Old is New—Rendering Utilizes all By-Products from the Meat Industry

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U.S. Animal Agriculture Annual Production

- 29.3 million cattle (49% of live wt. not used for human food)
- 115.5 million hogs (44% not used for human food)
- 2.3 million sheep and lambs (46% not used for human food)
- 8.8 billion chickens (37% not used for human food)
- 232.4 million turkeys (36% not used for human food)
- 27.7 million ducks (30% not used for human food)

More than 56 billion lb. rendering raw material produced in the U.S.
More than 6 billion lb. produced in Canada.

2015 USDA slaughter numbers data; dressing percentage estimates from literature. Processing methods vary.
The industry converts more than 27.5 MMT (62 billion lb.) of animal by-products into usable commodities annually.

Approx. 5.5 MMT annually of highly valued protein supplements for livestock, poultry, pets

Approx. 7 MMT annually of animal fats, tallow, and UCO for the manufacture of fatty acids, energy in feed rations, and biofuel.
Global Demand for Meat and Eggs, 2005 vs 2050 (in million metric tons)

- Beef: 64 (2005), 106 (2050)
- Sheep: 13 (2005), 25 (2050)
- Pork: 100 (2005), 143 (2050)
- Poultry: 82 (2005), 181 (2050)
- Eggs: 62 (2005), 102 (2050)

Total Meat Annual Growth 1.3% to 455 MMT in 2050

Source: Food and Agriculture Organization of the United Nations, ESA Working Paper No.12-03, p. 131
Rendering is Cooking and Drying

- Continuous flow or batch
- Steam cookers
- 115° to 145° C. for 40 to 90 minutes (245° to 290° F.)
Cooking and Drying Works

- Inactivation of bacteria, viruses, protozoa, and parasites
Raw Materials

• Offal
• Bones and fat
• Trim from meat cuts
• Low value parts
• Blood
• Feathers
• Animals dead on arrival, in transit or on farms
• Restaurant grease
• Recalled meat
• Outdated retail meat
• Butcher shop scraps
Examples of a Few Finished Products

- Stabilized Poultry Fat
- Hydrolyzed Poultry Feather Meal
- Stabilized Poultry Protein Meal
- Low Ash Pet Food Poultry Protein Meal
- Stabilized Pet Food Poultry Fat
- Pet Food Poultry Protein Meal
Rendering Industry Trends

- Species separation into dedicated lines or plants
- Lines or plants dedicated to fallen stock
- Lines or plants dedicated to pet food ingredients
- Additional specifications common
- New premium animal protein definitions desired
Rendering Code of Practice (since 2005)

• Good manufacturing practices (GMPs)
  ✓ Sanitation
  ✓ Rodent Control
  ✓ Training, etc. etc.

• Process Controls
• More than 90% of production certified (117 plants)
• Independent 3rd party auditors
NRA Efforts on FSMA

Highlights

• Developed extensive comments on select issues on proposed animal food rule (GMPs, Hazard Analysis, PCs), submitted March 31, 2014.
• Developed comments on Sanitary Transportation proposed rule, submitted May 31, 2014.
• Developed comments on select issues on “supplemental” proposed animal food rule, submitted December 8, 2014.
• Coalition efforts – AFIA, NGFA, PFI, GMA, and other affected trade associations assisted FDA to develop training curriculum for inspectors and industry.
• Developed comments on FDA draft guidance #245: Hazard Analysis and Risk-Based Preventive Controls (HA/PC) for Food for Animals submitted July 23, 2018.
Process Controls in Rendering

It is critical that sufficient temperatures are attained, so cooking is a CCP in all rendering HACCP or animal food safety plans (Biological Hazards).

Cooking temperatures are closely monitored, controlled, and recorded.
Sustainability

• Popular issue that the rendering industry can use
• Every rendering plant increases agriculture’s sustainability
• Increasing efficiency increases sustainability
• Using by-products increases sustainability of pet food, livestock feed

Definition: The ability to produce food now and into the future with the smallest possible environmental footprint… While positively impacting employees, community, society
Rendering and Sustainability

- At least 62 billion lb. of meat by-products and used cooking oil are rendered in the U.S. and Canada annually.
- Renderers efficiently convert them into ingredients for a host of new products.
  - High value animal feed
  - Bioenergy
  - Personal care and industrial products
- All U.S. landfills would be full in four years without rendering
  - Serious public health and environmental problems
- While providing these essential services
  - Rendering plants boost sustainability
  - Reduce greenhouse gas emissions
  - Conserving fuel and other natural resources
  - Contribute to their local economies and communities
Rendering Produces Safe Animal Food

Industry sustainability metric: All rendered products in the U.S. and Canada meet regulatory animal food safety standards. More than 90% of rendered products in the U.S. and Canada exceed these government requirements by following the Rendering Code of Practice.
Metrics of Rendering

Rendering Helps Feed the World by Recycling Responsibly

Renewable Fuels:

Industry sustainability metric: Rendered fats and oils account for 30 percent of the feedstock used in biodiesel and renewable diesel production in the U.S.
Rendering Helps Feed the World by Recycling Responsibly

Rendering Produces Large Volumes of Animal Food Ingredients:

Industry sustainability metric: Rendered fats and proteins used for animal feed ingredients replace corn and soybeans from 6.3 million acres of average quality U.S. crop land.
Sustainability Basics:

- Use all of every animal for the highest purpose
- Stop “badmouthing” by-products in pet food
- Stop “badmouthing” meat by-products in poultry and livestock diets
- Produce efficiently and conserve resources
- Respect the environment
- Treat people right
Important Areas of Research for the Rendering Industry

• Food safety
• Animal nutrition
• Sustainability
• Novel technologies
• Rendered products in pet food