

US Market Report

A Year of Inflation, Inputs, Imports, Inspections and Inefficiency

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Eager to put pandemic-era restrictions and hardship in the past, 2022 was a year of transition for most of the world with business travel, trade shows and in-person meetings becoming normal once again. Meanwhile, COVID-19 travel restrictions, quarantines and mask mandates remained in effect in China — at least until news coverage of the World Cup soccer matches and other sporting events showed images with stadiums full of mask-free sports fans and athletes. That stirred Chinese citizens to question their government’s zero-COVID policy. By year’s end, China began to relax its strict COVID controls.

The world took an alarming turn in 2022, with the Russian invasion of Ukraine, rising tensions between the U.S. and China over Taiwan, and potential conflicts brewing on the Korean peninsula and between Iran and Israel. Meanwhile, a “pink wave” continued to roll across Latin America, reshaping regional diplomacy with leftist leaders gaining control in Chile, Colombia and Brazil, building upon the previously elected left-leaning presidents in Mexico, Argentina and Bolivia.

Political and economic tension was also in the headlines here at home in the U.S. with skyrocketing inflation and interest rates, the Supreme Court ruling to end the constitutional right to abortion, a narrowly averted rail strike, and debate over

immigration policy and border enforcement that inspired a couple of governors to send buses and planes full of migrants to “sanctuary cities” throughout the country to ease the burden on border communities.

The midterm elections further underscored how intensely polarized the electorate in the U.S. remains. Democrats retained control of the Senate by a razor-thin margin while surviving runoff elections and election recounts. Meanwhile, Republicans won control of the House of Representatives, but with a smaller than expected margin of victory, which will make the job of governing extremely difficult.

Government bureaucracy and lack of leadership from the Biden administration on international trade impaired exports of rendered products in 2022. Renderers spent time in Washington delivering the message to federal officials that the government is part of the supply chain due to its role in trade policy, export approvals and other trade-facilitation activities. While trade negotiators at the U.S. Trade Representative’s Office and the U.S. Department of Agriculture continue routine dialogues with trading partners, very little progress on behalf of the animal by-products sector was detected throughout the year.

Trading partners like Indonesia (the largest importer of U.S. rendered products) continued to insist on plant-by-plant

inspection regimes rather than recognizing the U.S. food safety system as equivalent to theirs, and renderers had to submit to burdensome and expensive inspections in order to be eligible to export.

Employees at USDA began slowly returning to the office in 2022, but after workers got a taste of remote work during the pandemic, many objected to the prospect of commuting to a traditional office to work five days a week. Many agencies have responded by shifting some positions to fully remote, while offering workplace flexibility for other positions with a minimum of one day per pay period reporting to a traditional office.

USDA's Animal Plant Health Inspection Service was among the agencies recognizing the need to use workplace flexibility as a recruitment and retention tool to help it overcome staff shortages and a track record of ineffective management. In addition to addressing staffing issues, APHIS committed to resolving its backlog of facility inspections, animal disease preparedness and response efforts and process improvement to streamline its internal processes.

The U.S. rendering industry faced some strong headwinds in 2022, including inflation, cost of inputs, high interest rates, shifting demand for rendered products, trade restrictions and bureaucracy, but it is well situated to adapt to changing market dynamics and capitalize on growing demand and product value. The following is a review of the 2022 market for U.S. rendered products.

Domestic Developments

Beef

According to the National Agricultural Statistics Service, the total U.S. cattle slaughter in 2022 was 34.3 million head — up 1.4% from 2021 — showing a return to the prepandemic upswing in the cattle cycle that began in 2016. However, livestock experts like North Dakota State University's Livestock Extension Economist, Tim Petrie, noted the typical 10-year cattle cycles have been less reliable as a planning tool for the past 15 years due to an abnormal number of outside events, including the pandemic-related supply/demand shocks, drought, rising input costs, weather, catastrophic events and trade policies.

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Pork

Hog slaughter was 125 million head — down 2.8% from the prior year. Annual hog slaughter has risen 1% in the past five years and 12% in the past 10 years. Average hog liveweight was 289 pounds in 2022, up a pound from a year earlier.

Poultry

At 9.54 billion head, chicken slaughter set a new record increasing by 2.4% with a 4% gain over the past five years and a 10% gain over the past 10 years. The broiler and mature chicken liveweight increased nominally from 6.46 pounds to 6.49 pounds, continuing the upward trend of heavier birds. Turkey slaughter declined 3.4% — 208 million birds in 2022 down from 215 million birds in 2021. Average liveweight of turkeys also declined, from of 32.28 lbs. in 2021 down to 31.33 lbs. in 2022. After falling to a 10-year low of 22.4 million birds slaughtered in 2020, duck production continues to rebound with a 9.7% increase to 26.6 million birds in 2022, compared to 24.3 million birds in 2021.

Rendered Products — Fats

U.S. rendered production statistics in Table 2 are compiled using the USDA/NASS *Fats and Oils: Oilseed Crushings, Production, Consumption and Stocks Annual Summary*; however, the yellow grease and used cooking oil (UCO) figures are based on NARA and industry estimates.

