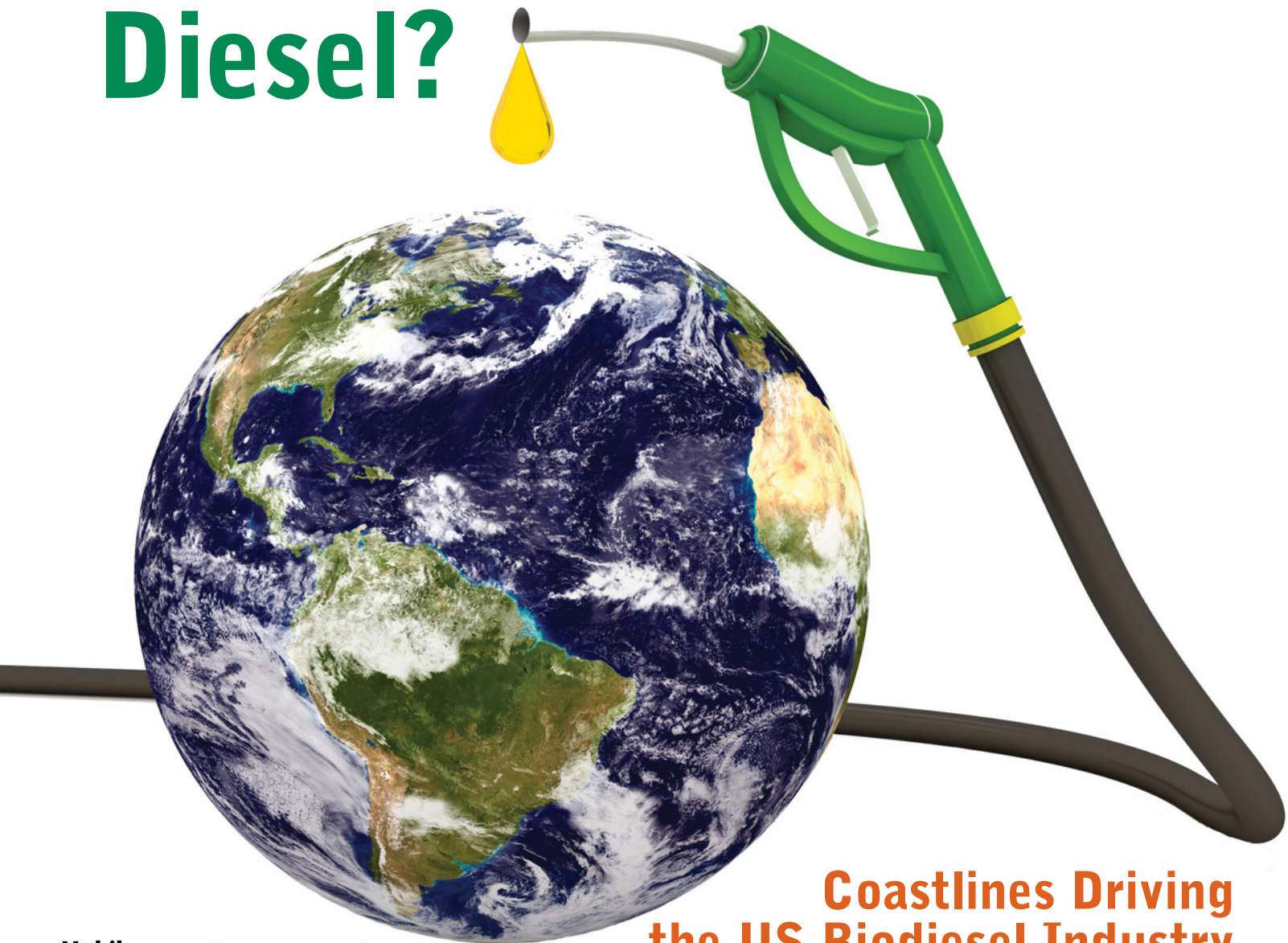


The International Magazine of Rendering

February 2018

Render

What's the Story with **Renewable Diesel?**



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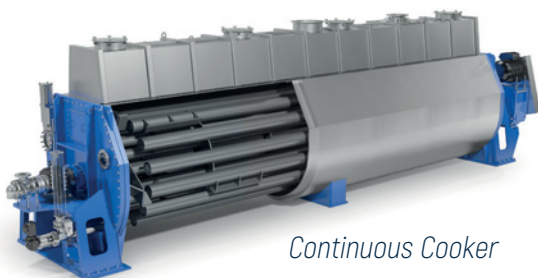
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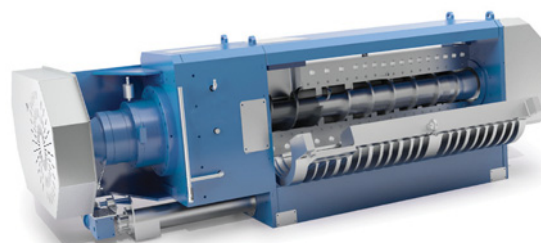
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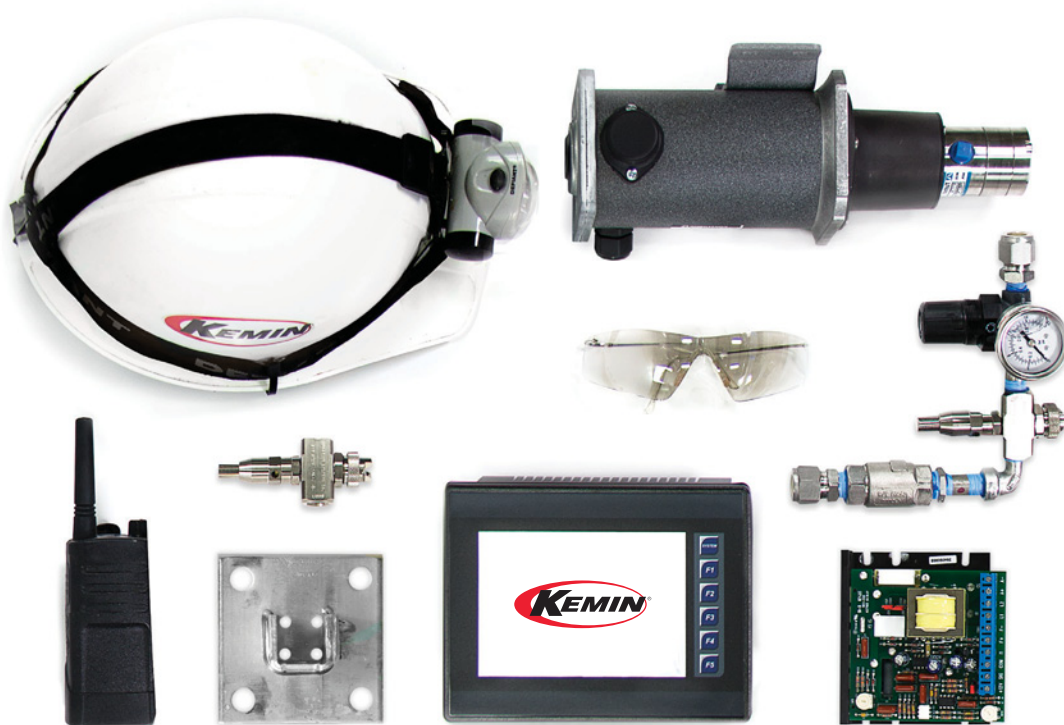


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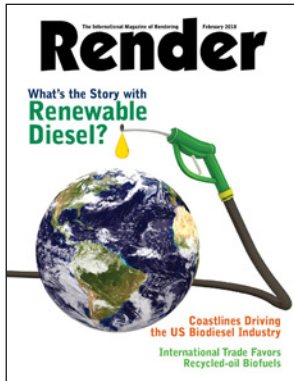
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Features

- 10** **What's the Story**
With renewable diesel?
- 12** **Coastlines Driving**
The US biodiesel industry.
- 14** **International Trade**
Favors recycled-oil biofuels.

