FEED ACT AND HALAL FEED INDUSTRY

DEPARTMENT OF VETERINARY SERVICES MALAYSIA
ANIMAL FEED REQUIREMENT

- Feed constitute 60-70% of total cost of livestock production.
- Annual requirement of animal feed approx. 7 million tones.
- Major users of feed are intensive livestock industries (poultry & swine)
- Ruminant industry, extensive and semi-intensive system depend mainly on pasture and locally available feedstuff.
ANIMAL FEED INDUSTRY

- Feed milling industry produces 5 mil. tonnes of compounded feeds annually
- 53 compounded feed manufacturing feed mills
- Home mixers mainly the swine sector
- Feed manufacturers – 4.9 million metric tons
- Home mixers – 350,000 metric tons
ANIMAL FEED INDUSTRY

• Imported ingredients: 70-80%
  • Mainly maize and soya bean meal
• Local ingredients: 20-30%
  • Mainly PKC and agro-industrial products
• Chicken and swine highly dependant on imported feed ingredients
  • Open to international market forces
• Ruminant highly dependant on local feed stuffs
  • Open to local production forces
## ANIMAL FEED INDUSTRY

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity (tonne)</td>
<td>RM (‘000)</td>
</tr>
<tr>
<td>IMPORT</td>
<td>3,886,218</td>
<td>3,765,743</td>
</tr>
<tr>
<td>EXPORT</td>
<td>2,256,824</td>
<td>1,000,898</td>
</tr>
</tbody>
</table>
Safe Feed for Safe Food

- Controlling quality of feed becomes important because feed cause direct impact to food that originate from animal product
- Feeds and *feed additives* are an important link in animal production chain; directly influence quality and safety of animal food products
- Need for governmental intervention in assurance of feed quality & safety
Feed Quality & Safety

- An HACCP approach is required to identify where hazards occur and how they should be controlled.

- HACCP cannot function without appropriate documented GMP procedures.

VHM for Animal Feed
Animal Feed Violation

- Animal feeds is recognized as a potential source of residues hazards

- Chemicals will remains in the feed or feed ingredients regardless of the production process
Feed Additives

- Antibiotics/drugs: disease prevention/medications
- Coccidiostats: control parasites
- Xanthophyll: makes egg yolks yellow
- **Hormones**: increases growth
- Tranquilizers: calms nerves (cattle, turkeys)
- Antioxidants: prevents feed from getting rancid
- Pellet Binders: keeps feed in pellet form
- **Flavoring Agents**: makes feed taste better
Growth Hormones

- Natural hormone
  - estradiol or estrogen, progesterone, and testosterone
- Synthetic hormone
  - zeranol, melengestrol acetate, and trenbolone acetate
- Artificial Hormone
  - Recombinant bovine somatotropin (rBST)
- Effect of growth hormone (eg. rBST)
  - Caused mastitis in cattle
  - Linked to colon and breast cancer in human
Types of Residues

- Medication or feed additives permitted for use in animal feed but at level exceeding MRL or cross-transferred to the wrong target feed type or species
- Banned antibiotics (Chloramphenicol, Nitrofurantoin)
Effect of supplement as feed additive

- Growth hormone (eg. rBST)
  - Caused mastitis in cattle
  - Linked to colon and breast cancer in human
- Increased use of ruminant bone and meat meal for cattle appear to have played a role in the emergence of BSE
- Adding low levels of antibiotics to animal feed in order to increase growth rate has raised concern about the transfer of antibiotic resistance to human pathogens from this practice (VRE)
## DVS Feed Laboratory

- Veterinary Public Health/Regional Veterinary Laboratories
- Veterinary Research Institute
- National Animal Feed Reference Laboratory

<table>
<thead>
<tr>
<th>Type of analysis</th>
<th>Equipment</th>
<th>Methods</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mycotoxin</td>
<td>HPLC-Fluorescent</td>
<td>1. AOAC Method</td>
<td>1. EU Regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. VICAM Manual (Supplier Method)</td>
<td>2. USA Regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. SIRIM Standard</td>
<td></td>
</tr>
<tr>
<td>Nitrofuran</td>
<td>HPLC-PDA</td>
<td>1. SIRIM Standard</td>
<td>1. EU Regulation</td>
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<tr>
<td></td>
<td></td>
<td>2. International Journal</td>
<td></td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>LC-MS</td>
<td>1. In house method</td>
<td>1. EU Regulation</td>
</tr>
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<td></td>
<td></td>
<td>2. International Journal</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>3. Supplier method</td>
<td></td>
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<tr>
<td>Beta Agonist</td>
<td>LC-MS</td>
<td>1. In house method</td>
<td>1. EU Regulation</td>
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<td></td>
<td></td>
<td>2. International Journal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Supplier method</td>
<td></td>
</tr>
<tr>
<td>TEST</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>Total samples</td>
<td>Number positive</td>
<td>Total samples</td>
</tr>
<tr>
<td>Beta agonist (Salb. Clen, Terb, Racto)</td>
<td>673</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>Nitrofuran (NFZ, FZD, FTD)</td>
<td>24</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>23</td>
<td>0</td>
<td>39</td>
</tr>
<tr>
<td>Mycotoxin - Aflatoxin (B1, B2, G1, G2, M1)</td>
<td>155</td>
<td>&lt;20ppb=22 &gt;20ppb=1</td>
<td>255</td>
</tr>
</tbody>
</table>

Source: Veterinary Public Health Laboratory, Department of Veterinary Services, Malaysia
THE FEED ACT 2009

• Gazetted on 3\textsuperscript{rd} September 2009.
• Date of operation on 1\textsuperscript{st} January 2010

Purpose

• to regulate feed quality by controlling the importation, manufacture, sale and use of feed and feed additive
• to ensure that feed satisfies nutritional requirement of animals, is not harmful to animals and is not contaminated so that animals and animal products are safe for human consumption and other usage
• For other matters incidental thereto
Provision

- Animal Feed Board (14 member)
- Licensing
- Specification and conditions
  - Keeping, storing, packaging, labelling and transporting
- Control use of antibiotics, hormones and other chemicals
- Designation of laboratories, appointment and certificate of analysis
Rules & Regulations

Regulations may be made for the following purpose. (Clause 53 (2)).

