Market Report

US Rendering: A $10 Billion Industry

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The many optimistic predictions that the world would pull out of the economic slump in 2012 were not realized. According to the International Monetary Fund, global output fell from 3.9 percent in 2011 to 3.2 percent in 2012. Among the developed nations, the United States (US) had the strongest growth output, from 1.8 percent in 2011 to 2.3 percent last year. Canada's output dropped from 2.6 in 2011 to 2.0 in 2012 while Europe's output declined by four percent last year over 2011. The lethargic economies in the developed nations finally spilled over to the developing nations where growth in those regions fell from 6.3 percent in 2011 to 5.2 percent in 2012. In many ways, 2012 is a year of many things we would like to forget, from the multiple tragedies at US schools, horrific weather events, and protests over austerity measures in Greece, to the US presidential election and the uncertainties in the Middle East. On the upside, we were all happy to learn that although the Mayan Calendar ended in 2012, the world did not.

Domestic Developments

Supply

US renderers continued to see downward pressure on their raw material supply last year. Cattle inventories remained low with slaughter down 3.3 percent from 2011 at 32.9 million head, although slaughter weights were up two percent from 1,277 pounds in 2011 to 1,302 pounds last year. Broiler slaughter was down slightly at 1.2 percent in 2012, going from 8.6 billion head in 2011 to 8.5 billion in 2012. Poultry slaughter has fallen well over five percent in the last five years yet demand for the by-products continues to grow. On a positive note, hog slaughter began picking up again last year after a few years of declines, increasing 2.1 percent from 110.8 million head in 2011 to 113.1 million in 2012, although slaughter weights remained unchanged at 275 pounds.

The United States reported another case of atypical bovine spongiform encephalopathy (BSE) in April 2012, just before the National Renderers Association's (NRA's) spring meetings. There was little reaction in this country among buyers; however, Indonesia closed the market for ruminant meat and bone meal and the market remained closed at the time of this writing.

Over time, renderers have seen the supply of raw material decline due to many factors: the removal of specified risk materials as regulated under the enhanced feed ban put in place November 2009; less dead stock picked up due to the same rule; theft of used cooking oil; and the increased demand for edible offal for export. There is a preference in many developing countries for edible products from the fifth quarter. As incomes rise in these countries, so has the demand for products like tongue, liver, tail, brains, and chicken feet, just to name a few. In fact, in China, these items sell for two to three times the price in the United States. Rabobank reports that this development is not short-term but a structural change to the meat and by-product industries that companies in these industries need to take into account

Production and consumption data for the rendering industry was traditionally reported in the US Census Bureau's *M311K – Fats and Oils: Production, Consumption, and Stocks* report. However, due to government cut backs, this report was discontinued in July 2011. Hence, the data in table 2 of this

report was derived by NRA using historic relationships between livestock production as reported by the National Agricultural Statistics Service and rendered product production. Yellow grease production was derived by using the relationship between yellow grease production as reported in *A Profile of the North American Rendering Industry* by Informa Economics (2011), and cooking oil consumption as reported by the US Department of Agriculture (USDA).

Tallow production in 2012 is estimated at just over 2.2 million metric tons, down five percent from 2011. White grease production that includes both lard and choice white grease was up two percent from 580,700 metric tons in 2011 to 593,900 metric tons in 2012. Yellow grease production, which includes but is not limited to used cooking oil, is projected at 885,000 metric tons last year, down two percent from 2011. Poultry fat production was 474,800 metric tons in 2012, little change from the previous year. In total, the US rendering industry produced over 4.2 million metric tons of fat in 2012 valued at approximately $4 billion. Between 2007 and 2012, fat production fell nine percent by volume and increased 48 percent in value.

Theft of used cooking oil from containers behind restaurants continued to be a major constraint for renderers in 2012. Used cooking oil theft cost the rendering industry approximately $62 million dollars in lost revenue last year, not to mention the cost of damaged containers due to theft. NRA hired legal counsel in Washington, DC, and organized a grease theft summit in January 2013 to discuss options regarding the theft of used cooking oil.

Meat and bone meal production, which includes ruminant, porcine, and mixed specie, was 2.2 million metric tons in 2012, down half a percent from 2011. Poultry meal production was nearly 1.2 million metric tons, down slightly from the previous year, and feather meal production was 608,000 metric tons, nearly steady with 2011 estimates. Total protein meal production was four million metric tons in 2012 valued at approximately $2.5 billion.

The total value of products produced by the rendering industry last year, including products not in table 2, was approximately $10 billion.

Demand

The rendering industry produces products for the feed, pet food, energy, and oleochemical industries and demand remained strong in 2012 from all sectors for both protein meals and fats. However, high fat prices in 2011 along with a weak global economy and a glut of palm oil depressed fat prices toward the end of 2012.