On the Cover

Renewable diesel has rapidly entered the fuel markets in recent years, increasing demand for rendered fats and oils.

p. 10

Departments

- 6** **View from Washington**
Much to accomplish on Congress' agenda.
- 8** **Newsline**
Industry is adapting to meeting FSMA.
- 20** **Biofuels Bulletin**
Chinese airline flies on fuel made from UCO.
- 22** **From the Association**
New year, new opportunities.
- 24** **International Report**
Strengthening the pet food relationship.
- 26** **FPRF Research Wrap-up**
Research increases value for renderers.
- 27** **Mark Your Calendar**
- 28** **Tech Topics**
Gasification: Solving modern manure pollution.
- 29** **People, Places, and...**
- 30** **Labor and the Law**
OSHA liability 2017: Déjà vu all over again.
- 32** **Classifieds**

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Renderitorial

Twenty-five years ago, *Render* included an article in the October 1992 issue titled "Is there Biodiesel in Your Future?" questioning if renderers could be entering the automotive fuel business. Frank Burnham described it as a new fuel manufactured from renewable resources that "represents a dramatic new market for animal fats and oils." At the time, the American Soybean Association was "hot on the potential of commercial production in the United States." Test vehicles fueled by soy-based biodiesel were already on the road.

The reason for the focus way back then was the participation of the Fats and Proteins Research Foundation in the development of the process using tallow in the operation of a pilot plant in Kansas City, Missouri. Burnham, *Render's* editor at the time, visited the facility to "kick the tires" and attend an invitation-only conference that included senior officials of the United States (US) Department of Agriculture, Department of Energy, and the Environmental Protection Agency who all indicated their firm support of an active national effort to make biodiesel a commercial reality.

Fast forward to 2018 and billions of gallons of biodiesel, and now renewable diesel, are produced annually using a multitude of feedstocks, especially animal fats and used cooking oil. Evident at the industry's recent conference, producers remain driven to ensure the federal government continues to support a solid yet continually emerging industry. Lapsed federal tax credits and stagnant biofuel mandates have created volatility in the US market, but state programs have stepped in to help this young industry continue to thrive and even flourish.

Although the US biodiesel industry got its start 25 years ago, renewable diesel is fairly new on the biofuels scene and is growing exponentially, creating even more demand for rendered fats and oils. *Render's* biofuels columnist Joe Gershen examines the players and growing renewable diesel industry on page 10 in this issue of *Render*.

It is evident that renewable fuels have become a vital market for renderers in the past 25 years. **R**



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Much to Accomplish on Congress' Agenda

All issues to come before Congress running up to the November 6, 2018, midterm election will be viewed through the political lens of "control." Legislation vying for House or Senate floor time until then will be viewed and vetted by how enactment or banishment to legislative purgatory of a particular policy pursuit translates to party control of Congress.

The congressional agenda for 2018 is jam-packed but in order to understand, at least in part, what may or may not be accomplished depends on how apolitical Congress will be with the midterms hanging over the heads of party leadership.

History shows midterm elections are usually not kind to the party of the sitting president. Current GOP majorities on both sides of Capitol Hill are at risk right now and Democrats are beginning to salivate over their prospects for taking back at least one congressional chamber. All 435 House members are up for reelection, along with one-third of the Senate – Democrats defending far more seats than the GOP in 2018 – and you can bet President Donald Trump will shortly shift into overdrive to rally his political base to keep Congress red. Trump does not relish spending the last two years of his first term with a split or Democrat-controlled Congress, not if he covets a second term.

Senate Republicans enjoy a razor thin 51-49 majority with the special election win by Senator Doug Jones (D-AL) to replace Senator Jeff Sessions (R-AL), now serving as attorney general. In November, there will be 33 members up for regular reelection, with one member running in a special Minnesota election to replace Senator Al Franken (D-MN) who resigned. Of the 33 Senate seats up for grabs, 24 are currently held by Democrats, along with seats held by two Independents who caucus with the Dems. Just eight seats are being defended by Republicans. Eight of the 10 Senate seats currently designated by political gurus as "very possible flips" are held by Democrats.

In the House, Republicans enjoy a 239-193 majority, with three vacancies. The chance of that chamber flipping back to Democrat control is pretty slim, right? Maybe not.

As of mid-January, a record 46 sitting House members have announced they are not seeking reelection in 2018. The 15 open Democrat seats and 31 open GOP seats are due to resignations for one reason or another, decisions not to seek reelection – euphemistically referred to as "retirements" – or because the incumbent decided to seek another office, generally either running for the Senate or governor. More of these self-imposed term limit announcements are expected.

Pundits contend the disproportionate number of GOP retirements is largely out of frustration with a consistently deadlocked Congress, one in which the House has passed nearly 400 bills since the session began in January 2017 only to see them languish in the Senate. Trump has signed only 93 bills into law – 27 fewer than President Barack Obama signed in his first year in office – but it must be noted this enacted

legislation ranges from the monster GOP tax reform/cuts package to naming post offices, appointing folks to boards, etc. Another reason cited by some pundits for the rush of Republicans into retirement is the possibility that Trump's unconventional approach to the presidency as head of the GOP is highly uncomfortable for some moderate and conservative Republicans.

As House Speaker Paul Ryan (R-WI) and Senate Majority Leader Mitch McConnell (R-KY) and their lieutenants huddle with White House policy/legislative personnel, all conversational roads lead to the midterm elections and how and to what extent congressional agendas can tilt the outcomes one way or another. For himself, Trump appears to have adopted a post-tax reform victory "hands-across-the-aisle" strategy to try and move politically contentious – nay, ugly – issues this year. The underlying motivation of the president's strategy is to retain or regain the affection of his political base and, to the extent possible, woo independents thus far unimpressed with the last 365 days.

There have been political group hugs orchestrated by the Trump camp on tax reform, immigration reform, and the budget, and there will be more high-profile, media-heavy bipartisan White House meetings. If only because Democrats cannot generally ignore an invitation from the White House to talk about solutions to national problems, Trump is repositioning himself as the great compromiser. At each of these meetings the president will embrace a Democrat position, telling the assembled lawmakers and press, "And I'll take the hit for this with my people."

First up will be fiscal year 2018 government spending. The current continuing resolution runs out in mid-February after Congress, bloodied and tired after the pre-Christmas tax reform wars, punted the spending debate into the new year. While the media is rife with government shutdown speculation, expect a deal to be worked out to bump up both domestic and military spending, if only a hair, so as to get the appropriations mess out of the way of bigger policy issues. The deal, however, could be a nightmare for fiscal conservatives as it is rumored to carry about \$200 billion in new spending, including a number of health care initiatives, with nary a budget off-set or "pay-for" to be seen.

The odds are against Congress enacting a formal budget resolution given there was such pride shown when the respective chambers approved budget resolutions to clear the Senate procedural hurdles in order to successfully move tax reform. McConnell says he simply cannot get it done with only a 51-vote majority. However, without a budget resolution and the important procedural freedoms it provides, including avoiding filibusters and enjoying 51-vote majorities in the Senate, the remainder of the GOP policy agenda is at risk of being seriously curtailed.

One casualty of Congress' inability to pass a formal budget resolution will be comprehensive welfare/entitlement

program reform – Speaker Ryan says it is “how you tackle the debt and the deficit.” Both Trump and Ryan have talked a lot about shaving at least \$20 billion off the annual costs of federal entitlements, including Medicaid and food stamps, but Majority Leader McConnell says his 51-vote margin will not let him do it unless a deal is cut that is iron clad and bipartisan. Given the Democrats’ priority on expanding such programs and increasing spending, that agreement is unlikely.