1) to prescribe the analyst’s qualifications, conduct and duties;
2) to prescribe all matters relating to application, renewal, suspension and revocation of license to import feed or feed additive;
3) to prescribe the terms, conditions and restrictions of license to import feed or feed additive;
4) to prescribe all matters relating to feed specifications and standards and make provisions for giving effect to such specifications and standards;
5) to prescribe all matters relating to the transporting, storing, keeping, labelling and packaging of feed or feed additive;
Rules & Regulations

6) to prescribe all matters relating to the use of feed additive, antibiotics, hormones or other chemicals;

7) to regulate the manufacture, sale, advertisement and use of feed or feed additive;

8) to prescribe the method of analysis of feed and the form of certificate of analysis;

9) to designate laboratories and provide for its functions; and

10) to prescribe the fees payable under this Act;

11) to prescribe the offences which may be compounded;

12) to provide for such other matters as are contemplated by, or necessary for giving full effect to, the provisions of this Act and for their due administration.
Penalty

- **First Offence:**
  - RM100,000.00 and 2 yrs jail (NE) or both

- **Second Offence:**
  - RM200,000.00 and 4 yrs jail (NE) or both
THE NEW FEED INITIATIVES
The New Feed Initiatives

- Intensive fodder production
  - *Hydroponic*
  - Semi Enclosed Green House
    - Insect/pest proof
- Hybrid variety
  - Legumes
  - Grasses
  - Grains (legumes and cereals)
- Collabn: Seed company – Pioneer, Heritage, Pacific
The New Feed Initiatives

- Integrated agriculture
  - LPP, DOA, IADAs, KADA, MADA
    - Coconut/Corn/Legumes
    - Oil Palm/Legumes/Grasses

- Example
  - Grass + Legumes = Energy + Protein
    - Hay
    - Silage
    - Grass/Legume Cubes
The New Feed Initiatives

- Agro-industrial waste
  - Palm Kernel Product
    - New technology of kernel processing
  - Pineapple
  - Rice
- Total Mix Ration
  - Green
  - Grain
  - Mineral
  - EM
Exploiting local feed resources

- Improving the nutritive value of Palm kernel cake by better oil extraction method
  - No shell/impurities and/or ‘burnt’
- Prioritizing the local use of PKC in non-ruminant animals
  - MPOB Q PKC – can replace corn up to 800,000 tons
  - We use only 5% PKC locally
- Provide incentives for higher local consumption instead of export
Exploiting local feed resources

- Encouraging the planting of starch crops (tapioca, sweet potato and sago) as alternative feed resources in place of corn

<table>
<thead>
<tr>
<th>Plants</th>
<th>Percent substitution rate on corn (poultry feed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapioca</td>
<td>30</td>
</tr>
<tr>
<td>Sweet potato</td>
<td>50-100</td>
</tr>
<tr>
<td>Sago</td>
<td>30</td>
</tr>
</tbody>
</table>
..Exploiting local feed resources

- Encouraging silage production *as a business* such as corn stover, pineapple plants, grasses, etc. for ruminant animals

<table>
<thead>
<tr>
<th>Feed</th>
<th>Production capacity (metric ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil palm fronds</td>
<td>26.2 million</td>
</tr>
<tr>
<td>Rice straw</td>
<td>650,000</td>
</tr>
<tr>
<td>Corn stover</td>
<td>192,000</td>
</tr>
<tr>
<td>Pineapple waste</td>
<td>44,500</td>
</tr>
<tr>
<td>Pineapple plants</td>
<td>3.45 million</td>
</tr>
</tbody>
</table>
Improving nutrient utilization of feed ingredients

- Fiber degradation technology
- Most byproducts are high in fibre. Fibre is high in energy but not readily available
- Use of biologicals
  - Enzymes – mannase, beta glucanase
  - Effective and indigenous microorganisms (EM/IM)
  - probiotics
Maximize arable land usage

- We are facing less available land for agriculture
- Idle land can be utilized by planting grasses for fodder production.
- Fodder production can be a business venture to large intensive farmers.
Areas of Cooperation Between D-8 countries

- Exchange of information
- Promotion of joint investment and trade
- Cooperation in Research and Development
- Human resource development and capacity building
- Intensify private sector participation and public-private sector collaboration in D-8 animal feed cooperation, programmes, projects and activities
- Promote environmentally and socially responsible resource management and development
Halal Animal Feed

• In providing halal animal feed is to ensure that livestock were not treated with non-halal growth hormone

• Animals fed with plant based feed or organic feed consist of no non-halal animal derived ingredients

• *Halal status does not refer only to the products but it is more critical during the process and manner in which products are handle*
Halal Animal Feed

- The Feed Act can incorporate Halal requirement in the Regulations
- Voluntary basis in getting JAKIM Halal certification
  - Eg. Nuinfra Mutiara Feedmills Sdn Bhd (Terengganu)
- To apply syariah principles in production and trade
- **Malaysia Halal Feed Standard**
Halal Animal Feed Industry

Grass

Minerals

Pre-mix

Biologicals

Grain

[Image of meat products]
THANK YOU

Department of Veterinary Services Malaysia