Prices of animal fats and yellow grease were down across the board with the exception of lard. Tallow declined 12 percent, choice white grease dropped nine percent, yellow grease plunged 15 percent, and poultry fat fell 13 percent over 2011. It must be noted that 2011 saw record high fat prices so when comparing 2012 to 2010, prices still remained strong. Animal protein prices on the other hand increased well over 12 percent across the board. Ruminant meat and bone meal reached $429 per metric ton, a 14 percent increase over 2011, while porcine meat and bone meal rose 20 percent to $501 per metric ton. Feed grade poultry meal was up 13 percent to $539 per metric ton, and pet food grade poultry meal increased by 16 percent, from $721 in 2011 to $834 in 2012. Feather meal prices saw the most dramatic increase, going up 27 percent in 2012 to an average of $649 per metric ton. Exports of feather meal were up by 43 percent in 2012, which was the main reason for the dramatic price increase.

According to Alltech's 2013 Global Feed Survey, the United States produced 168.4 million metric tons of feed in 2012 from 5,251 active feed mills, up about two percent from 2011. The largest segment of the feed industry was poultry, estimated to be 86.8 million metric tons, followed by ruminant at 43 million metric tons, and swine at 23.6 million metric tons. Although aqua feed and pet food are relatively low at one million

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Table 1. Average annual prices of select rendered products, 2007-2012 (per metric ton)

Product (Location)	2007	2008	2009	2010	2011	2012	% Change 11/12
Fats							
Beef tallow, packer (Chicago)	$614	$753	$553	$737	$1,095	$963	-12
Choice white grease (Missouri River)	$527	$729	$511	$657	$1,020	$926	-9
Yellow grease (Missouri River)	$475	$604	$448	$577	$932	$788	-15
Poultry fat (Mid-south)	$512	$709	$510	$628	$992	$864	-13
Edible tallow (Chicago)	$678	$840	$608	$775	$1,176	$1,068	-9
Edible tallow (Gulf)	$727	$751	$606	$787	$1,180	$1,034	-12
Lard (Chicago)	$721	$445	$631	$849	$1,093	$1,279	17
Protein meals							
Meat and bone meal, ruminant (Missouri River)	$249	$361	$368	$330	$375	$429	14
Meat and bone meal, porcine (Missouri River)	$262	$385	$400	$351	$419	$501	20
Blood meal, ruminant (Missouri River)	$648	$815	$752	$742	$861	$1,018	18
Blood meal, porcine (Midwest)	$740	$985	$884	$850	$950	$1,101	16
Poultry by-product meal (57% protein)	$340	$486	$460	$406	$475	$539	13
Poultry by-product meal (67% protein) (Mid-south)	$539	$678	$690	$673	$721	$834	16
Feather meal (Mid-south)	$327	$483	$539	$490	$513	$649	27

Source: The Jacobsen.

Table 2. US production, consumption, and export of rendered products, 2007-2012 (000 metric tons)

Category	2007	2008	2009	2010	2011	2012	% Change 11/12
Production							
Tallow	2,538.9	2,424.4	2,364.5	2,338.8	2,373.5	2,265.1	-4.6
Inedible tallow	1,727.5	1,610.7	1,531.1	1,511.2	1,486.8	1,453.2	-2.3
Edible tallow	811.4	813.7	833.4	827.6	886.7	812.0	-8.4
White grease	559.5	595.5	586.4	572.7	580.7	593.9	2.3
Choice white grease	499.5	531.7	523.6	511.3	518.4	530.3	2.3
Lard	60.0	63.8	62.9	61.4	62.2	63.7	2.3
Yellow grease/used cooking oil	910.2	920.0	872.9	868.8	906.4	885.0	-2.4
Poultry fat	624.8	659.3	458.0	471.4	475.2	474.8	-0.1
Subtotal	4,633.4	4,599.2	4,281.8	4,251.8	4,335.7	4,218.8	-2.7
Meat and bone meal	2,398.5	2,313.8	2,266.0	2,244.7	2,272.9	2,261.5	-0.5
Poultry by-product meal	1,155.3	1,176.5	1,145.0	1,178.6	1,188.1	1,186.9	-0.1
Feather meal	593.1	603.9	586.2	603.5	608.5	608.0	-0.1
Subtotal	4,146.9	4,094.2	3,997.3	4,026.7	4,069.5	4,056.4	-0.3
Total	**8,780.3**	**8,693.5**	**8,279.1**	**8,278.5**	**8,405.2**	**8,275.3**	**-1.5**
Consumption							
Feed, food, fatty acid, carryover, other	3,049.1	3,077.9	2,921.3	2,314.8	2,253.7	2,609.9	15.8
Tallow	1,362.0	1,395.3	1,485.4	1,299.6	1,451.1	1,539.7	6.1
Yellow grease	536.1	462.0	430.4	208.9	132.4	264.2	99.5
White grease	526.2	561.3	547.5	379.7	303.8	408.4	34.4
Poultry fat	624.8	659.3	458.0	426.5	366.4	397.7	8.5
Methyl esther	n/a	n/a	n/a	383.7	758.9	714.0	-5.9
Tallow	n/a	n/a	n/a	77.1	194.6	173.3	-11.0
Yellow grease	n/a	n/a	n/a	110.7	213.6	278.1	30.1
White grease	n/a	n/a	n/a	151.0	241.8	185.5	-23.3
Poultry fat	n/a	n/a	n/a	44.9	108.9	77.1	-29.2
Subtotal	3,049.1	3,077.9	2,921.3	2,775.6	3,207.2	3,088.7	-3.7
Animal protein meals	3,170.3	3,085.2	2,933.7	2,856.5	2,861.2	2,909.8	1.7
Feather meal	547.3	530.6	532.4	553.3	545.5	517.9	-5.1
Subtotal	3,717.6	3,615.9	3,466.0	3,409.8	3,406.8	3,427.7	0.6
Total	**6,766.6**	**6,693.8**	**6,387.3**	**6,185.5**	**6,614.0**	**6,516.4**	**-1.5**
Exports							
Inedible tallow	1,000.8	945.0	805.7	879.3	667.8	476.9	-28.6
Yellow grease	374.1	458.0	442.5	549.2	560.3	342.8	-38.8
Edible tallow	176.1	84.1	73.4	82.9	60.0	75.3	25.6
Lard	32.7	33.1	37.1	38.2	32.5	N/A	
Choice white grease	0.6	1.2	1.8	3.7	2.6	N/A	
Subtotal	1,584.4	1,521.3	1,360.6	1,553.3	1,323.1	894.9	-32.4
Animal protein meals	383.5	405.1	477.3	566.8	599.7	538.6	-10.2
Feather meal	45.8	73.3	53.9	50.1	63.0	90.1	43.1
Subtotal	429.3	478.4	531.2	616.9	662.7	628.8	-5.1
Total	**2,013.7**	**1,999.7**	**1,891.8**	**2,170.2**	**1,985.8**	**1,523.7**	**-23.3**

