Review of the EU feed ban on non-ruminant Processed Animal Proteins: outlook of the European Fat processors and Renderers Association (EFPRA)

Dr. Martin Alm
TAIEX workshop, Stavropol, 27.11.12

Overview

- EFPRA – who we are
- Animal by products (ABP)
  - Amount
  - Legislation
  - Processing
- Lift of the feed ban
  - Safe use
  - Aquafeed
  - Phosphorus
- Conclusions

EFPRA – who we are

- European Fat Processors and Renderers Association
- EFPRA represents two independent business lines:
  - Fat melters, dedicated to human food industry
  - Renderers, dedicated to the collection of animal by-products not fit or intended for human consumption.
- Each business has its own autonomous structure and operates under specific collection and treatment, processing and valorisation systems.
- EFPRA’s task is the permanent representation of stakeholder’s interest to the European Community and other international bodies (FAO, OIE, WRO)
- EFPRA has 29 member associations in 24 European countries (EU/EFTA)
- represents over 500 companies (with over 500 plants and 17,000 employees)

EFPRA statistics

EFPRA members process ca. 16,0 Mio. To animal by-products into ca. 4 Mio. To animal fats and proteins per year.

Amount of Animal By Products

<table>
<thead>
<tr>
<th>Slaughtered animal</th>
<th>human consumption (%)</th>
<th>by products (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>68</td>
<td>32</td>
</tr>
<tr>
<td>Pig</td>
<td>62</td>
<td>38</td>
</tr>
<tr>
<td>Cow</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td>Sheep / Goat</td>
<td>52</td>
<td>48</td>
</tr>
</tbody>
</table>

Kamphues 2009
**EFPRA:**

Three areas

**Human Nutrition**

**Animal Nutrition**

**Disease Prevention**

<table>
<thead>
<tr>
<th>Source</th>
<th>Products</th>
<th>Destination</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edible Slaughter By products</td>
<td>Edible Fat, Greaves, Blood products</td>
<td>Animal Fat, PAP (Processed Animal Protein)</td>
<td>Animal Fat, Meat-and-Bone Meal (MBM)</td>
</tr>
<tr>
<td>Animal By products Category 3</td>
<td>Feed</td>
<td>Technical purpose</td>
<td></td>
</tr>
<tr>
<td>Animal By products Category 1 &amp; 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Reg. 852/2004**

**Reg. 853/2004**

**Reg. 1069/2009**

**Reg. 142/2011**

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**Comparison PAP vs. MBM**

- **PAP**
  - Slaughter by products
  - Fit for human consumption
  - From healthy slaughtered animals
  - Category 3 only
  - Available species specific
  - Broad variety of PAP, e.g.
    - Blood meal
    - Poultry PAP
    - Feather PAP
    - Pork PAP

- **MBM**
  - Specified risk material (SRM)
  - Dead stock
  - Condemned material
  - Digestive tract content
  - Dead or euthanised pets, zoo, circus and laboratory animals
  - Category 1 and 2
  - MBM is marked with GTH (detection limit 0.1%)

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**Overview of different non Ruminant PAPs**

<table>
<thead>
<tr>
<th>Blood meal</th>
<th>Feather meal</th>
<th>Poultry PAP</th>
<th>Pork PAP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>High ash</td>
<td>Low ash</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High ash</td>
<td>Low ash</td>
</tr>
<tr>
<td>Protein</td>
<td></td>
<td>90-95</td>
<td>80-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60-63</td>
<td>65-68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45-50</td>
<td>55-65</td>
</tr>
<tr>
<td>Fat</td>
<td>1</td>
<td>7-11</td>
<td>12-15</td>
</tr>
<tr>
<td></td>
<td>12-16</td>
<td>13-16</td>
<td>12-16</td>
</tr>
<tr>
<td>Ash</td>
<td>2-3</td>
<td>4-10</td>
<td>17-20</td>
</tr>
<tr>
<td></td>
<td>10-15</td>
<td>13-16</td>
<td>22-30</td>
</tr>
<tr>
<td>P</td>
<td>0,2-1,0</td>
<td>0,5</td>
<td>2-3</td>
</tr>
<tr>
<td></td>
<td>3-4</td>
<td>2</td>
<td>5-7</td>
</tr>
<tr>
<td>Moisture</td>
<td>4-7</td>
<td>5-7</td>
<td>4-6</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Food (human consumption) | Highest added value
---|---
1. Fermentation
2. Animal feed
3. Fermentation
4. Biomass (Biofuels, Green energy)
5. Energy substitute
6. Meal

No added value

- Category 1: SPM, TSE suspected animals, pet, zoo and experimental animals
- Category 2: Fallen stock (non-suspected digestive tract content)
- Category 3: Animals by-products from animals fit for human consumption, former feed stuffs, certain waste

Processing

- Raw material
- Breaker <50mm
- Sterilisation
- Dryer
- Press
- Mill
- Decanter / centrifuge
- Meal
- Fat

Reception of raw material / hoppers
In 2011 ca. 2.3 Mio. T of processed animal proteins (PAP) were produced from category 3 material (fit for human consumption).

