden in the production process.

Feed Fraud

What is feed fraud?

Feed fraud: Feed fraud is a collective term used to encompass the **intentional** substitution, addition, tampering, or misrepresentation of feed, feed ingredients, or feed packaging; or false or misleading statements made about a product, **for economic gain**. (adapted Spink, Moyer)



Halal Feed Harmonization

Challenges

The importance of feed is not reflected as part of food safety (One Health)

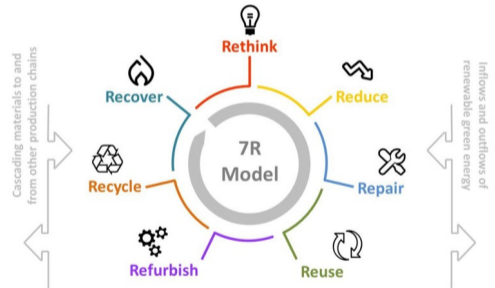
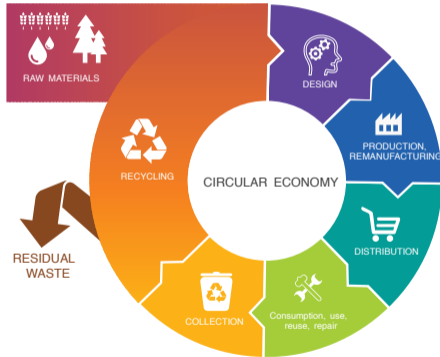
National standards vary widely (e.g. Malaysia, Indonesia, KSA).

Animal feed impacts both food safety and halal integrity.

Halal systems should integrate feed and with safety protocols

Global standards are essential for secure halal supply chains

Connecting Feed and Food Sector



“Good Intentions Do not Make the Haram Acceptable”

Thank you for your attention