While leadership does the annual spending shuffle, the House Ways and Means Committee and the Senate Finance Committee will be putting together a tax reform “technical corrections” package to ensure the just-enacted federal tax reform law does what it is supposed to do without damage or additional cost. While a technical corrections bill is supposed to carry relatively minor fixes to the just-enacted legislation, the lift this time may be heavier than anticipated.

As the two committees hammer together their adjustments, the Internal Revenue Service (IRS) is in high gear to implement the new personal and corporate tax rates, along with other fixes.

“The goal is creating simplification and a user-friendly process,” said Treasury Secretary Steve Mnuchin in a White House briefing. The IRS released ahead of schedule in January new tax withholding tables and the administration expects workers to see reductions in withholding in February, with an IRS priority on ensuring no over-withholding occurs. The IRS website carries an online calculator to assist individual tax payers and preparers.

Congress may append the new tax law language extending perennially-expired federal tax credits, including the National

Renderers Association (NRA)-supported \$1-per-gallon blender’s tax credit for biodiesel and renewable diesel. This effort will identify a broad package of federal tax credit extenders not included in the big tax bill in order to control the cost of the underlying tax reform package. The package will need to be written so deductions can be taken retroactive to January 1, 2017. There appears to be general agreement on including the extenders package in the technical corrections bill.

The tax bill also carries language redefining so-called “pass-through” small business entities, specifically, limited liability corporations, S-corporations, and simple partnerships to include farmer-owned cooperatives. The intent of including co-ops in the pass-through definition was to provide cooperatives with the same 20 percent tax deductibility gained by pass-throughs in the overall tax reform package, offsetting repeal of the Section 199 manufacturing deduction long enjoyed by cooperatives because they passed the savings on to their members. The Section 199 repeal was highly controversial until Senators John Hoeven (R-ND) and John Thune (R-SD) shoehorned the new pass-through definition into the final bill.

However, under new tax rules, cooperative members calculating taxes can deduct 20 percent of all payments to them from the co-op. Non-member farmers can only deduct the 20 percent from their taxable income. This creates an incentive for non-cooperative farmers to sell first to a co-op member, then to a commercial entity, which grain companies say puts them at a market disadvantage.

Continued on page 16

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Industry is Adapting to Meeting FSMA

As compliance deadlines for Food Safety Modernization Act (FSMA) regulations have come and gone, the feed and rendering industries have responded with focused and effective action.

In January 2017, an analysis of findings from NSF International audit reports across all industries indicated that most audited facilities were not ready to comply. Over the course of last year, however, certification audits showed strong feed safety systems were in place and any non-conformances identified highlighted areas where fine-tuning could result in further improvements. Assessments have shown that Global Food Safety Initiative (GFSI) benchmarked standards and the requirements of FSMA line up very well. Facilities that had Food and Drug Administration (FDA) inspections conducted confirmed that certification to a GFSI-benchmarked standard was a significant advantage, particularly pertaining to required programs and documentation. Audits to feed safety schemes that were not GFSI benchmarked found some consistent areas where more significant focus is still required.

A year ago, many facilities needed infrastructure upgrades to comply with FSMA as evidenced by several audits. Findings in some cases included flaking paint, loose metal scrapings, bird access, and so on. Audits performed through December 2017 illustrate that conditions in some facilities remain an area of focus. Non-compliance in the areas of pest control, glass breakage, and deteriorated structures (i.e., broken wood and concrete, peeling paint, exposed insulation, condensation, water leakage, etc.) were still consistent findings.

In January 2017, many facilities had not yet undergone training of or designated a preventive control qualified individual who would be skilled to conduct a hazard analysis and risk assessment of all reasonably foreseeable hazards. With the availability of courses developed by the Food Safety Preventive Controls Alliance (FSPCA) covering a standardized curriculum recognized by FDA, this requirement is now being met by the majority of companies audited. The National Renderers Association is a member of this alliance. Yet there are still some gaps in management commitment in designating responsible personnel for key feed safety functions (i.e., hazard analysis, internal audits, feed safety plan review, recalls, etc.) or in having a defined training program. Audit results also point to gaps in personnel hygiene practices and training records.

In almost all cases in January 2017, hazard analysis and facility feed safety plans needed to be updated to address current good manufacturing practices (CGMPs) and preventive controls. Over the course of audits conducted last year, results indicated that the majority of facilities have most or all of their CGMPs in place. While improvement is apparent, there continued to be examples of inconsistent application of the requirements in some facilities. The most common gaps involve supplier approvals, sanitation programs, glass and brittle plastic, maintenance and equipment calibration programs, hazardous chemical storage, and recall procedures.



Evidence showed that not all procedures included control measures and monitoring activities. There were occasional findings that established CGMPs were not complete or effective, such as contamination of packaging materials prior to use, evidence of pests, and inconsistent inedible and waste container identification and use.

By December 2017, most audited facilities had completed a hazard analysis and implemented feed safety plans. In those facilities that did have gaps, the most common included:

- not all ingredients or process steps were identified and included in the hazard analysis;
- hazards presented by overhead structures, mezzanines, and catwalks were overlooked;
- not indicating where CGMP addresses a hazard and not identifying an existing preventive control in the feed safety plan; and
- a lack of written procedures.

Furthermore, monitoring procedures for preventive controls were not always in place, performed, or recorded and facilities did not consistently document the evidence of corrective actions.

For facilities where a feed safety plan has been implemented for over a year, findings indicated that not all had a documented procedure that defines the management review process. In addition, not all control measures were properly reviewed with respect to their effectiveness against the identified feed safety hazards.

Industry had already taken steps to be aligned with the first compliance date of April 6, 2017, for sanitary transport to prevent practices during animal food transportation that create food safety risks (e.g., failure to properly refrigerate, inadequate cleaning of vehicles between loads, and failure to properly protect food).

The first compliance date of May 30, 2017, for the Foreign Supplier Verification Program (FSVP) also triggered action. Availability of guidance and targeted training (FSPCA Foreign Supplier Verification Programs Course) is in place to guide industry.

There are multiple tools available and industry is taking advantage of them. These include training, guidance documentation, consultation and pre-assessment, and audits. The FDA website provides updates on current issues and FSMA regulations along with guidance documents, including:

- Guidance for Industry: Sanitary Transportation of Human and Animal Food: What You Need to

Continued on page 17

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What's the Story with Renewable Diesel?



By Joe Gershen, Encore BioRenewables

Renewable hydrocarbon diesel (RHD), sometimes referred to generically as renewable diesel, has been in development for a few years although most who are familiar with renewable fuels are more aware of biodiesel, which first came on scene about 25 years ago. Biodiesel is chemically referred to as alkyl esters of long chain fatty acids and is produced via processes known as esterification and transesterification. RHD is sometimes referred to as non-ester renewable diesel in order to distinguish it from biodiesel.

Biodiesel and most forms of RHD are produced from lipids such as fats, oils, and greases (FOG). Unlike the esterification processes utilized to produce biodiesel, RHD is manufactured by hydro-treating lipids much like how higher-sulfur middle distillates are converted to ultra-low sulfur diesel.

There is a variety of technologies that can transform renewable biomass into diesel fuel including, but not limited to, biogas-to-liquids via Fischer-Tropsch synthesis (referred to as BTL), pyrolysis, and hydro-treating. Some of these can be deployed exclusively to produce renewable diesel from biomass or as part of a co-processing undertaking that mixes renewable feedstocks with petroleum feedstocks before entering the refining process. In some of these co-processing methods, the biomass is first turned into a renewable crude oil, or “bio-crude,” before being blended with petroleum oil and then further refined.