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Table 1

		Average Annual Prices of Select Rendered Products (\$/MT), 2008-2021															
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	21-22
FATS	BFT Packer - Chicago	\$753	\$553	\$737	\$1,095	\$963	\$887	\$801	\$581	\$638	\$682	\$556	\$600	\$678	\$1,254	\$1,649	31%
	Choice White Grease - Mo. River	\$729	\$511	\$657	\$1,020	\$926	\$846	\$711	\$498	\$537	\$549	\$463	\$512	\$534	\$1,066	\$1,462	37%
	Yellow Grease - Mo. River	\$604	\$448	\$577	\$932	\$788	\$727	\$612	\$462	\$505	\$524	\$408	\$466	\$461	\$893	\$1,266	42%
	Poultry Fat - Mid South	\$709	\$510	\$628	\$992	\$864	\$793	\$660	\$502	\$546	\$605	\$566	\$564	\$558	\$1,038	\$1,376	33%
	Edible Tallow - Chicago	\$840	\$608	\$775	\$1,176	\$1,068	\$946	\$865	\$638	\$714	\$762	\$690	\$748	\$828	\$1,444	\$1,817	26%
	Lard - Chicago	\$445	\$631	\$849	\$1,093	\$1,279	\$1,081	\$959	\$670	\$708	\$729	\$718	\$683	\$820	\$1,413	\$1,850	31%
PROTEIN	MBM - Ruminant Mo. Riv	\$398	\$406	\$364	\$413	\$473	\$464	\$502	\$359	\$294	\$273	\$263	\$215	\$239	\$338	\$400	18%
	MBM - Porcine Mo. Riv	\$424	\$441	\$387	\$462	\$552	\$527	\$556	\$377	\$314	\$314	\$308	\$234	\$285	\$389	\$450	15%
	Blood Meal Rum - Mo. Riv	\$898	\$829	\$818	\$949	\$1,122	\$1,232	\$1,580	\$1,070	\$857	\$931	\$790	\$714	\$853	\$1,035	\$1,181	14%
	Blood Meal Porcine - Midwest	\$1,086	\$974	\$937	\$1,047	\$1,214	\$1,308	\$1,643	\$1,086	\$899	\$968	\$822	\$732	\$910	\$1,136	\$1,436	26%
	PBM 57 pro - MidSouth	\$536	\$507	\$448	\$524	\$594	\$582	\$610	\$447	\$330	\$306	\$295	\$266	\$277	\$377	\$422	12%
	PBM - 64 pro - MidSouth	\$747	\$761	\$742	\$795	\$919	\$821	\$871	\$602	\$614	\$688	\$721	\$577	\$698	\$828	\$837	1%
	Feathermeal - Midsouth	\$532	\$594	\$540	\$565	\$715	\$701	\$772	\$521	\$391	\$437	\$497	\$390	\$347	\$533	\$620	16%

Source: The Jacobsen, Ryan Standard & Chloe Krimmel

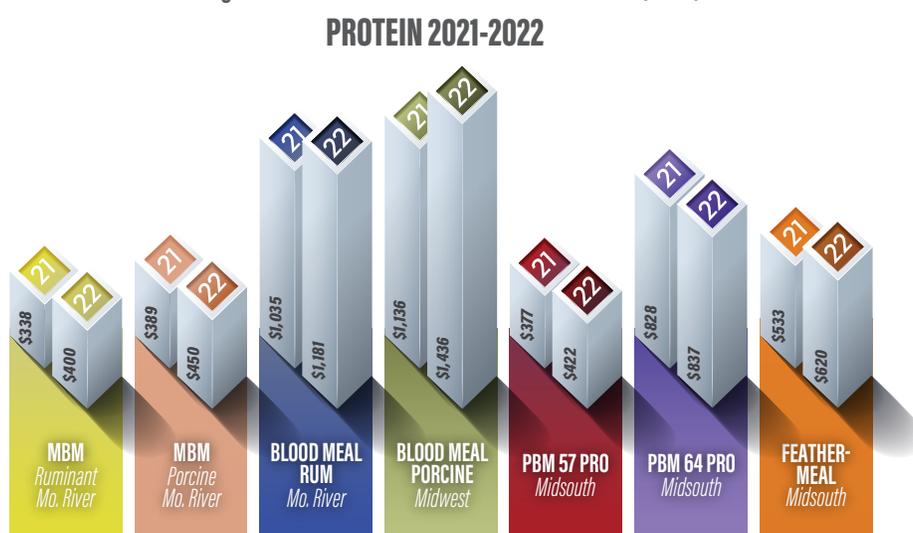


Average Annual Prices of Select Rendered Products (\$/MT)



Source: The Jacobsen, Ryan Standard & Chloe Krimmel

Average Annual Prices of Select Rendered Products (\$/MT)



Source: The Jacobsen, Ryan Standard & Chloe Krimmel

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In 2022, the production of all rendered product was 10.7 million metric tons (mmt), an increase of 1.7% from the prior year. Total U.S. fat production last year was 6 mmt, down 1% from 2021. Of that, total tallow production remained flat at 2.8 mmt, a decrease of less than 1% from 2021. Production of inedible tallow was 1.7 mmt, increasing only 0.4%. Technical tallow production was 590,900 metric tons (mt), down 2.5%, while 448,800 mt of edible tallow was produced, a decrease of 3.9%.

Last year saw U.S. imports of rendered fats rise to a record 1 mmt, doubling imports from 2021. This steep rise in imports can be attributed to continued growth in the biomass-based diesel sector (BBD), which

includes renewable diesel, biodiesel and coprocessed diesel. Renewable diesel receives some of the most favorable greenhouse gas (GHG) reduction scores among existing programs, such as the federal Renewable Fuel Standard, the California Low Carbon Fuel Standard and new programs adopted by Oregon and Washington.