Source: Global Trade Atlas for exports, US Environmental Protection Agency for biodiesel consumption, and USDA/National Agricultural Statistics Service slaughter data to derive production.
Note: n/a = not available.

Table 3. US annual livestock and poultry slaughter, 2007-2012 (thousand head)

Specie	2007	2008	2009	2010	2011	2012	% Change 11/12
Broilers/Mature chickens	9,035,620	9,075,112	8,658,603	8,790,479	8,683,643	8,576,194	-1.2
Cattle	34,414	34,514	33,338	34,265	34,087	32,950	-3.3
Hogs	109,278	116,559	113,618	110,257	110,860	113,152	2.1
Turkeys	264,926	271,265	245,812	242,619	246,844	250,192	1.4

Source: USDA/National Agricultural Statistics Service.

and eight million metric tons respectively, their demand for rendered products is quite strong, with pet food consuming approximately 30 percent of all protein meals produced by the rendering industry. The feed industry has been the traditional market for rendered proteins and fats, with energy from added fat in a diet replacing a portion of the corn.

The oleochemical industry remains an important customer for renderers, but since the census no longer reports on the consumption of animal fats, it is difficult to give a good assessment as to its use in this market. Traditionally, the US oleochemical industry consumed approximately 10 percent of fat production in the United States.

In table 2, consumption of rendered products is derived by taking production minus use of fats in biodiesel minus exports. It can be seen that fats use in the domestic marketplace rose by approximately 14 percent in 2012, totaling 2.7 million metric tons. This is partly due to reduced export demand. For animal proteins, the US market consumed 3.4 million metric tons of processed animal proteins in 2012, up slightly from 2011.

The biodiesel market in the United States has become a major consumer of animal fats. As directed under the Renewable Fuel Standard (RFS), the renewable fuel obligation for biodiesel was initially set at 800 million gallons in 2011. In 2012, the obligated mandate was increased to one billion gallons, and for 2013, the Environmental Protection Agency set the mandate at 1.28 billion gallons. Total use of rendered fats consumed in biodiesel was approximately 714,000 metric tons in 2012, down about six percent from 2011, and accounting for approximately 17 percent of the production of rendered fats last year. While consumption of tallow, white grease, and poultry fat in biodiesel declined dramatically in 2012, the use of yellow grease increased by 30 percent to around 278,000 metric tons. In addition, ethanol producers began extracting corn oil from dried distillers grains with solubles (DDGS). It is estimated that by the end of 2012, over 80 percent of the ethanol industry was capable of extracting the corn oil from DDGS, up from 30 percent of the industry at the beginning of the year. Hence, use of corn oil for biodiesel production displaced both animal and vegetable fats in biodiesel with usage rising from 51,000 metric tons of corn oil in 2010 to 259,000 metric tons in 2012.

Exports of rendered products last year were approximately 1.5 million metric tons, down 23 percent from 2011. As a whole, US renderers exported about 18 percent of all production in 2012, down from 24 percent the prior year. This decline was mainly due to the major reduction in fat exports, which totaled 894,900 metric tons last year, down 32 percent from 2011. Fat exports were about 21 percent of production in 2012 compared to 31 percent in 2011.