Since this author is not an engineer and this is not meant to be a technical article, details on other processes or products will not be discussed. Instead, this article will focus on non-ester RHD, which has rapidly entered the fuel markets in recent years, increasing demand on global supplies of rendered fats and oils.

The majority of RHD in the market today is derived almost exclusively from hydro-treating lipids. There are currently three better-known technology providers in the RHD industry: Neste NEXBTL, Honeywell UOP, and Renewable Energy Group (REG) proprietary process called Bio-Synfining. Another highly regarded technology provider is Haldor Topsoe.

Neste operates three RHD biorefineries around the world with a total production capacity of about 675 million gallons per year (MGPY) – one in Porvoo, Finland, a second in Rotterdam, the Netherlands, and a third in Singapore. The company recently announced it is proceeding with a feasibility

study for expansion of their Singapore facility. If that expansion project proceeds as planned, production at the new facility will begin by 2022 and expand the company’s global capacity to around 950 MGPY.

Honeywell UOP technology is being deployed at the Diamond Green Diesel plant in Norco, Louisiana (a joint venture between Valero Energy and Darling Ingredients), at the AltAir plant in Paramount, California, and at Italy’s ENI refinery near Venice. The Diamond Green plant capacity is currently around 160 MGPY with an expansion slated for completion mid-2018 bringing capacity up to 275 MGPY. The AltAir plant capacity is currently at 40 MGPY and the company hopes to expand in the near future. ENI’s plant in Italy produces about 100 MGPY.

REG operates a 75 MGPY RHD biorefinery in Geismar, Louisiana, and recently acquired adjacent land with the intention of expanding that plant’s production capacity to 112 MGPY and then potentially doubling the size of the facility, according to Eric Bowen, REG vice president of corporate business development and legal affairs. The company is also evaluating a number of other sites for expansion of its RHD production capacity, including plants in Seneca, Illinois, and Grays Harbor, Washington, in addition to other West Coast locations.

A few lesser-known proprietary RHD technologies are deployed at plants owned by French energy company Total, Finnish wood processing company UPM, and Kansas ethanol producer Eastern Kansas Agri-Energy. Total operates a 170 MGPY RHD biorefinery in La Méde, France, with all or most of its production presumably being consumed in the regional market. UPM has developed its BioVerno technology to process tall oil from its wood pulping operations into about 30 MGPY of RHD. More recently, Eastern Kansas Agri-Energy announced the launch of a small bolt-on RHD biorefinery (less than 5 MGPY) at its ethanol plant in Garnett, Kansas.

Although there are several companies, including many traditional petroleum refiners, looking into co-processing options to bring down the carbon intensity of their finished fuel products, one of these, Andeavor (formerly Tesoro Refining and Marketing) has not ruled anything out and seems to be covering all bases in their strategy to reduce carbon. According to Rick Weyen, vice president of strategy and business

development at Andeavor, the company is also evaluating an investment in dedicated RHD capacity. They currently plan to co-process small volumes of renewable crude at a Martinez, California, refinery sourced under off-take agreements from Fulcrum Bioenergy and Ensyn Corporation as these projects come online. Andeavor is also looking to begin co-processing about five percent lipids at its refinery in Dickinson, North Dakota, and is exploring options to potentially convert that facility into an exclusive RHD biorefinery, perhaps in 2020. That facility could be capable of processing up to 200 MGPY.

Looking at the numbers, there is currently about 1.25 billion gallons of annual RHD produced globally. If everything goes perfectly, the market can anticipate a capacity of roughly two billion gallons by 2025 – a 60 percent increase over a period of seven years. Given existing and growing global demand for low-carbon intensity biofuels, it is reasonable to expect that much of this production will stay close to the source feedstocks.

The exception to this rule would be policy-driven markets. For example, California has absorbed close to 20 percent of global RHD production due to demand created by the state's Low Carbon Fuel Standard (LCFS). Yet low-carbon policy-driven markets are also developing and expanding in Oregon, Canada, Europe, and elsewhere around the world, so in addition to strong markets for RHD, it seems reasonable to assume there will also be strong continued growth in demand for biodiesel. On top of this continued demand for downstream biofuels, it is likely that development and deployment of upstream co-processing technologies will continue to thrive.

There appear to be two distinct perspectives regarding the pros and cons related to 100 percent downstream RHD processing versus upstream biomass co-processing. According to Dayne Delahoussaye, Neste's head of North American public affairs, RHD has different performance characteristics than what would come from co-processing similar feedstocks with petroleum crude oil. Diesel made from co-processing would logically have a higher carbon intensity score than pure RHD since a portion of it is petroleum crude, which has a higher carbon intensity. However, an argument could be made that an aggregate carbon reduction would be achieved if the feedstock inputs were properly tracked and quantified. Also, the metallurgy in process vessels and infrastructure between crude and biomass are different and there could be stranded processing assets at existing refineries that transitioned to co-processing biomass.

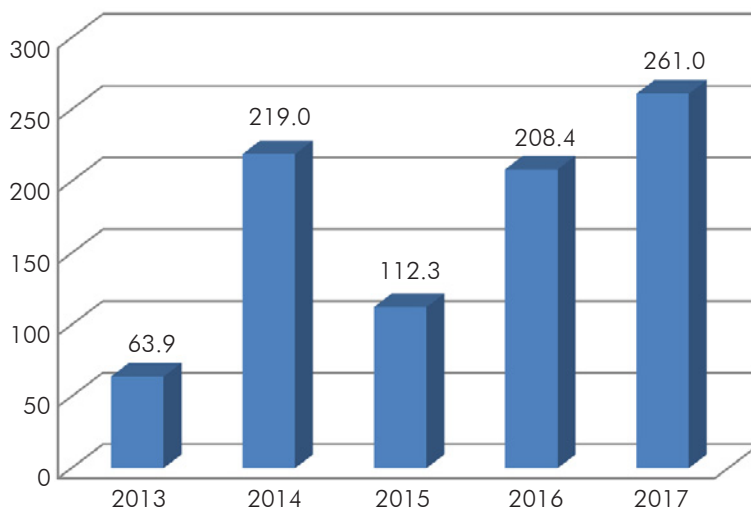
On the other hand, Weyen suggests that, "US refining capacity exceeds domestic petroleum product demand, so rather than build new and very expensive RHD refineries, why not take some of the existing excess capacity and convert it to co-processing which would be much simpler, less expensive, and more efficient?"

There is little doubt that regulations such as California's LCFS and similar programs in Oregon, Canada, and around the world are driving global demand for carbon reduction in transportation fuels. As this demand increases, the need for FOG and other biomass feedstocks will also increase. Delahoussaye said Neste has a development team working on second-generation feedstocks because they believe that additional feedstocks beyond FOG are important to continue to grow the available feedstock pool. The question for Neste is whether they can scale up to utilize these new feedstocks. Andeavor and their partners are developing technologies to process non-lipids such as municipal solid waste, wastewater sludge, and residual woody biomass into renewable crude oil for co-processing.

While further regulations are not always welcome, the carbon economy seems to be driving innovation in the development of both feedstocks and their markets. In addition, new technologies are also being advanced to process those feedstocks into low-carbon transportation fuels on a much larger scale.

R

United States renewable diesel production, 2013-2017 (million gallons)



Source: Energy Information Administration, Environmental Protection Agency moderated transaction system, and Jacobsen assumptions for 2017.

Coastlines Driving the US Biodiesel Industry

By Tina Caparella

Over the past 25 years, the United States (US) biodiesel industry has morphed and changed yet remained driven to successfully develop a viable alternative fuel industry. That message was communicated repeatedly last month as hundreds met in Fort Worth, Texas, for the annual National Biodiesel Conference and Expo.