As a result, participants in these state and federal programs are increasingly using renewable diesel to meet rising renewable fuel targets. The increased demand for low-carbon feedstocks in 2022 was apparent as imports of tallow topped 554,100 mt, up more than 66% from 2021, marking the second year in a row the United States was a net importer of tallow. To put this in perspective,

U.S. imports of tallow have shot up a whopping 455% since 2017. Similarly, imports of yellow grease/UCO rose to 395,600 mt in 2022, an increase of more than 205% from 2021.

A year ago, *Biodiesel Magazine* reported there were 26 renewable diesel and sustainable aviation fuel (SAF) plant projects in the U.S. By the end of 2022, the same publication's annual production map showed 34 renewable diesel/SAF plants under development, construction or operating in the U.S. According to the U.S. Energy Information Administration, production capacity for renewable diesel could more than double from current levels by the end of 2025.

Two factors behind growing U.S. renewable diesel capacity are rising targets for state and federal renewable fuel programs and biomass-based diesel tax credits. The Inflation Reduction Act of 2022 extended the biomass-based diesel tax credits through 2024. EIA estimates U.S. renewable diesel production capacity was 170,000 barrels per day (b/d), or 2.6 billion gallons per year (gal/y), at the end of 2022. Although some announced projects will be delayed or canceled, if all projects begin operations as scheduled, U.S. renewable diesel production capacity could reach 384,000 b/d, or 5.9 billion gal/y, by the end of 2025.

Protein

U.S. rendered protein meal production was 4.7 mmt in 2022, up 5.4% from 2021. Production of meat and bone meal (e.g., porcine, ruminant, and mixed species meals) totaled more than 2.5 mmt last year, remaining nearly unchanged from the previous year. Production of poultry-based meals was 1.7 mmt in 2021, a 14.1% increase and feather meal rose to 491,800 mt, an increase of 8.8% from the previous year.

Imports of rendered protein meals was 94,600 mt, down 17.6% from 2021.

The pet food sector remains an important customer for U.S. rendered protein. The domestic demand for rendered animal protein meal rose in 2022 with consumption reaching 3.5 mmt, an increase of 8.1% from 2021. Meanwhile, exports of animal protein meal dropped to 1.2 mmt, a decrease of 3.1% from 2021.

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Table 2

Questions about these charts can be directed
to Kent Swisher at kswisher@nara.org.

US Production, Consumption and Export of Rendered Products for 2017-2022							
Category	2017	2018	2019	2020	2021	2022	% Change 2022/2021
Production	000 mt						
Tallow	2,594.9	2,770.8	2,767.4	2,601.9	2,860.8	2,834.2	-0.9%
Inedible Tallow	1,663.8	1,757.7	1,745.9	1,603.0	1,787.9	1,794.5	0.4%
Technical Tallow	521.5	566.5	569.4	572.7	606.1	590.9	-2.5%
Edible Tallow	409.6	446.5	452.1	426.2	466.8	448.8	-3.9%
White Grease	750.5	736.8	768.9	734.2	697.6	745.9	6.9%
Lard	158.2	149.4	158.0	137.6	131.7	128.5	-2.4%
Choice White Grease	592.3	587.4	610.9	596.6	565.9	617.4	9.1%
Yellow Grease/Used Cooking Oil*	1,328.8	1,338.6	1,348.3	1,346.0	1,349.9	1,359.3	0.7%
Poultry Fat	1,095.3	1,025.6	1,133.9	1,146.5	957.1	918.0	-4.1%
Other Grease	369.2	285.9	209.4	207.2	229.2	175.6	-23.4%
Sub-total Fats and Greases	6,138.8	6,157.6	6,227.9	6,035.8	6,094.6	6,032.9	-1.0%
Meat & Bone Meal	2,790.2	2,658.2	2,694.4	2,475.5	2,518.8	2,509.0	-0.4%
Poultry By-Product Meal	1,438.8	1,368.7	1,548.6	1,580.3	1,515.1	1,728.4	14.1%
Feather Meal	522.0	464.5	601.0	553.5	452.1	491.8	8.8%
Sub-total Protein Meals	4,751.0	4,491.3	4,844.0	4,609.2	4,486.0	4,729.2	5.4%
TOTAL Rendered Products	10,889.8	10,648.9	11,071.9	10,645.1	10,580.6	10,762.1	1.7%
Imports							
Tallow	99.8	139.3	192.0	243.1	333.3	554.1	66.3%
White Grease	42.4	57.9	41.9	35.6	45.3	70.5	55.5%
Lard	21.2	28.9	20.9	17.8	22.7	35.2	55.5%
Choice White Grease	21.2	28.9	20.9	17.8	22.7	35.2	55.5%
Yellow Grease/Used Cooking Oil	38.7	62.8	87.7	83.1	129.5	395.6	205.5%
Poultry Fat	1.9	0.6	3.5	2.1	1.3	3.0	131.0%
Sub-total Fats and Greases	182.8	260.7	325.0	364.0	509.3	1,023.1	100.9%
Meat & Bone/Poultry/Porcine Meal	82.2	83.6	108.9	117.4	114.0	92.5	-18.9%
Feather Meal	0.6	0.7	0.4	0.3	0.8	2.1	162.5%
Sub-total Protein Meals	82.8	84.3	109.3	117.7	114.8	94.6	-17.6%
TOTAL Rendered Products	265.6	344.9	434.3	481.7	624.1	1,117.7	79.1%
Consumption							
Biomass-Based Diesel	NA	NA	NA	NA	2,629.8	3,441.2	30.9%
Animal Fat	NA	NA	NA	NA	1,094.6	1,168.1	6.7%
Tallow	NA	NA	NA	NA	604.7	794.6	31.4%
Poultry Fat	NA	NA	NA	NA	139.4	73.3	-47.4%
White Grease	NA	NA	NA	NA	314.8	300.2	-4.6%
Other	NA	NA	NA	NA	35.7	NA	
Recycled Oils	NA	NA	NA	NA	1,535.2	2,273.1	48.1%
Yellow Grease/Used Cooking Oil	NA	NA	NA	NA	1,535.2	2,273.1	48.1%
Meat & Bone/Poultry/Porcine Meal	3,112.4	3,133.3	3,225.3	2,984.5	2,954.3	3,245.6	9.9%
Feather Meal	442.5	355.2	511.0	463.7	326.0	298.8	-8.3%
Sub-Total	3,554.9	3,488.5	3,736.3	3,448.2	3,280.3	3,544.4	8.1%
Exports							
Inedible Tallow/Technical Tallow	324.6	326.9	301.5	299.8	187.7	214.6	14.3%
Yellow Grease	300.2	360.7	439.0	766.8	761.1	489.9	-35.6%
Edible Tallow	77.7	117.9	121.6	103.0	113.5	69.5	-38.8%
Lard	17.2	16.8	22.5	18.1	81.3	26.7	-67.1%
Choice White Grease	17.2	16.8	22.5	18.1	81.3	26.7	-67.1%
Poultry Fat	16.1	14.8	12.9	19.0	17.0	17.0	0.3%
Sub-total	752.9	854.0	920.0	1,224.7	1,242.0	844.5	-32.0%
Meat & Bone/Poultry/Porcine Meal	1,198.8	977.2	1,126.6	1,188.7	1,193.6	1,084.3	-9.2%
Feather Meal	80.1	109.9	90.5	90.1	126.9	195.1	53.7%
Sub-total	1,278.9	1,087.1	1,217.0	891.8	1,320.5	1,279.4	-3.1%
TOTAL, All Rendered Products	2,031.8	1,941.1	2,137.1	2,116.4	2,562.5	2,123.9	-17.1%
Sources: Trade Data Monitor. US Energy Information Agency for biodiesel inputs. USDA NASS - Fats and Oils: Oilseed Crushings, Production, Consumption and Stocks Summary							
NA = Not available							
*NARA Estimate							