The old saying, "the cure for high prices is, high prices" was partly to blame. Prices in 2011 for fats and oils were at record highs. In late 2011, the Malaysian Palm Oil Council started to report extremely high stocks of palm oil and predicted prices would decline in 2012. This was the case as low-priced palm oil flooded the market and put downward pressure on fat prices in overseas markets. The average spread between palm oil and soybean oil over the last 10 years is about $77 per metric ton. In 2012, that spread averaged close to $150 per metric ton, and was over $277 dollars just this last December. This dramatic decline put pressure on all US fat prices toward the

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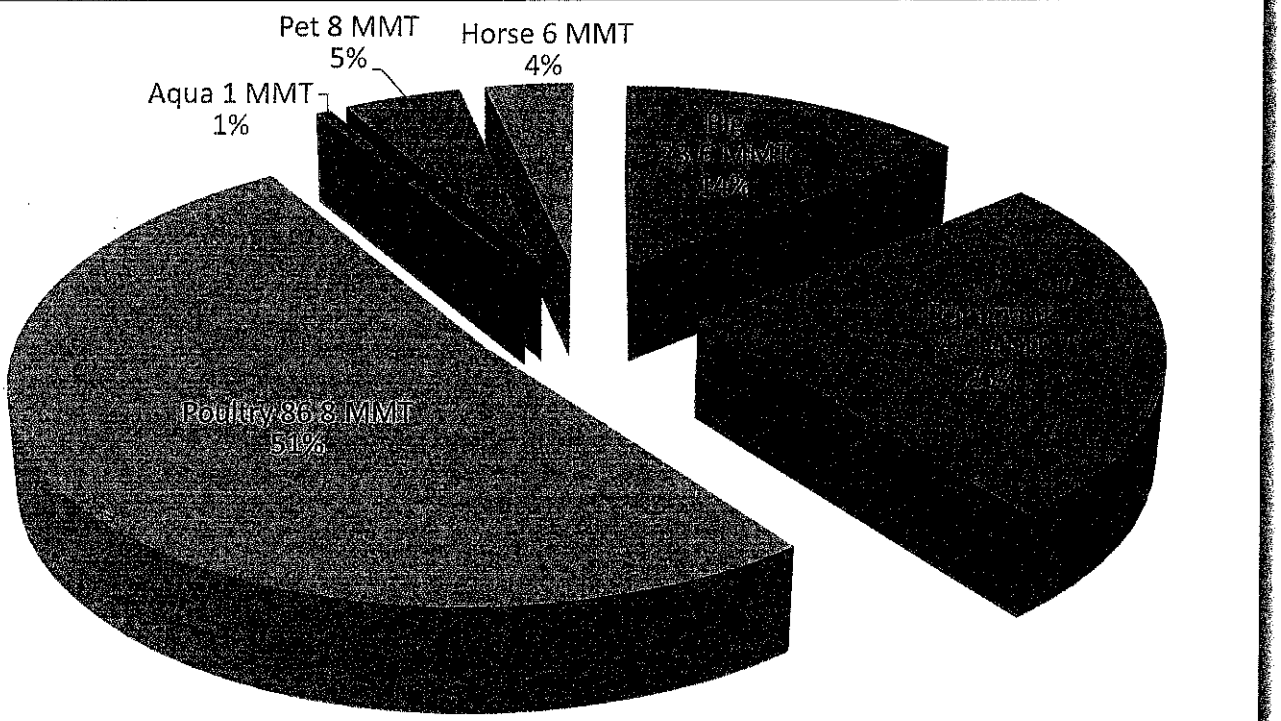
Chart 1. US feed production per specie



Source: Alltech 2013 Global Feed Survey.
Note: MMT = million metric tons

Table 4. US export customers by product, 2007-2012 (metric tons)