The industry began 2018 much like the previous year – with no federal tax credit in place and a stagnation in federal biofuel mandates under the Renewable Fuel Standard (RFS). However, an anti-dumping ruling in late 2017 imposing tariffs on biodiesel imports from Argentina and Indonesia – imports that grew to account for nearly one-third of US consumption – has halted shipments from these countries, creating a challenging opportunity for US biodiesel producers.

“Our intent was never to stop imports but to level the playing field,” announced Doug Whitehead, chief operating officer at the National Biodiesel Board (NBB). While there are some other sources for biodiesel imports, including new player Korea, six US producers shared their take on how the industry expects to fill the void.

All agreed that the East and West Coasts are the driving markets at 800 million gallons annually each, with California seeing the strongest demand because of its ambitious Low Carbon Fuel Standard (LCFS). Given that the largest amount of biofuels is produced in the Midwest, producers will be focusing on transportation logistics.

“This will be the year to see where we can get product delivered,” said Gene Gebolys, World Energy. “Product will arrive in new ways. Certainty is good for production.” Ultimately, all agreed that US producers can meet the need created by the cessation of imports.

While the Northeast is seeing increased demand for biodiesel, especially in home heating oil in the winter months, Harry Simpson, president at Crimson Renewable Energy LP, confirmed that California has become the most dynamic market and “command central” for biomass-based diesel use, which includes biodiesel and renewable diesel, consuming 20 million gallons in 2012 and 587 million gallons in 2017.

NBB’s Shelby Neal shared how increasing volume targets in the state’s LCFS will make it challenging for obligated parties to comply but will provide an extraordinary opportunity for biodiesel and renewable diesel producers. LCFS volume projections show extremely quick growth to 1 billion gallons of biomass-based diesel by 2020, about 28 percent of the state’s more than 4 billion gallons of diesel fuel consumed, and nearly 2 billion gallons by 2030.

“For the LCFS to work, we are going to need a ton of everything,” Neal declared, including more feedstock, especially those that have a low carbon intensity rating under the LCFS, such as used cooking oil and animal fats. However, Neal said the California Air Resources Board is currently reworking the carbon intensity calculator in an effort to make the LCFS “bulletproof” in response to ongoing litigation from POET LLC, whose latest case was dismissed in early January. Another positive step is the approval in California of an additive to reduce nitrogen oxide that can increase in biodiesel made with certain feedstocks. Three other additive products will be available soon with five others in the research phase.

Oregon is another developing market due to its new Clean Fuels Program that operates similarly to California’s LCFS. Kevin Cooper, Sequential Biofuels, noted that Oregon put an RFS in place in 2007 that helped spur the initial use of biodiesel blended into the state’s diesel fuel while the new program will stimulate that growth even further. He shared that Washington was the second state after Minnesota to pass biodiesel blending legislation but failed to include a way to enforce it.

Further north, Ian Thompson, Advanced Biofuels Canada, declared that “Canada is in play.” British Columbia is currently reviewing its RFS and LCFS after the federal RFS led to over-blending in the province.

US producers and industry organizations, including the National Renderers Association, continue to push Congress to renew a blender’s tax credit on biodiesel and renewable diesel that expired at the end of 2016. While a bill has been introduced, other pressing issues in Washington, DC, have taken precedence. Byron Dorgan, Arent Fox and a former US



USDA Deputy Secretary Stephen Censky praises the benefits of biodiesel to agriculture.

senator, said the biodiesel industry is facing many “liabilities” on Capital Hill, such as an oil industry that wants the RFS abolished, a president that verbally supports renewable fuels and the RFS but is easily swayed by “Big Oil,” and a new regulatory tool recently used by the Environmental Protection Agency in an attempt to skirt public input on the RFS.

On the plus side, Dorgan listed the “assets” biomass-based diesel producers have in Washington as numerous industry champions in Congress, a president who has his eye on Iowa for his re-election bid in 2020, and the fact that biodiesel and renewable diesel are “American made and the solution to a lot of problems.”



From left, Paul Lovelace and Jessica Wolfson, co-directors and producers of *Hot Grease*, listen to cinematographer Andrew Miller’s experiences filming the documentary.

Kurt Kovarik, NBB’s newly appointed vice president of federal affairs, believes the biodiesel industry should use its assets on Capital Hill but also needs to “tap into the folks in the trenches” to inform their congressional representatives that the industry is feedstock neutral and geographically diverse. Whitehead added that the industry needs consistency in public policy that other industries have enjoyed to assure producers, investors, and customers.

Providing an agriculture perspective on the benefits of biofuels was newly appointed US Department of Agriculture (USDA) Deputy Secretary Stephen Censky, who just prior served as chief executive officer of the American Soybean Association.

“USDA is thrilled to support the work that you do to create jobs, to grow our energy security, to create demand, and to reduce emissions,” he commented. “USDA is proud to play a role and partner with the biodiesel industry and support research like the recently released study that once again demonstrated the life cycle analysis of biodiesel and shows the positive benefits of biodiesel compared to petroleum products.” Censky shared that the food and agriculture sector is the largest segment of US manufacturing, responsible for 20 percent of all manufacturing jobs, and he believes the recently passed tax plan will benefit farmers and agriculture.

Attendees to the conference were treated to video segments and a discussion with the producers/directors of the new documentary *Hot Grease* that aired on The Discovery Channel late last year. A nearly two-year endeavor from finding a financial supporter for the film to the finished product follows the biodiesel industry from collecting used cooking oil feedstock in Houston, Texas, to the ongoing regulatory hurdles in Washington, DC. The hour-long documentary is available online at www.discovery.com/tv-shows/hot-grease. **R**

Biodiesel Champions Honored

The National Biodiesel Board presented its annual “Eye on Biodiesel” awards to a diverse group who have made significant contributions to biodiesel.

Pioneer Award – *Stephen Censky, deputy secretary, United States Department of Agriculture.* As the chief executive officer (CEO) of the American Soybean Association (ASA) from 1996-2017, Censky was instrumental in the growth and advancement of biodiesel over the years. Under his guidance, ASA played a critical role in passing the biodiesel tax incentive in 2005, and the inclusion of biodiesel in the revised Renewable Fuel Standard through their national network of farmer leaders and extensive grassroots advocacy. Censky has also served at USDA in the administrations of Presidents Ronald Reagan and George H.W. Bush.

Climate Leader Award – *City of Seattle.* Looking for ways to power their operations in a cleaner, more environmentally-friendly way, City of Seattle fleet directors turned to biodiesel for its carbon reduction benefits and ease of use. In 2014, the city enacted the Green Action Fleet Plan with a goal of reducing their carbon emissions by more than 40 percent by 2020, leading to the use of 20 percent biodiesel blends. Seattle now uses nearly 200,000 gallons of biodiesel per year and educates other fleets that are interested in transitioning to biodiesel.

Initiative Award – *Samuel P. “Pat” Black III, founder and CEO, HERO BX.* With a vision to help revitalize Erie, Pennsylvania, into a booming manufacturing sector, Black founded Lake Erie Biofuels doing business as HERO BX in 2005. He envisioned a company that would create meaningful jobs, spur technological innovation, and produce eco-friendly products. Along with being the largest biodiesel plant in the Northeast, HERO BX also operates a production facility in Moundville, Alabama, and a blending and distribution terminal in North Hampton, New Hampshire. Black recently combined his philanthropic mindset with his passion for biodiesel and commissioned a book, *The Biodiesel Solution*, to capture the early history and numerous achievements of the industry. The book is available on Amazon.