Domestic Outlook

U.S. livestock producers faced numerous setbacks and challenges in 2022, from high feed costs to the third consecutive year of drought and the threat of animal disease outbreaks looming — with many effects likely lasting beyond 2023. Demand for U.S. red meat and poultry should remain strong at home and abroad.

Production was aggressive through much of 2022, with packers taking advantage of profitable margins that may not be as easy to come by in 2023. Supplies of cattle are expected to be tighter in the upcoming year, which may force packers to pay more to secure cattle and meet demand.

The cattle industry is entering 2023 with the smallest cattle supply since 2015 as drought caused the industry to dig deeper into the supply of feeder cattle and calves. In the near term, Cattle-Fax analysts anticipate a decline in beef production in 2023 of 4% to 5% or 27 billion pounds.

USDA’s Interagency Agricultural Projections Committee brings together analysts from different agencies throughout the department to compile its 10-year projections report *USDA Agricultural Projections to 2032*. According to the report, beef production is expected to decline in 2024 reflecting tighter cattle supplies leading into the projection period. Higher cattle prices in 2023 will likely incentivize heifer retention, after which modest herd growth is expected in the out years of the projection period. Increasing slaughter weights will further support production gains as the herd expands. Beef production is expected eventually increase between 2025-2032 at year-over-year rates that average almost 1%.

The U.S. hog sector grows moderately between 2023-2032. Pork production increases at an average year-over-year rate of 1.4%. In 2024 almost 129 million head of hogs are projected to be slaughtered, producing about 28 billion pounds of pork. In 2032 production is projected to be about 31 billion pounds on a

slaughter of 140 million head. Farrowings increase moderately over the period, with litter rate growth accounting for most of the pig crop increases.

Broiler production is expected to continue increasing steadily between 2023-2032, driven by greater domestic and foreign demand. Production growth will largely reflect the growing number of birds slaughtered each year. After contracting each year from 2018 to 2022, with 2022 being the most extreme due to an outbreak of Highly Pathogenic Avian Influenza (HPAI), turkey production is expected to increase gradually over the projection period.

International Market Conditions

The global demand for rendered products remains strong, with U.S. exports of total rendered products in 2022 at more than 2.1 mmt, falling 17.1% from 2021; but still up 4.5% over the past five years. Traditionally, international markets for rendered products are driven by demand for pet food inputs, poultry feed and aquaculture feed. Demand for fat was historically driven by the same pet food and feed producers, but demand for feedstocks for biomass-based diesel has shifted the economic drivers in the fat market. In 2022, Indonesia became the largest importer by volume of U.S. rendered products with 429,316 mt, followed by Mexico with 417,913 mt, and Singapore at 324,628 mt.

Global feed production remained steady in 2022, despite significant macroeconomic challenges that affected the entire supply chain. Europe bore the brunt of the impact, including significant disease challenges, severe weather and the impacts of the Russian invasion of Ukraine. The global feed sector drives demand for raw materials such as animal protein meals and fats.