- 1.53 Mio T for Petfood
- 720.000 T for Fertiliser
- 40.000 T for Fur Feed
- 40.000 T for Others

- Petfood: 63%
- Fertiliser: 33%
- Fur: 2%
- Others: 2%
Lift of the feed ban

- 2000 the total feed ban was introduced to ban the use of animal proteins in all diets. PAP is still considered as feed but not allowed for farmed animals (fur and pets only)
- Since 2002 new organisation of animal by-product categorisation and processing: exclusion of risky material from the feed chain
- 2005 EU opens the export of non ruminant PAP for feed for pets and fur: increasing separation of different species
- 2011 EFSA (European Food Safety Authority) opinion: non ruminant PAP is safe for non ruminants
- 2012 EURL (European reference laboratory): PCR Test on ruminant constituents in feed available
- Alternative analyse technologies for ruminant material in PAP (Reveal, MELISA-Tek) were successfully tested in a European ring trial

Aquafeed in the first step

- EU ABP legislation foresees a ban on intra species recycling of proteins, i.e. protein from one species should not be fed to the same species, e.g. no pork protein in a pig’s diet
- Tests for pig and poultry not yet available (validation 2013 / 2014)
- Partial lift of the feed ban foresees additional barriers to avoid cross contamination on every step of the feed chain:
  - Dedicated slaughter houses / cutting plants
  - Dedicated category 3 processing plants
  - Dedicated Aquafeed mill (no ruminant feed)
  - Dedicated fish farmers (without ruminants)

Feed costs, Aquafeed Basis DP
(ADC = Apparent digestibility coefficient, D. Bureau 2008)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Crude Protein</th>
<th>ADC Protein</th>
<th>Digestible Protein (DP)</th>
<th>Cost $/t</th>
<th>Cost $/t DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish meal</td>
<td>65</td>
<td>89</td>
<td>58</td>
<td>1020</td>
<td>1763</td>
</tr>
<tr>
<td>Feather meal</td>
<td>80</td>
<td>75</td>
<td>60</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Meat and bone meal</td>
<td>50</td>
<td>80</td>
<td>40</td>
<td>220</td>
<td>550</td>
</tr>
<tr>
<td>Poultry by-products meal</td>
<td>57</td>
<td>85</td>
<td>48</td>
<td>290</td>
<td>599</td>
</tr>
<tr>
<td>Soybean meal</td>
<td>48</td>
<td>89</td>
<td>43</td>
<td>260</td>
<td>609</td>
</tr>
<tr>
<td>Corn gluten meal</td>
<td>60</td>
<td>93</td>
<td>56</td>
<td>400</td>
<td>717</td>
</tr>
</tbody>
</table>
Phosphorus - as important as air, as scarce as oil?

- 0.1% in the lithosphere (Earth’s crust) mainly as phosphate
- Available for 50 – 130 years only …… but safe sources?
- Often contaminated with Cadmium and Uranium
- 65% of the Phosphorus in animals are deposited in non-edible parts (Kamphues 2009)
- PAP can substitute 10% of a yearly production

P-availability of different feed ingredients for pigs

<table>
<thead>
<tr>
<th>Source</th>
<th>P-content (kg/mt)</th>
<th>App. digestibility (%) with added phosphates</th>
</tr>
</thead>
<tbody>
<tr>
<td>turkey</td>
<td>4.4</td>
<td>45 ± 11</td>
</tr>
<tr>
<td>wheat</td>
<td>3 - 4</td>
<td>65 ± 6</td>
</tr>
<tr>
<td>corn</td>
<td>2.8</td>
<td>53 ± 6</td>
</tr>
<tr>
<td>dry animal meal, extr.</td>
<td>~ 7.6</td>
<td>73 ± 7</td>
</tr>
<tr>
<td>dry animal meal, extr.</td>
<td>~ 7.5</td>
<td>73 ± 7</td>
</tr>
<tr>
<td>fish meal</td>
<td>0.6</td>
<td>no need</td>
</tr>
<tr>
<td>mariculture meal</td>
<td>26 – 37</td>
<td>80 ± 11</td>
</tr>
<tr>
<td>bone meal</td>
<td>71</td>
<td>no need</td>
</tr>
<tr>
<td>Mono-Natrium-Phosphate</td>
<td>250</td>
<td>no need</td>
</tr>
<tr>
<td>D-Calcium-Phosphate</td>
<td>218</td>
<td>no need</td>
</tr>
</tbody>
</table>

Source: Kamphues 2009

Conclusions

- The new PAP is not the old MBM anymore
  - No recycling of dead stock, dead pet or material at risk
  - PAP is made from ABP fit for human consumption gained from healthy slaughtered animals
  - Full traceability at all stages
- EU-PAP is worldwide unique and safe
- Standard control tools are validated
  - For ruminant PAP in feed
  - For ruminant PAP in PAP
- These tools allow the safe use in Aquafeed today
- Animal protein is worldwide acknowledged as a highly valuable source for protein, energy and phosphorus in fish feed (and pig and poultry feed as well)