Impact Award – *Mike Youngerberg, director of product development and commercialization, Minnesota Soybean.* Since 1986, Youngerberg has worked to advance soybean industry priorities as a member of the Minnesota Soybean Research and Promotion Council and the Minnesota Soybean Growers Association staff. He has served in a critical role in one of the most proactive biodiesel states in the country that has required diesel fuel sold in the state contain at least 2 percent biodiesel (B2) starting in 2005. The program increased to B5 in May 2009, to B10 for the summer months in July 2014, and is scheduled to move to B20 on May 1, 2018.

Innovation Award – *Earl Christensen, senior chemist, National Renewable Energy Lab.* Christensen has been instrumental in conducting work related to biodiesel stability that has bolstered confidence in B20 by both original equipment manufacturers and end users. In his role at the lab, he has led critical efforts to analyze the positive benefits of stability-enhancing additives in pure biodiesel, as well as the positive impacts of re-additizing B100 whose oxidative reserve has gone down over time. **R**



International Trade Favors Recycled-oil Biofuels

By Niamh Boyle and Matthew Stone, Prima

After starting life across the globe as programs largely aimed at converting agricultural commodities into renewable fuel, international biofuel policymakers have accelerated toward recycled cooking oils and animal fats as low carbon feedstocks of choice. The trend presents increased opportunities for renderers to supply product into a high-value and growing market, but only if sellers are able to navigate the often complicated non-tariff barriers, registration, and paperwork demands. The mushrooming international trade in recycled cooking oil has been the main beneficiary of this trend so far, with global trade in animal fats for biofuel bogged down by non-tariff barriers.

This year, European Union (EU) policymakers are putting the finishing touches on the long-awaited post-2020 revamp of the original Renewable Energy Directive, which set a 10 percent biofuel blending target for the continent until 2020. Post 2020, EU lawmakers are clear that recycled oils and fats should rapidly substitute for crops in member states' renewable fuels mix. Regulators in Brussels want to set minimum consumption thresholds for used cooking oil- and animal fat-based biofuels and technologically advanced fuel in each member state but are otherwise content to allow national governments to set higher demand levels if they wish.

The United Kingdom (UK) and the Netherlands are already pushing ahead with aggressive plans to expand their mandates. This will increase demand for recycled cooking oil and animal fat feedstock streams this year and beyond into markets that already depend heavily on international supply networks to keep pace.

The UK will increase its "double-count" blending mandate, which effectively values recycled cooking oil-based biofuel up to twice as high as crop-based biofuel, from 4.75 percent to 7.25 percent in April, implying a demand upswing this year of about 35 percent after years of relatively flat consumption. The Netherlands is one rubber stamp away from increasing its double-blending mandate from 7.75 percent to 8.5 percent in 2018. Portugal and Finland's double-count mandates will rise from 7.5 percent and 12 percent, respectively, to 9 percent and 15 percent this year. Rapeseed-heavy biodiesel producer Poland is on track to implement double counting into its domestic mandate in 2019.

Demand in the Americas

Demand in the United States (US) for low carbon recycled cooking oil and animal fat feedstocks is being driven independent of the flat lining federal blending mandate, with California and Oregon's low carbon cap-and-trade programs boosting consumption. California's Low Carbon Fuel Standard (LCFS) credits have started 2018 on a pricing high, with prices

surging toward 2015 highs, above \$120 per metric ton (MT) of carbon equivalent at the beginning of this year. This offers a monetary benefit of around \$1 per gallon to a typical low carbon intensity (CI) renewable diesel producer using tallow as a feedstock.

The success of California's LCFS has prompted neighboring Oregon to introduce its own Clean Fuels Program to boost carbon reduction in the road transport sector. The program requires a declining average yearly CI for transport fuel suppliers to reach a 10 percent cut in the state's transport sector greenhouse gas emissions by 2025 compared to 2015 levels. Although put in place several years after California, Oregon's program began to stir the first signs of response from international fuel suppliers late last year, a trend that the aggressive carbon reduction goal will accelerate.

In Canada, Environment and Climate Change Canada released its regulatory framework for developing a federal clean fuel standard late last year. This will assign CI requirements for solid, liquid, and gaseous fuel streams covering the transportation, construction, and industrial sectors. In Brazil, the government has green lighted its RenovaBio scheme, the country's own transport carbon cap-and-trade-program that will start to measure and monetize the CI of renewable fuel inputs for the first time.

China Builds Road to Europe

European imports of recycled cooking oil and biofuels produced from these products soared last year as the continent's expanding double counting and greenhouse gas saving incentives did their work. Total EU recycled cooking oil imports were over 500,000 MTs in the first 10 months of 2017, up 71 percent year over year, smashing records for all previous years.

EU imports of recycled cooking oil from China climbed from a mere 7,415 MT during the first 10 months of 2016 to 41,795 MT in the same period in 2017. Of the 10-month total, 24,329 MT went to Spain, 7,012 MT was sent to the UK, 9,422 MT to Portugal, and only small volumes to the Netherlands. Imports look set to accelerate quickly in 2018 after Shanghai hosted the first major international trade meeting for the biodiesel and recycled oils and fats sector in November 2017.

European offtake of US recycled cooking oil rose 28 percent year over year to 208,267 MT in the first 10 months of 2017, eclipsing previous annual import levels. Of that amount, 107,696 MT was shipped to the Netherlands, 84,396 MT went to the UK, and 11,322 MT to Portugal. EU recycled cooking oil imports from Indonesia threw up stiff competition, reaching 258,283 MT between January and October last year compared to just over 100,000 MT during the same period in 2016.

US Watches as EU Biodiesel Imports Jump

European demand for internationally sourced biodiesel also jumped last year, although US producers were left watching thanks to long-standing EU anti-dumping tariffs on US biodiesel. Total EU imports through the first 10 months of 2017 topped 460,000 MT, up 62 percent year over year, driven by a huge upswing in demand for Chinese used cooking oil-based methyl ester (ME), Argentinian soy-based ME, and palm-based ME from Malaysia. European imports of used cooking oil-based ME from China soared from just 25,764 MT during the first 10 months of 2016 to 156,379 MT during the same time frame last year, after just 515 MT and 5,394 MT were imported in 2015 and 2014, respectively. Chinese interest in internationally recognized sustainability audits such as the International Sustainability and Carbon Certification scheme is moving in lockstep with rising overseas demand for Chinese recycled cooking oil exports.

In the absence of a viable biodiesel export channel, US exporters have focused on selling eligible feedstock overseas. The United States delivered 36 percent of the recycled cooking oil used in UK biodiesel consumption in the first half of 2017. Tallow used in UK biodiesel was all domestically sourced, reflecting the EU's refusal to allow tallow imports for non-feed uses. Any changes to UK import rules after the country's planned 2019 exit from the EU remain to be seen.

Singapore's booming demand for renewable diesel feedstock has been a different story for the United States,

however. US exports to the Asian city state surged 251 percent in the first 10 months of 2017 for conversion into high-grade renewable diesel for re-export to the United States and Europe. This put Singapore consumption at 115,000 MT during the period, equivalent to nearly one-third of total US overseas sales into a population of just 5.5 million people.

In the United States, yellow grease consumption for biodiesel production has averaged 121 million pounds per month throughout the first 9 months of 2017, a slower but still

healthy 6 percent rise from the same period a year prior. The feedstock, which has a Tier 2 California Air Resources Board approved pathway certifying

ultra-low carbon emissions of between 8 and 20 grams of carbon dioxide equivalent per megajoule (CO₂e/MJ), remains the preferred non-vegetable oil choice for use in domestic biodiesel production, registering a near 12 percent share of biodiesel production figures. This is nearly double the combined amount for both tallow and choice white grease (CWG) at 7 percent. During the same period last year, CWG use averaged 48 million pounds per month while tallow usage totaled 27 million pounds per month, a 2 percent rise and 10 percent fall, respectively, from 2016.