According to Alltech’s annual feed production publication *Alltech Agri-food Outlook 2022*, feed production fell less than half a percent from 2021, with an estimated 1.266 bmt produced in 2022. The survey includes data from more than 142 countries and more than 28,000 feed mills. The Asia-Pacific region is the largest regional market for feed production,

Table 3. U.S. Annual Livestock and Poultry Slaughter, 2013-2022

Specie/Unit	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% Change 22/21
Cattle - thousand head	32,462	30,266	28,843	30,578	32,189	33,005	33,555	32,786	33,850	34,322	1.4%
Hogs - thousand head	112,077	106,958	115,512	118,220	121,317	124,432	129,913	131,563	128,986	125,315	-2.8%
Broilers & Mature Chickens - thousand head	8,648,756	8,669,628	8,822,692	8,908,986	9,050,702	9,160,910	9,339,249	9,346,660	9,325,584	9,545,720	2.4%
Turkeys - thousand head	239,404	236,617	232,389	243,255	241,680	236,860	227,660	223,003	215,663	208,225	-3.4%
Ducks - thousand head	24,575	26,368	27,749	27,268	26,628	27,647	27,544	22,484	24,301	26,657	9.7%

Source: USDA/National Agriculture Statistics Service

kents notes

Specie/Unit	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	22/21
Cattle - liveweight	1,314	1,330	1,360	1,363	1,349	1,350	1,344	1,373	1,371	1,369	-0.1%
Hogs - liveweight	276	285	283	282	282	283	285	289	288	289	0.3%
Broilers & Mature Chickens - liveweight	5.92	6.00	6.12	6.16	6.20	6.26	6.32	6.41	6.46	6.49	0.5%
Turkeys - liveweight	30.32	30.39	30.19	30.68	30.90	31.07	32.01	32.25	32.28	31.33	-2.9%
Ducks - liveweight	6.85	6.87	6.85	6.85	6.92	6.98	7.03	6.97	6.96	7.05	1.3%

Source: USDA/National Agriculture Statistics Service

- Livestock Slaughter Monthly <https://usda.library.comell.edu/concern/publications/rx913p88g>
- Livestock Slaughter Annual Summary <https://usda.library.comell.edu/concern/publications/r207tp32d>
- Poultry Slaughter Annual Summary <https://usda.library.comell.edu/concern/publications/pq15bd88s>

Cattle Cycle:

<https://www.ag.ndsu.edu/news/columns/spotlight-on-economics/spotlight-on-economics-the-cattle-cycle-revisited>

manufacturing 465.5 mmt last year, a 0.51% decrease from 2021; followed by Europe at 263.2 mmt, a 4.6% decrease; North America at 261.6 mmt, up 0.88%; and Latin America at 190.9 mmt, up 1.6% from 2021.

Globally, increases in feed tonnage were reported in the aquaculture, broiler, layer and pet food sectors, while decreases were reported in the beef, dairy and pig sectors. Although it experienced a narrow reduction in feed production, China remains the largest feed producing country in the world, followed by the U.S. and Brazil. There is not enough available data to estimate the global oleochemical demand for fats.

Fat Exports Mixed

The U.S. exported 214,600 mt of inedible tallow in 2022, a 14.3% increase from the year before. The largest importer last year was Canada at 111,420 mt, an increase of 83%; followed by Mexico at 50,498 mt, a decrease of 48%; and Singapore at 48,587 mt. Census data showed exports of inedible tallow to Singapore were nil in 2021 after previously being the third largest market for inedible tallow from the U.S.

Yellow grease exports totaled 489.9 mt in 2022, down 35.6% from 2021, with the largest importers being Singapore at 276,041 mt, down 45.3% from 2021; Mexico at 96,212 mt, up 4.3%; and the U.K. at 25,971 mt, a decrease of 71.5%, and Canada at 25,335 mt, up 166.5%. Yellow grease (includes UCO) exports to Singapore, Mexico, the U.K. and Canada combined account for more than 50% of all U.S. rendered fat exports, demonstrating the dramatic shift in consumption of rendered fats and oils toward renewable fuel.

Protein Meal Exports Mixed

Exports of U.S. rendered animal protein meals totaled 1.08 mmt in 2022, down 9.1% from 2021, but steady the past five years. Indonesia remains the largest market, importing 331,062 mt in 2022, a decrease of 1.3%; followed by China at 188,544 mt, a 13.7% decrease; and Mexico at 151,996 mt, a decrease of 40%. U.S. feather meal exports totaled 195,087 mt in 2022, a 53% increase over

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Rendered Products Distribution By Country

