North American Rendering
2014 IPPE International Rendering Symposium

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NATIONAL RENDERERS ASSOCIATION
The Rendering Industry (U.S. and Canada)

- 273 facilities in the U.S. and 29 in Canada
- $10 billion annual revenue
- 25 MMT (56 billion lb.) raw material each year
- 70 million kg raw material each day
Essential “Gate Keeper” for People & Planet
Critical Problems Of Other Methods Of Disposal:

- **Composting** – Volume would fill 10,000 new Dallas Cowboy stadiums per year
- **Landfill** – Volume would reduce existing US landfill space by 25% per year and increase GHG emissions
- **Incineration** – Cost prohibitive and has air quality issues
- **Burial** – Potential for ground and surface water contamination
- **Abandonment** – Greatest threat to environment and human/animal health
- **Without grease collections** – Municipal sewers would become occluded and cost $millions to clean
Rendering is Cooking and Drying

- Continuous flow or batch
- Steam cookers
- 115º to 145º C. for 40 to 90 minutes (245º to 290º F.)
- Inactivation of bacteria, viruses, protozoa, and parasitic organisms.
Rendering Plant
U.S. Animal Agriculture Annual Production

- 35 million cattle (49% of live wt. not used for human food)
- 100 million hogs (44% not used for human food)
- 8 billion chickens (37% not used for human food)
- 280 million turkeys (36% not used for human food)
2.7 billion pounds of meat and seafood lost in retail (spoiled, outdated)
  - 1.9 billion pounds recycled by renderers

4.7 billion pounds of used restaurant grease
  - 2.4 billion pounds recycled by renderers
The modern rendering industry invests heavily in odor control and air pollution equipment.
The modern rendering industry invests heavily in modern equipment to control water pollution.
Animal Fat Is Also Used For Biodiesel
Raw Materials

- Offal
- Bones and fat
- Blood
- Animals dead on arrival, in transit or on farms
- Restaurant grease
- Feathers
- Recalled meat
- Outdated meat
- Butcher shop scraps
The industry converts more than 25 MMT (56 billion lb.) of animal by-products into usable commodities annually.

- Highly valued protein supplements for livestock, poultry, pets
- Tallow for the manufacture of fatty acids and as a source of energy in feed rations.
Examples of a Few Finished Products

- Stabilized Poultry Fat
- Hydrolyzed Poultry Feather Meal
- Stabilized Poultry Protein Meal
- Low Ash Pet Food Poultry Protein Meal
- Pet Food Poultry Protein Meal
- Stabilized Pet Food Poultry Fat
# U.S. Production of Rendered Fats

<table>
<thead>
<tr>
<th>Product</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inedible Tallow</strong></td>
<td>1,511.2*</td>
<td>1,486.6</td>
<td>1,453.2</td>
</tr>
<tr>
<td><strong>Edible Tallow</strong></td>
<td>827.6</td>
<td>886.7</td>
<td>812.0</td>
</tr>
<tr>
<td><strong>White Grease</strong></td>
<td>572.7</td>
<td>580.7</td>
<td>593.9</td>
</tr>
<tr>
<td><strong>Choice White Grease</strong></td>
<td>511.3</td>
<td>518.4</td>
<td>530.3</td>
</tr>
<tr>
<td><strong>Lard</strong></td>
<td>61.4</td>
<td>62.2</td>
<td>63.7</td>
</tr>
<tr>
<td><strong>Yellow Grease</strong></td>
<td>868.8</td>
<td>906.4</td>
<td>885.0</td>
</tr>
<tr>
<td><strong>Poultry Fat</strong></td>
<td>471.4</td>
<td>475.2</td>
<td>474.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,251.8</td>
<td>4,335.7</td>
<td>4,218.8</td>
</tr>
</tbody>
</table>

*Thousands of metric tons (metric ton = 2240 lb.)