Product/Country	2007	2008	2009	2010	2011	2012	% Change 11/12
Inedible tallow							
Mexico	463,330	428,148	415,550	427,556	372,106	271,378	-27.1
Turkey	141,371	112,521	114,218	137,120	90,649	79,495	-12.3
Guatemala	40,979	36,143	26,242	43,723	29,584	19,117	-35.4
Canada	46,773	32,424	28,152	31,662	26,287	12,760	-51.5
Venezuela	17,931	24,159	18,847	14,710	23,369	18,589	-20.5
Korea, South	61,950	55,333	45,150	47,519	22,784	2,000	-91.2
Peru	19,798	19,921	16,964	22,498	21,981	15,000	-31.8
Honduras	34,709	23,575	23,088	32,971	19,457	24,597	26.4
Morocco	18,849	9,454	13,841	15,425	16,913	10,501	-37.9
Colombia	18,794	19,787	10,998	10,298	8,099	6,699	-17.3
Nicaragua	10,284	8,398	7,599	10,148	8,098	7,749	-4.3
Haiti	9,239	7,493	3,199	12,547	7,540	1,750	-76.8
El Salvador	14,597	13,239	6,563	5,302	7,499	4,699	-37.3
South Africa	7,048	10,894	3,980	5,479	5,088	0	-100.0
Pakistan	8,199	22,984	11,882	7,995	4,000	0	-100.0
Dominica	4,200	6,798	3,199	4,699	2,799	0	-100.0
Trinidad and Tobago	1,867	860	1,696	652	1,093	122	-88.8
Panama	787	400	423	947	400	400	
Nigeria	44,242	85,996	37,997	42,520	0	0	
Japan	16,358	13,357	5,999	0	0	0	
Dominican Republic	6,551	10,448	3,649	0	0	2,000	
Brazil	0	2,040	0	5,000	0	0	
Cuba	2,397	0	2,999	0	0	0	
Total	**1,000,837**	**945,042**	**805,734**	**879,251**	**667,802**	**476,856**	**-28.6**
Yellow grease							
EU-27	34,621	68,075	43,023	120,844	217,040	129,446	-40.4
Mexico	86,612	109,903	137,541	161,396	131,746	89,870	-31.8
Venezuela	82,034	109,464	102,879	118,243	91,490	74,589	-18.5
Dominican Republic	46,755	35,650	37,651	39,945	30,460	13,063	-57.1
Canada	13,439	38,536	22,361	15,455	25,767	15,673	-39.2
El Salvador	13,044	10,210	9,973	10,784	11,239	1,406	-87.5
Guatemala	14,305	6,840	12,985	19,023	10,224	7,008	-31.5
Honduras	6,090	1,408	4,640	5,989	7,236	1,643	-77.3
Jamaica	3,454	4,931	6,289	7,845	6,630	2,402	-63.8
Haiti	7,405	6,271	9,873	4,998	5,292	4,000	-24.4
China	29,930	31,476	33,937	17,967	4,188	457	-89.1
Korea, South	12,073	18,187	8,049	8,089	2,870	387	-86.5
India	63	148	210	406	2,488	26	-99.0
Costa Rica	1,748	2,238	5,345	3,620	1,991	2,705	35.9
Norway	n/a	12	39	4,192	1,862	107	-94.3
Total	**374,148**	**458,010**	**442,517**	**549,207**	**560,289**	**342,782**	**-38.8**
Edible tallow							
Mexico	135,553	72,832	67,879	75,020	54,379	70,116	28.9
Canada	25,516	7,772	3,444	3,011	5,282	5,163	-2.3
Korea, South	9,415	2,266	0	0	184	0	-100.0
Trinidad and Tobago	124	118	196	133	95	26	-72.6
Australia	0	0	0	12	18	0	-100.0
Barbados	4	9	7	4	4	0	-100.0
Turkey	0	0	1,649	3,944	0	0	
Total	**176,080**	**84,053**	**73,398**	**82,893**	**59,962**	**75,305**	**25.6**
Lard							
Mexico	22,762	31,938	36,394	27,483	32,859	n/a	
Canada	5,958	2,727	715	4,085	2,005	n/a	
Trinidad and Tobago	342	569	363	272	218	n/a	
Aruba	13	92	253	3	150	n/a	
Bahamas	65	77	0	12	106	n/a	
Bermuda	3	51	38	35	65	n/a	
Total	**33,053**	**37,149**	**38,215**	**32,490**	**35,728**	**n/a**	

Table 4. US export customers by product, 2007-2012 (metric tons), continued

Product/Country	2007	2008	2009	2010	2011	2012	% Change 11/12
Animal protein meals							
Indonesia[1]	174,695	206,502	283,557	341,536	395,009	231,512	-41.4
Mexico	112,132	107,164	115,715	89,375	84,102	64,435	-23.4
Chile	9,223	5,280	5,068	14,419	21,746	58,014	166.8
China[2]	22,542	16,487	15,888	48,567	32,497	46,258	42.3
Canada	27,032	30,693	38,325	44,256	30,618	39,094	27.7
Philippines	10,190	5,736	4,456	9,629	4,386	32,837	648.7
Thailand	3,502	6,080	3,646	7,019	11,624	12,884	10.8
Ecuador	1,741	5,861	5,270	3,490	4,255	4,893	15.0
Netherlands	848	787	833	2,211	3,502	5,518	57.6
Vietnam	8,254	16,793	2,921	1,303	2,905	2,050	-29.4
Costa Rica	1,391	78	515	1,603	1,948	349	-82.1
Belgium	0	19	0	0	1,876	0	-100.0
Dominican Republic	11	0	3	140	1,773	881	-50.3
Total	**383,524**	**405,132**	**477,342**	**566,771**	**599,712**	**538,641**	**-10.2**
Feather meal							
Indonesia	34,963	56,813	43,749	37,260	36,208	47,153	30.2
Chile	532	0	0	0	13,697	24,216	76.8
Canada	3,195	5,383	6,311	9,497	11,632	17,035	46.4
Taiwan	732	1,154	947	1,811	680	1,600	135.3
Vietnam	1,099	5,367	92	660	625	95	-84.8
Mexico	0	101	107	20	70	0	-100.0
Thailand	0	745	0	9	31	18	-41.9
Total	**45,804**	**73,255**	**53,882**	**50,139**	**62,989**	**90,117**	**43.1**

Source: Global Trade Atlas.
Note: n/a = not available.
[1]NRA estimates.
[2]Exports to China are likely undervalued.