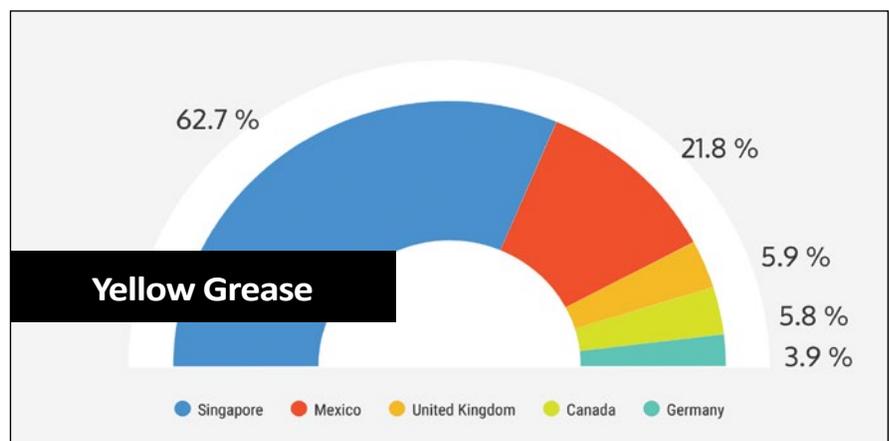
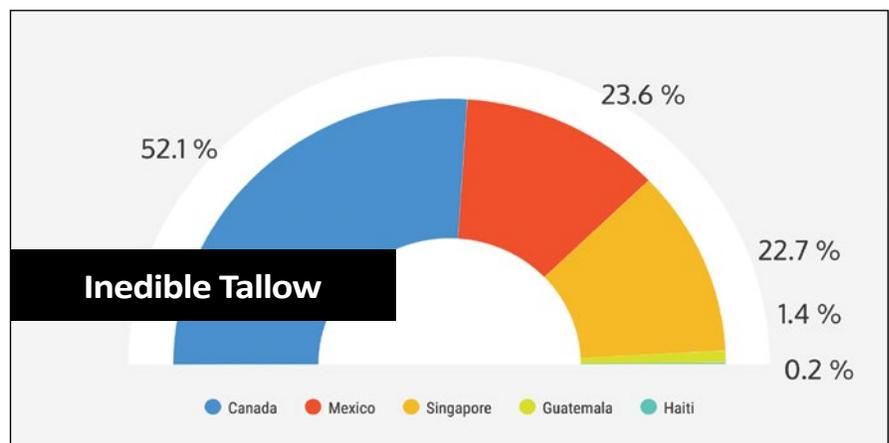
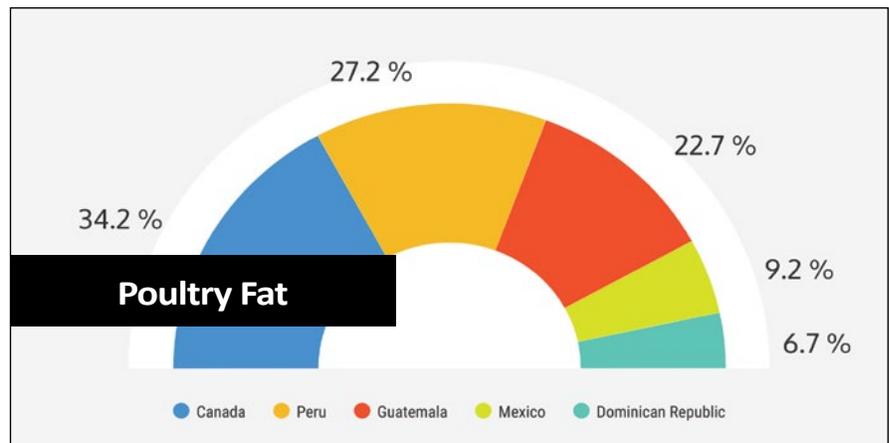
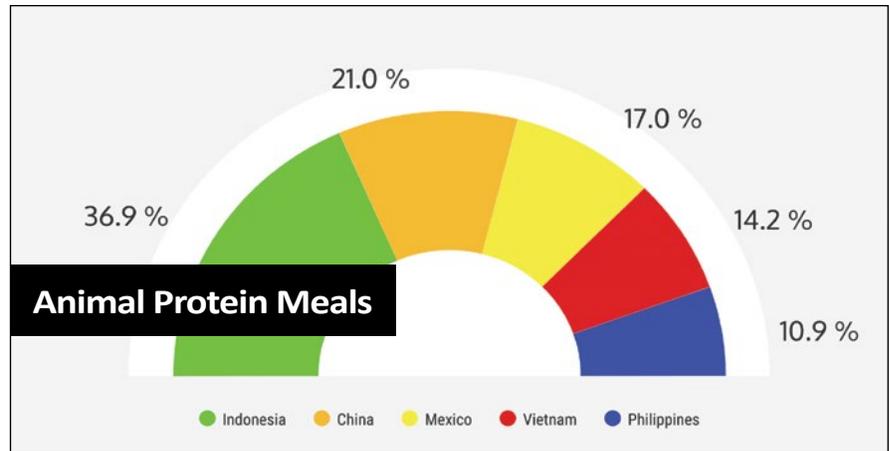


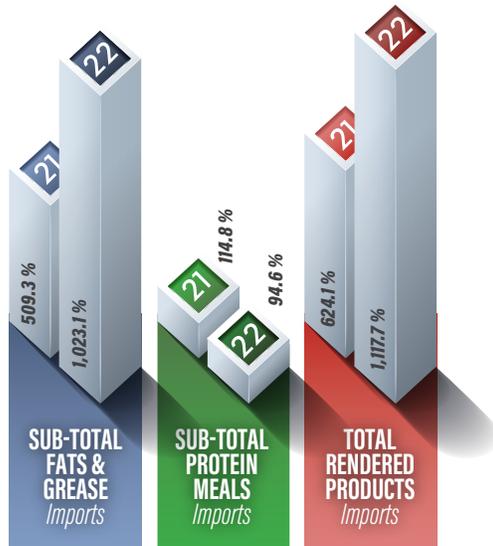
Table 4. U.S. Export Customers by Product (in metric tons), 2012-2022