Source: Render Magazine April 2013 (Kent Swisher). www.rendermagazine.com
# U.S. Production of Rendered Proteins

<table>
<thead>
<tr>
<th>Product</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat and Bone Meal</td>
<td>2,244.7</td>
<td>2,272.9</td>
<td>2,261.5</td>
</tr>
<tr>
<td>Poultry By-product Meal</td>
<td>1,178.6</td>
<td>1,188.1</td>
<td>1,186.9</td>
</tr>
<tr>
<td>Feather Meal</td>
<td>603.5</td>
<td>608.5</td>
<td>608.0</td>
</tr>
<tr>
<td>Total</td>
<td>4,026.7</td>
<td>4,069.5</td>
<td>4,056.4</td>
</tr>
</tbody>
</table>

*Thousands of metric tons (metric ton = 2240 lb.)*

Source: Render Magazine April 2013 (Kent Swisher).  www.rendermagazine.com
Protein Meals – 9 billion pounds*
125 AAFCO-defined animal by-products

• Meat Meal
• Meat and Bone Meal (can be species specific)
• Blood Meal (Flash/Spray/Ring/Batch Dried)
  – Can be whole or only hemoglobin
• Poultry By-Product Meal
• Poultry Meal
• Hydrolyzed Poultry Feather Meal

*4 Million Metric tons
Turning This:
Into This:
The Rendering Industry Commitment

• Make Clean Product

• Keep it Clean
The Animal Protein Producers Industry (APPI): The Biosecurity Arm of the Rendering Industry

- Programs to improve safety and quality of animal proteins
- Rendering Industry Code of Practice
- Testing to verify process control
- Continuing education and training
- Collaborative research
Rendering Code of Practice

- Continuous improvement for renderers
- Preparation for increased regulation (FSMA)
- Meeting increased customer expectations
Rendering Code of Practice

• HACCP based program
• Establish process controls
• 3\textsuperscript{rd} –party audits
• Accreditation to verify the controls are in place
• Participation is voluntary, but marketplace demands
• More than 117 rendering plants certified
Rendering Code of Practice (How)

Basic elements of sanitation and hygiene

- Good manufacturing practices (GMPs)
- Process Controls
Process Controls in Rendering

It is critical that sufficient temperatures are attained, so cooking would be a CCP in any rendering HACCP plan (Biological hazards).

Cooking temperatures should be closely monitored, controlled, and recorded.
Plant Operator Screen

- **Cookor Discharge Temp.**
- **Cookor Center Temp.**
- **Cookor Infeed Temp.**

- **Steam:** 0 LB/HR, 18.0 % OPM
- **68.8 % Full**
- **293.5 DEG. F, 283.0 DEG. F, 249.5 DEG. F, 222.5 DEG. F, 208.0 DEG. F**
- **260U Supercookor**
- **76.2 % Full**
- **50.0 % FSM, 0.0 % FS**
- **-0.8 IN.WC**
- **From Pressor Fines Screw #3**
- **To Overpressor Screw**
- **To Condensing**
- **From Raw Material Feed System**
- **From Prime Pump**
- **To Centrifuge Feed Pump**

- **17**
- **11**
- **10**
- **12**
- **9**
- **8**
- **37**
- **Steam Pump**
Recordkeeping
Cooker Temperature Trending and Statistical Analysis
## Rendering Destroys Bacteria of Food Safety Concern

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Raw Tissue</th>
<th>Post-Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clostridium perfingens</td>
<td>71.4%</td>
<td>0%</td>
</tr>
<tr>
<td>Listeria species</td>
<td>76.2%</td>
<td>0%</td>
</tr>
<tr>
<td>L. Monocytogenes</td>
<td>8.3%</td>
<td>0%</td>
</tr>
<tr>
<td>Campylobacter species</td>
<td>29.8%</td>
<td>0%</td>
</tr>
<tr>
<td>C. Jejuni</td>
<td>20.0%</td>
<td>0%</td>
</tr>
<tr>
<td>Salmonella species</td>
<td>84.5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Rendering Code of Practice (Results)