Meanwhile, corn oil usage as a biodiesel feedstock, which boasts an average CI in the LCFS market of 35.07 grams CO₂e/MJ, soared last year, hitting a record 144 million pounds in September following four consecutive months of stronger consumption. **R**

The US delivered 36% of the recycled cooking oil used in UK biodiesel consumption in the first half of 2017.

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The 20 percent deduction will need to be “dialed back,” said Thune in an interview with one Capitol Hill ag newsletter, saying it goes further than simply “mimicking” the lost Section 199 benefits as it was intended. Thune also has to fix the pass-through language in a way that does not cost the Treasury more money. Thune wants to tack the fix onto the final fiscal year 2018 spending package when it moves in February, but may have to wait for the formal technical corrections bill to be agreed to.

Another high profile issue to be tackled is immigration reform or, at the very least, formal legislative authorization of the Deferred Action for Childhood Arrivals (DACA), a program holding legally blameless the children of undocumented immigrants living in the United States (US). Trump had said there will be no deal on DACA by passing the so-called DREAM (Development, Relief, and Education for Alien Minors) Act granting permanent protections – or any broad immigration reform negotiations – unless Democrats relent on their opposition to a wall on the US-Mexico border. However, in a mid-January White House meeting with a broad array of lawmakers from both the House and Senate and both sides of the aisle, Trump agreed to a two-step strategy. First, DACA will be formally authorized – Obama set up the program through executive order saying the action was likely illegal – and then there will be bipartisan effort on broader, more comprehensive immigration reform.

A group of seven bipartisan senators led by Richard Durbin (D-IL) and Jeff Flake (R-AZ) has been holding regular talks with the White House and is awaiting a list of must-have provisions to the DREAM Act Trump’s team has promised. Senate Majority Leader McConnell has pledged to bring any DREAM Act/DACA compromise to the Senate floor.

Also giving fiscal conservatives heartburn is legislation punted by the Senate into 2018 to send another \$81 billion in aid to Florida, Texas, Puerto Rico, and California in the wake of last fall’s hurricanes, wildfires, and related agricultural losses. While the House approved the bill, the Senate balked at the last minute due to inclusion of two farm program provisions unrelated to disaster assistance – one to make dairy producers eligible for the Livestock Gross Margin (LGM) insurance program by lifting the \$20-million cap on program costs, and the other making cotton producers eligible for the Price Loss Coverage (PLC) income protection program. If approved, total federal financial assistance after last year’s natural disasters will total a record \$132.75 billion, more than spent on all post-Hurricane Sandy and Katrina clean-up and aid.

Other GOP targets include:

- reauthorization of the federal Children’s Health Insurance Program, another candidate likely to be tucked into the fiscal year 2018 spending package;
- reauthorization of the federal flood insurance program; and
- the president’s newest focus, the much-talked-about infrastructure investment partnership aimed at modernizing US highways, bridges, airports, rail lines, and other transportation investments.

The infrastructure investment program, estimated to cost at least \$1 trillion over the next decade, was to carry a private

industry/government cost-share partnership mechanism to hold down Treasury expenditures. However, Democrats do not like the partnership. Nevertheless, the White House plans to send a blueprint to Capitol Hill in late February or early March. Without the partnership approach, the biggest hurdle is how to pay for the \$1-trillion plan.

A separate first quarter 2018 target is enactment of a new farm bill, currently enjoying very different states of evolution between the House and Senate. Again, the success of the farm bill hinges on its cost. Both House and Senate ag leaders have warned agriculture stakeholders to not expect wholesale change or reinvention of existing programs, nor should they expect new programs unless proponents of change come to the committee with real world ways of paying for their wish list. Broadly, unless operational problems have been identified that need to be fixed to make a program more user-friendly and/or cost effective, most programs will remain as written in 2014.

House Agriculture Committee Chair Mike Conaway (R-TX) wants a floor vote by mid-March on his panel’s version of a 2018 farm bill, a move he hopes will keep his cash-strapped bill out of the backwash of the other heavy-spending legislative battles. Senator Chuck Grassley (R-IA) says the Senate ag panel is three months behind in its work to fashion a new bill, and Secretary of Agriculture Sonny Perdue says the White House has decided it will offer “bedrock principles” on farm policy but will not draft its own bill, choosing to stay out of Congress’ way as the new omnibus ag policy package is hammered together.

The House ag panel has completed its bare bones draft farm bill package but is holding it close. An overall package is under review at the Office of Management and Budget (OMB) and the committee is waiting for cost numbers from the Congressional Budget Office (CBO), Conaway said.

“You can’t really begin to make final decisions until you see what the various pieces and parts cost,” Conaway said. “Then comes the hard task of trying to wedge a whole lot of things into a very small bucket.”

The Supplemental Nutrition Assistance Program (SNAP) – federal food stamps – remains an emotionally-charged challenge and gives evidence the House will not escape all entitlement program debate. Some fiscal conservatives want to pull the nutrition title out of the farm bill, moving it separately as was done in 2014 when the final floor vote on the broader package imploded over last-minute food stamp eligibility amendments. Conaway does not want to split the bills for fear of losing urban votes and says his panel’s approach to SNAP will mirror House leadership’s approach to welfare/entitlement program reform, meaning there will likely be attempts to change how individuals qualify and remain on the program (e.g., work requirements, benefit cliffs, hunger abatement).

Another major target for opponents of farm bill spending is the federal crop insurance program, identified by both House and Senate committees as the single most successful “income safety net” provided by the federal government. It is also acknowledged to be the most expensive federal program at about \$9 billion a year. Players expect a replay of 2014 when several fiscal conservative groups took dead aim at the premium buy-downs offered to producers, as well as the federal buy-down of insurance companies’ administrative costs.

The tentative schedule for marking up the House's 2018 farm bill is sometime in February or early March, Conaway said, with his hope of a vote about a week after markup concludes. As for the House "outrunning" the Senate farm bill, Conaway said he has talked with his counterpart, Senator Pat Roberts (R-KS). While Roberts also wants to move his bill quickly, the sooner the bills are over the floor-approval hurdles, the longer the conference process can take to work its magic.

Both committees acknowledge the devil is not in the details of the bare bones farm bill being vetted by OMB/CBO, but in the amendments members will bring to full committee markup. Conaway expects language on cotton growers and eligibility PLC, and for dairy, fixes to the Margin Protection Program and eligibility for the LGM insurance program. Most changes in Title I – income safety net programs – will come in the form of tweaks to make those programs more cost efficient; titles dealing with research, energy, and rural development will remain mostly unchanged.

However, Representative Chellie Pingree (D-ME), a member of the House Appropriations Committee, has been talking to Conaway since 2017 about language addressing food waste, though she has not decided if she will try to add her entire food waste bill to the mix or target some fixes. NRA has been working closely with Pingree's staff to ensure none of her contemplated solutions interfere or distort existing markets for animal by-products/fats/oils. The livestock industry wants a federal vaccine bank to head off outbreaks of foot and mouth disease and other animal scourges. A coalition of ag groups wants to consolidate trade promotion and market development programs into a single program authorization, a move NRA is reviewing closely. Lastly, the Humane Society of the United States is shopping a list of a dozen or so "animal bills," legislation it wants included in the farm bill, generally by trying to amend the federal Animal Welfare Act administered by the US Department of Agriculture. None of the bills have anything to do with US agriculture or food production.