Product/Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022/2021
Inedible Tallow												
Canada	12,772	14,841	18,493	20,797	22,600	20,000	35,418	29,840	47,722	60,869	111,420	83.05%
Mexico	271,378	238,079	235,843	227,876	145,636	126,624	136,009	130,519	122,117	97,086	50,498	-47.99%
Singapore	5,000	0	5,000	14,275	46,312	119,240	88,421	100,600	46,000	0	48,587	100.00%
Guatemala	19,117	13,332	21,470	20,449	20,094	15,249	13,608	6,800	5,600	3,800	3,000	-21.05%
Haiti	1,750	4,519	8,348	917	275	2,000	0	0	0	0	500	100.00%
Honduras	24,597	14,097	11,499	9,000	8,240	5,641	3,370	2,300	8,160	11,650	380	-96.74%
Trinidad and Tobago	122	179	264	205	78	159	73	34	0	61	196	221.31%
Colombia	7,199	3,899	6,100	8,000	0	1,856	9,200	4,200	2,400	2,400	22	-99.08%
Dominican Republic	2,000	2,499	3,000	3,500	4,550	2,750	3,750	1,450	1,250	836	0	-100.00%
Brazil	0	0	0	0	0	0	0	0	31,000	3,000	0	
Total All Countries	486,735	382,263	402,548	343,115	283,280	324,586	326,945	301,543	299,761	187,700	214,604	14.33%
Yellow Grease (includes UCO)												
Singapore	1,656	2,593	2,675	1,755	1,541	8,110	71,747	169,584	515,957	504,285	276,041	-45.26%
Mexico	113,534	95,892	95,574	72,564	50,034	63,372	39,267	48,625	58,400	92,222	96,212	4.33%
United Kingdom	31,267	40,514	30,116	22,025	63,044	55,477	59,469	68,580	76,665	91,006	25,971	-71.46%
Canada	15,604	11,533	10,604	11,716	9,073	7,726	7,968	8,739	7,998	9,506	25,335	166.52%
Germany	33,521	34,919	91,868	61,013	47,707	31,184	31,645	20,824	8,510	9,263	16,993	83.45%
Netherlands	80,694	68,449	29,173	43,022	64,041	68,929	69,718	68,667	66,120	21,914	15,470	-29.41%
Dominican Republic	17,629	18,082	15,518	9,585	10,639	9,652	7,943	7,215	9,908	11,309	9,833	-13.05%
Ecuador	25	99	373	48	301	554	1,388	1,410	2,060	3,495	6,488	85.64%
China	572	144	276	965	1796	1,952	2,330	2,493	3,790	3,256	3,365	3.35%
Jamaica	4,802	6,991	7,300	1,310	1,568	1,211	3,511	3,464	2,980	2,094	2,298	9.74%
India	26	35	141	278	49	81	112	196	64	1,075	2,218	106.33%
Colombia	584	388	439	593	1,846	743	445	662	1,060	1,424	1,738	22.05%
Total All Countries	452,067	361,031	333,133	252,959	286,226	300,198	360,682	439,045	766,756	761,108	489,920	-35.63%
Edible Tallow												
Mexico	70,205	66,278	35,840	61,076	114,154	72,120	113,525	118,951	101,587	108,783	64,808	-40.42%
Canada	5,163	4,870	4,807	3,657	5,706	5,552	4,338	2,547	881	1,344	3,228	140.18%
Honduras	0	-	-	-	-	-	1	-	-	1,675	800	-52.24%
China	0	-	-	-	-	-	-	-	15	-	616	0.00%
Total All Countries	75,399	71,148	40,783	64,762	120,146	77,678	117,903	121,605	102,963	113,522	69,462	-38.81%
Lard												
Mexico	23,487	28,299	18,848	17,691	16,924	15,876	16,173	22,097	17,515	80,631	26,469	-67.17%
Canada	598	596	612	393	988	605	264	259	191	205	102	-50.24%
Ireland	18	0	39	100	73	97	98	63	117	65	41	-36.92%
Total All Countries	24,826	29,398	21,390	19,768	19,050	17,181	16,825	22,488	18,097	81,330	26,730	-67.13%
Choice White Grease												
Mexico	23,487	28,299	18,848	17,691	16,924	15,876	16,173	22,097	17,515	80,631	26,469	-67.17%
Canada	598	596	612	393	988	605	264	259	191	205	102	-50.24%
Total All Countries	24,826	29,398	21,390	19,768	19,050	17,181	16,825	22,488	18,097	81,330	26,730	-67.13%
Poultry Fat												
Canada	10,667	11,065	13,072	10,943	9,320	10,125	8,815	7,074	6,526	5,525	5,418	-1.94%
Peru	-	0	0	0	958	1,597	2,511	2,080	3,660	4,016	4,308	7.27%
Guatemala	287	370	458	446	516	567	561	1,003	2,659	3,773	3,600	-4.59%
Mexico	806	854	1,731	2,418	2,139	2,545	1,955	1,780	2,153	1,718	1,461	-14.96%
Dominican Republic	513	644	577	616	671	443	403	586	646	548	1,068	94.89%
Total All Countries	14,536	14,895	18,173	16,376	14,728	16,065	14,835	12,862	18,980	16,987	17,045	0.34%
Animal Protein Meals												
Indonesia	155,813	168,479	156,059	199,067	277,859	303,588	321,452	385,010	333,233	335,414	331,062	-1.30%
China	23,420	54,483	63,174	81,400	138,088	162,346	198,991	199,670	235,510	218,507	188,544	-13.71%
Mexico	99,043	83,474	74,874	103,789	99,618	129,371	197,099	197,636	200,824	254,696	151,996	-40.32%
Vietnam	2,050	1,780	1,613	8,214	28,416	39,528	65,629	115,544	190,485	124,209	127,037	2.28%
Philippines	33,035	29,729	12,462	10,734	9,267	6,605	23,592	38,915	64,090	71,896	97,672	35.85%
Ecuador	4,893	6,790	7,058	6,496	9,557	8,169	16,827	28,135	27,358	42,769	50,897	19.00%
Canada	38,044	43,368	48,690	58,743	64,292	66,422	54,520	49,049	54,875	56,571	50,597	-10.56%
Honduras	900	3,406	1,100	3,704	10,693	4,102	8,694	7,520	12,654	31,157	17,666	-43.30%
Chile	45,937	59,689	32,026	57,084	18,144	26,963	44,454	41,801	15,451	7,737	14,440	86.64%
Peru	680	1,156	994	1,019	2,410	5,564	5,809	3,762	9,151	11,072	13,460	21.57%
Guatemala	1,037	12,595	7,399	1,381	4,130	2,934	915	3,336	8,770	7,998	12,360	54.54%
Thailand	12,884	14,951	5,740	5,163	3,480	17,119	18,263	32,179	18,721	15,385	12,025	-21.84%
Sri Lanka	0	0	0	0	0	1,914	2,456	2,055	1,484	5,109	3,235	-36.68%
Colombia	724	2,276	1,523	950	459	925	1,204	1,561	1,494	2,701	3,168	17.29%
Malaysia	2,060	4,053	3,916	1,374	1,800	7,348	7,846	11,990	7,872	3,297	2,228	-32.42%
Australia	-	-	-	-	-	73	6	77	145	1,310	2,174	65.95%
Denmark	0	0	0	0	0	0	0	-	-	-	1,750	100.00%
Japan	137	-	16	-	12	-	-	-	-	2	1,623	81050.00%
Total All Countries	400,275	449,488	372,275	482,142	686,201	1,198,794	977,165	1,126,581	1,188,711	1,193,619	1,084,305	-9.16%
Feather Meal												
Indonesia	46,929	110,087	98,990	41,750	27,373	29,177	28,058	28,047	41,604	62,488	98,254	57.24%
Vietnam	95	4,120	7	2,637	1,440	-	3,925	3,763	11,124	26,691	48,734	82.59%
Chile	25,667	52,972	48,135	24,403	10,046	11,744	30,289	43,443	23,049	23,449	39,973	61.94%
Canada	17,035	8,961	16,227	15,573	16,872	18,241	15,072	7,175	6,784	7,211	5,192	-28.00%
Philippines	0	0	-	100	200	800	859	288	2,275	884	2,075	134.73%
China	0	183	1,265	977	7,391	18,904	30,813	4,073	1,541	-	1,029	
Peru	0	0	0	578	-	427	761	1,325	1,346	3,813	854	-77.60%
Total All Countries	92,195	178,815	165,952	87,000	63,580	80,123	109,902	90,454	90,075	126,913	195,087	53.72%