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end of 2012. On average, the tallow to soybean oil spread has been $175 per metric ton over the past 10 years, with last year's average being right at $175. Yet the ending months of 2012 saw that spread increase. Even though exports suffered because of the glut of palm oil and reduced demand globally, the US rendering industry was somewhat buffered from a total price collapse because of the protected demand by the US biodiesel industry.

Outlook

Continued pressure on raw material for the rendering industry is likely to carry into 2013 and beyond. The USDA/Economic Research Service predicts US beef production to decrease by four percent in 2013 and continue declining until 2019. Poultry slaughter is forecast to decline about one percent in 2013 and start growing again the following year, while pork production is forecast to grow by two percent in 2013. Hence, not only will raw material be tight for production, but the feed industry will likely continue at a very slow rate of growth as well. The fats and oils market should remain strong in 2013 as the RFS biodiesel mandate increased to 1.28 billion gallons. In addition, the growth in corn oil production should slow as ethanol producers maximize production, providing added opportunities for animal fats to replace lost energy from extraction of oil from DDGS in the domestic feed market. On the international market, palm oil supplies are expected to dwindle and prices should strengthen as added demand ought to narrow the price spread between soy oil and palm.

International Market Conditions

Protein Meals

Even as the global economy weakened in 2012, the global feed industry continued to expand, mainly led by expansion in developing nations. According to Alltech's 2013 Global Feed Survey, global feed production increased from 873 million metric tons in 2011 to 954 million metric tons in 2012, a 10 percent gain. China is the largest feed market in the world with production increasing from 175.4 million metric tons in 2011 to 198.3 million metric tons last year, a 13 percent growth. By regions, Asia is the largest producer of feed in the world at 357 million metric tons in 2012, up 17 percent over 2011. Feed production in Europe rose four percent to 208 million metric tons with North America up two percent to 188 million metric tons. Latin America grew 10 percent in 2012 to 137 million metric tons while the Middle East/Africa region went from 47 million metric tons in 2011 to 56 million metric tons last year, a 20 percent increase. This growth in feed production continues to fuel demand for rendered products.

NRA targets both the poultry and aquaculture industries in export markets. The aqua feed market expanded from 29.7 million metric tons in 2011 to 34.4 million metric tons in 2012, up 16 percent. While this industry is small, it is fast growing and

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processed animal protein meals have a competitive advantage in aqua diets because of their similarities to fish meal.

The largest export market for US animal protein meals in 2012 was Indonesia. Although the largest market, exports to Indonesia fell 41 percent last year to 231,512 metric tons due to the closing of the market in April after the United States reported an atypical case of BSE. As of this writing, Indonesia remains closed to ruminant meat and bone meal from the United States.

Mexico is the second largest market for US processed animal protein exports, which imported 64,435 metric tons in 2012. Mexico has been plagued with avian influenza outbreaks this past year that has reduced feed demand for the poultry sector causing exports to decline. Exports of processed animal protein meals to Chile have exploded in recent years due to the recovery of the Chilean salmon industry and its demand for protein meals. Exports grew by approximately 167 percent in 2012 to nearly 60,000 metric tons.

The seeds for booming exports of US rendered protein meals to Chile were planted many years ago as the NRA started to look for opportunities in the Chilean salmon industry early in 2003. However, in December of that year, the first case of BSE was found in the United States and the opportunities that the Chilean market presented were suddenly shut down as its sanitary authorities prohibited the importation of all rendered protein meals. Thanks to the support of the NRA International Market Development Committee, and USDA's Animal and Plant Health Inspection Service and Foreign Agricultural Service, NRA was successful in obtaining import requirements for non-ruminant protein meals in 2004. In the beginning, export volumes were low due to competitive products from Europe as well as neighboring Argentina and Brazil, but as the salmon industry recovered from the infectious salmon anemia virus crisis and fewer products were available from other countries, exports of US product increased exponentially and then more than doubled in 2012.

The same story can be told regarding feather meal exports to Chile, which grew to approximately 25,000 metric tons in 2012, up over 76 percent from 2011. Other growing markets include China and the Philippines, importing close to 46,000 metric tons and 33,000 metric tons respectively. Exports to other Asian countries are likely higher than reported due to different tariff codes being used for processed animal protein meals. Even with the loss of the largest importer of ruminant meat and bone meal (Indonesia), exports of processed animal proteins only declined by 10 percent due to increased demand from other countries and their growing feed industries.