- Safe rendered products
- High quality rendered products
NATIONAL RENDERERS ASSOCIATION

- Trade association representing rendering on national and international levels
- 36 active member companies from Canada and U.S.
- Three regional associations
- 178 facilities
- Associate and International members
U.S. Rendering Plants

- Blue circles = Independent Renderers
- Red squares = Packer Renderers
National Renderers Association Meetings

• Spring meeting in April - Committee and Business meetings
• NRA’s Annual Convention in October
  • Committee and Business meetings
  • Outstanding presentations
  • Meetings of NRA, APPI, FPRF, and WRO
    • Experts from business, academia and government
    • Issues, trends and opportunities shaping and affecting the industry.
• Published bi-monthly in association with the National Renderers Association
• A public service to the North American and global rendering industry
• RENDER strives to promote the exchange of ideas and information on management, operations, research and development, environmental control, quality assurance and marketing among all facets of the rendering industries.
Government and Regulatory Affairs

- We promote and safeguard the interests of the rendering industry
- NRA staff and member volunteers maintain excellent relationships
  - Federal regulatory agencies
  - State governments
  - Policy makers
- We emphasize a spirit of cooperation and compliance
- We provide scientific input to the agencies
- We Foster understanding of the rendering industry and its products.
NRA Represents Our Industry to Government

• Administration Officials
• Members of Congress
NRA Represents Our Industry to Government

- Media
- Allied Industries
- Public
Rendered Products Are Safe.

As an essential link in the food chain, the rendering industry is conscious of its role in the prevention and control of bacteria and virus, to provide safe feed ingredients for livestock, poultry, aquaculture, and pets. Every effort is made to ensure that cooking destroys microbes, and that recontamination does not occur after the rendering process.

Since 1985, the Animal Protein Producers Industry (APPI) has coordinated a program of education and laboratory testing for renderers to control Salmonella. Now, APPI offers a sophisticated training and process testing to offer the most appropriate controls and practices to best assure safe products. Our advanced feed safety programs include strategies to control biological, chemical, and physical hazards that can occur in animal production and processing systems. A concerted effort is made to foresee any hazard likely to occur and to build prevention of risk into manufacturing. Process controls in rendering verify that cooking temperatures control microbial and viral contamination. These programs also concentrate on recontamination prevention with rodent control, plant and transport sanitation, and other biosecurity measures.

More than 90% of rendered product in the U.S. and Canada are produced under principles in the Rendering Code of Practice or equivalent programs such as HACCP. If you are a customer—ask for these credentials and rest assured that your rendered product is safe.
NRA’s International Program

• Develops markets for rendered products all over the world
• Conducts technical seminars and feed trials
• Participates in trade shows
• Brings study groups to the United States
• Provides subject matter experts
• Delivers general trade services to U.S. suppliers and foreign buyers
• Improves market access by working to eliminate artificial trade barriers
• Monitor new and existing export opportunities
• Monitor emerging trade patterns

Office Locations
  Mexico City
  Hong Kong
Fats & Proteins Research Foundation, Inc.

- Organized in 1962 to serve rendering and associated industries
- To direct and manage research to:
  - Enhance current usage
  - Develop new uses for rendered animal products
  - Provide value to all animal production.
World Renderers Association

Established in 1999 to address issues of mutual interest of renderers (more so than to individual countries, associations or companies)

WRO serves as a vehicle for education and information exchange between renderers and associated interests from different countries and associations.

WRO serves as a vehicle for exchanging points of view on rendering issues and to express positions to governments and world organizations.

Original Members:
USA, Canada, UK, Europe, Australia, and New Zealand

WRO Website: www.worldrenderers.org
More than 20 members including the EU
Additional information in a book available from the National Renderers Association

Free download: nationalrenderers.org under “Publications”