Source: Trade Data Monitor

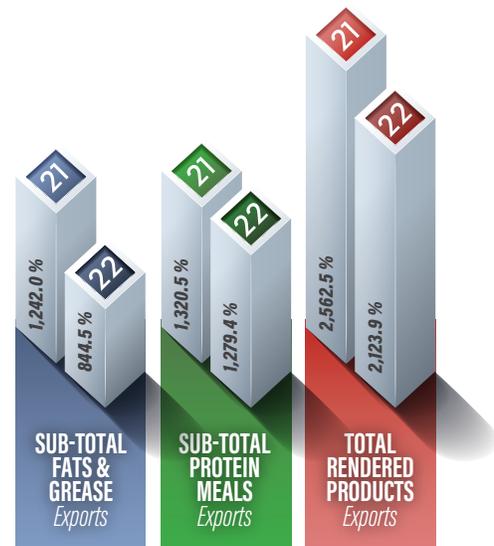
* Protein Meals - Mexico 12-17 used Mexico Imports

US Production, Rendered Products Imported % CHANGE 2021-2022



Sources: Trade Data Monitor, US Energy Information Agency for biodiesel inputs, USDA NASS - Fats and Oils: Oilseed Crushings, Production, Consumption and Stocks Summary

US Production, Rendered Products Exported % CHANGE 2021-2022



Sources: Trade Data Monitor, US Energy Information Agency for biodiesel inputs, USDA NASS - Fats and Oils: Oilseed Crushings, Production, Consumption and Stocks Summary

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2021. The largest importer of feather meal was Indonesia at 98,254 mt, up 57.2% from 2021; followed by Vietnam at 48,734 mt, increasing 82.6%; and Chile at 37,973, up 61.9%.

Shifting Growth and Market Opportunities

With the pandemic largely in the rearview window, demand is expected to increase for both fuel and foodstuffs — thereby increasing demand for rendered products. Renewable Fuel Standards and the continued expansion of the biomass-based diesel sector globally will increase demand and prices for rendered fats. Demand for protein meals will continue to be driven by the expansion in aquaculture and pet food sectors. The expanded soybean crush capacity expected to come online in the U.S. will contribute toward the supply and demand shift in the protein meal market.

The juxtaposition of the rising demand for fats and oils for renewable fuel consumption and declining domestic demand for rendered animal protein due to changing consumer preferences punctuates the need to find new uses and markets for U.S. rendered protein products in 2023 and beyond. **R**