Fats and Greases

As mentioned earlier, US exports of rendered fats and greases plummeted in 2012 due to decreased global demand combined with large stocks of palm oil. Due to the large glut of palm oil, prices fell nearly $300 per metric ton, a 32 percent drop over the year. In addition, prices of rendered fats remained relatively high early in the year due to the demand from the US biodiesel industry, pricing exporters out of the market for the most part. Mexico remained the largest importer of US tallow at 271,378 metric tons, down 27 percent over 2011. Exports of tallow to Turkey were at a 10-year low at approximately 79,000 metric tons. The one growth market was Morocco, whose imports of tallow increased 26 percent to over 24,000 metric tons for its soap industry. The 27 member countries of the European Union (EU) remained the largest import market for used cooking oil in 2012 at 129,446 metric tons. This product goes solely to the EU biodiesel industry. Mexico and Venezuela imported 89,870 metric tons and 74,589 metric tons of yellow grease respectively, both strong declines over 2011.

Biodiesel and renewable fuel demand remained strong in 2012. The top three global biodiesel producers continued to utilize animal fats and used cooking oil in their industries. The United States used over 700,000 metric tons, the EU took 1.1 million metric tons, and Brazil imported over 400,000 metric tons of animal fats and used cooking oil for the biodiesel

Table 5. Global biodiesel production, 2007-2012 (metric tons)

Country	2007	2008	2009	2010	2011	2012[e]
EU-27	5,870,000	8,410,000	8,672,000	9,425,000	9,425,000	9,700,000
Argentina	188,000	726,000	1,190,000	1,811,000	2,415,000	2,536,000
Brazil	354,000	146,000	1,407,000	2,088,000	2,339,000	2,363,000
United States	1,040,000	1,618,000	1,260,000	793,000	2,235,000	2,240,000
Indonesia	236,000	551,000	289,000	648,000	1,330,000	1,575,000
Thailand	60,000	392,000	534,000	578,000	551,000	753,000
China	n/a	298,000	298,000	298,000	397,000	497,000
Colombia	8,000	70,000	289,000	368,000	470,000	477,000
Canada	81,000	88,000	107,000	122,000	138,000	249,000
Philippines	33,000	57,000	114,000	122,000	126,000	130,000
Australia	38,000	47,000	86,000	70,000	70,000	101,000
Peru	10,000	10,000	32,000	32,000	32,000	50,000
Japan	5,000	6,000	7,000	8,000	12,000	18,000
Malaysia	195,000	171,000	194,000	70,000	11,000	13,000
Paraguay	9,000	7,000	5,000	1,000	2,000	4,000
Total	**8,126,000**	**12,596,000**	**14,484,000**	**16,431,000**	**19,554,000**	**20,703,000**

Source: USDA/Foreign Agriculture Service GAIN Reports, US National Biodiesel Board, US Energy Information Agency.
Note: e=estimate; n/a = not available.

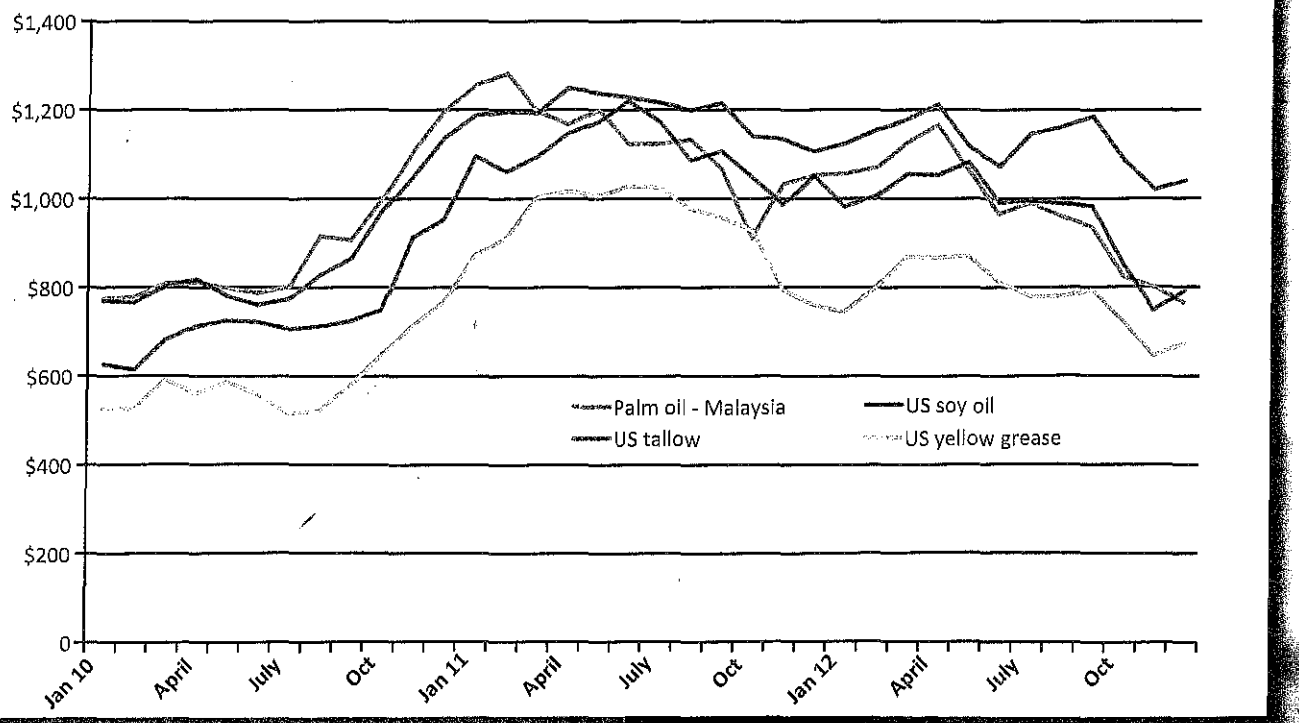
industries and this demand should continue into 2013. In addition, Singapore is now the second largest global importer of tallow as a raw material for renewable fuel. In 2012, one plant imported 178,000 metric tons of tallow for its operations, mostly from Australia and New Zealand.

Outlook

As mentioned earlier, the cure for high prices is high prices. Alternatively, it can be said that the cure for low prices is low prices. This should be the case with palm oil going into 2013. As stocks begin to drop due to the unsustainable spread between palm oil and other fats and oils, prices should recover. Also, a growing feed industry in developing countries coupled with growing biodiesel and renewable fuel production in developed countries should invigorate export demand for fats and oils. In addition, NRA expects China to open the market to tallow for its soap industry in the next year or two, giving US exporters access to the largest potential tallow market.

The possibilities for processed animal protein exports from the United States should be enhanced due to the recommendation by the World Organization for Animal Health, or OIE, Scientific Commission to the OIE general assembly that the United States be categorized as negligible risk. Although there was much fanfare in the United States when this was announced, it must be noted that the general assembly must still vote on this recommendation. However, a precedent was set in 2012 when Brazil reported an atypical case of BSE yet still maintained its negligible risk status so logic dictates that the United States should receive negligible risk status at the OIE meeting in May. Unfortunately, logic does not always dictate decision-making when it comes to issues that can be used as sanitary and phytosanitary (SPS) trade barriers. As it has been seen, many trade restrictions posed as SPS concerns are nothing more than trade barriers and BSE-related measures are no exception. **R**

Chart 2. Average monthly prices of select oils, fats, and greases, 2010-2012 (per metric ton)



World Feed Production Up to 959 Million Tons

The world is producing 959 million tons of feed and has increased its production by at least four percent in the last year, according to the 2013 Global Feed Survey released by Alltech. Alltech assessed the compound feed production of 134 countries in December 2012 through information obtained in partnership with local feed associations and Alltech's sales team, who visit more than 26,000 feed mills annually.

Among the 134 countries assessed in the survey, China was reaffirmed as the chief producer of feed at 191 million tons and an estimated 10,000 feed mills. Consistent with late 2011 assessments, the United States and Brazil followed with 179 million tons produced by 5,251 feed mills and 66 million tons produced by 1,237 feed mills, respectively. Overall, a 26 million ton increase was observed in BRIC countries (Brazil, Russia, India, and China) year to date.

Asia continues to be the world's number one producing region at 350 million tons. However, Africa exceeded Asia in percent growth over 2011 results, increasing its tonnage nearly 15 percent from 47 million in 2011 to 54 million in 2012.

Globally, the survey identified 26,240 feed mills, with North America and Europe serving as home to more than half of them. The Middle East was estimated to have the largest feed mills, with an average of more than 63,000 tons produced per mill. Sixty percent of feed produced globally is pelleted, with percentages particularly high in Europe.

When analyzed by species, poultry continues to dominate with a 43 percent share of the feed market at 411 million tons growing by about eight percent over 2011 estimates. Sixty percent of all poultry feed tonnage is dedicated to broilers, with the rest fed to egg layers, turkeys, duck, and other fowl.

The pig feed sector matched poultry's eight percent growth, moving to 218 million tons globally. The ruminant feed market, comprising dairy, beef, and small ruminants, grew more than 13 percent between late 2011 and December 2012, producing 254 million tons.

Aquaculture is the fastest growing species sector by tonnage with growth greater than 55 percent since 2011, while pet food represents 20.5 million tons, 40 percent of which is produced in the United States, but Brazil continues to make considerable advances in this sector. Global equine feed tonnage increased almost 17 percent to 10.8 million tons.

"As we look to the demands of the future, chiefly the feeding of nine billion people by 2050, these survey results should stir optimism and resolve within our feed and food industries," said Dr. Pearse Lyons, president of Alltech. "Our global feed industry is rising to the challenge, and we're seeing growth across the board. Moreover, we're seeing it in some particularly key areas – BRIC, Africa, and aquaculture."

Global feed production has traditionally been difficult to quantify because many countries lack a national feed association. For this reason, in late 2011, Alltech began to leverage its global presence to obtain a finer estimate of the world's feed tonnage. R