Conaway admittedly faces greater political and fiscal hurdles getting his farm bill to the finish line than does Roberts. However, getting his committee's constituency to hear his "the-cupboard-is-bare" message is tough. He said his committee's public outreach effort over the last 18 months brought messages to panel members from nearly 350 witnesses about all aspects of the farm bill, "and not one person asked for less money in the program they were talking to us about." **R**

Newsline Continued from page 8

Know About the FDA Regulation – Small Entity Compliance Guide, November 2017

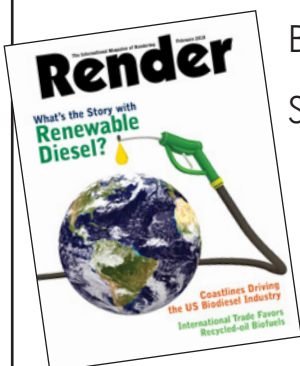
- Guidance for Industry: Supply-Chain Program Requirements and Co-Manufacturer Supplier Approval and Verification for Human Food and Animal Food, November 2017
- Guidance for Industry: Current Good Manufacturing Practice Requirements for Food for Animals, October 2017

Members of feed industry associations can benefit from the availability of several guidance documents and information directly relevant to FSMA requirements for the feed and pet food industries. There are excellent tools available to guide facilities on conducting a hazard analysis and practical templates for creating an animal food safety plan. Putting it all together and then carrying out third-party pre-assessments and/or audits provides facilities with a clear and objective look at where companies are in terms of FSMA compliance. This sets an excellent baseline and direction for continuous improvement.

Companies are taking it one step at a time and can already look back at their accomplishments, settle into the new norm of FSMA, and look to future continuous improvement. **R**



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Chinese Airline Flies on Fuel Made from UCO

A Hainan Airlines Boeing 787 carrying 186 passengers and 15 crew members flew from Beijing, China, to Chicago, Illinois, in late November using a blend of petroleum jet fuel and bio-jet fuel made from used cooking oil (UCO). The 15 percent bio-jet blend came from Zhennan Refining and Chemical, a petroleum refiner based in eastern China, according to state news outlet China Daily. The refiner is a subsidiary of state-owned oil giant China Petrochemical, also known as Sinopec. A senior engineer with Zhennan told state news agency Xinhua that the company could collect and process 100,000 metric tons of UCO from restaurants every year.

A little over two years ago, Hainan flew 156 passengers from Shanghai to Beijing partially powered by this bio-jet blend, but this represents the first time the company, already China's biggest private airline by both market size and fleet size, conducted an international flight using bio-jet fuel. Sun Jianfeng, president of Hainan Airlines who was also captain of the nearly 13-hour flight, said the plane ran smoothly and overall performance was stable.

Lv Dapeng, the spokesperson at Sinopec, said UCO-based biofuel could not only reduce the emission of greenhouse gases, but also prevent the waste cooking oil from being reused by illegal vendors, which has been a serious problem in China. Compared to traditional aviation fuel, biofuel can cut a plane's carbon footprint by 30 percent. China consumes around 30 million metric tons of jet fuel every year, according to Xinhua, and if all of it were replaced by biofuel, 33 million metric tons of carbon dioxide could be eliminated.

Several other airlines already operate commercial flights using biofuels or plan to do so soon. United has been using biofuel for regularly scheduled commercial flights since 2016. In September 2017, KLM Royal Dutch Airlines, the flagship carrier of the Netherlands, announced it would operate biofuel flights out of Los Angeles, California. In January, Cathay Pacific, the flagship carrier of Hong Kong, said it would use biofuels on flights to the United States starting in 2019.

Canadian UCO Biodiesel Plant Acquired

Canadian biodiesel producer Innoltek Inc., based in Thetford Mines, Quebec, where it operates a 5 million liter (1.32 million gallon) per year biodiesel and biodegradable industrial products facility, has acquired the 19 million liter (5 million gallon) per year Evoleum biodiesel plant formerly known as QFI Biodiesel in St-Jean-sur-Richelieu, Quebec. The Evoleum facility never reached full production capacity when operating on used cooking oil.

Innoltek told *Biodiesel Magazine* it plans to improve operations and logistics at the newly acquired plant to produce biodiesel from animal fats at full capacity by the third quarter of this year. Meanwhile, it will operate the plant at a reduced

output of 6 million liters per year. According to Innoltek, the acquisition creates only two biodiesel producers in Quebec, the other being Darling Ingredients' Rothsay facility.

California Biofuels Conference Reflects on Changing Policies

The changes being faced by California's advanced biofuels industry will be the focus of the California Advanced Biofuels Conference (formerly known as the California Biodiesel Conference) on Wednesday, March 1, 2018, in Sacramento. State agency staff and key experts will detail the range of important 2018 compliance modifications under Low Carbon Fuel Standard (LCFS), alternative diesel fuel, and underground storage tank regulations. The future of the internal combustion engine in California will be tackled head-on by leaders from government, environmentalists, and various fuel sectors. Regions will weigh in on the markets in their areas.

Keynote speakers state Senator Henry Stern (D) and Assembly member Rocky Chavez (R) will discuss a "red, white, and blue view of biofuel prospects" and Heron, California, Mayor Rey Leon will engage attendees by exploring the environmental justice community with CABA. Featured speaker Donnell Rehagen, chief executive officer of the National Biodiesel Board, will discuss the board's leadership through changing presidential administrations.

The seventh annual conference is presented by the California Advanced Biofuels Alliance (CABA), formerly called the California Biodiesel Alliance. The group voted in December 2017 to expand the scope of membership to include organizations that produce or use advanced biofuels. The alliance has been the voice for biodiesel in the state since its founding in 2006.

"By changing our name, we are not just recognizing the growing number of existing members involved in the production, distribution, and sale of renewable diesel, we are showing our increasing commitment to advocating for the biofuels that have made the LCFS a success and will continue to do so for decades to come," said Jennifer Case, president of New Leaf Biofuel and board chair of CABA.

Oil Industry wants RFS Policy Change

In December, President Donald Trump met with Republican Senators from oil- and refinery-heavy states to hear complaints about the Renewable Fuel Standard (RFS) and its mandate to mix biofuels into the fuel supply. In the meeting, Senator Ted Cruz (R-TX) proposed placing a 10-cent price cap on renewable identification number (RIN) credits, which is a fraction of their current market value, to help obligated parties in the

petroleum industry deal with the RFS requirements. In addition to his proposal that the Environmental Protection Agency (EPA), which administers the RFS, sell “fixed price waiver credits” at 10 cents each, Cruz proposed the formation of a working group to come up with a longer-term solution. His position supports petroleum refiners who are claiming the RFS costs hundreds of millions of dollars a year and could put them out of business.

The proposal marked one step in talks being mediated by the White House between oil industry supporters and rivals in the biofuels industries over the future of the RFS. Congressional members from Midwest agricultural states have asked Cruz and other lawmakers supportive of the petroleum refining industry to offer proposals that could lower RIN costs without injuring the RFS.

The ethanol industry has said in the past that placing caps on the credits was a non-starter and has instead argued for policies to increase volumes of ethanol in the US gasoline supply, which they claim would boost supplies of the credits, lowering their prices.

“Ted Cruz and his backers don’t seem to be taking the White House seriously,” Brooke Coleman, executive director of Advanced Biofuels Business Council said in press release accompanying a letter signed by 85 supporters of the biofuels industry urging the White House to protect the program. “President Donald Trump vowed to protect rural America.”

Report Affirms Biodiesel Benefits

A new study on biodiesel’s lifecycle energy and the effects of greenhouse gas (GHG) emissions updates and confirms that biodiesel, compared to petroleum diesel, reduces GHG emissions by 72 percent and fossil fuel use by 80 percent. The report, recently published by a collaboration between Argonne National Laboratory, Purdue University, and the United States Department of Agriculture (USDA), represents the most up-to-date and comprehensive lifecycle analysis of biodiesel ever produced.

The study represents the first time Argonne National Laboratory has published a lifecycle assessment of biodiesel including indirect land use change (ILUC). The theory of ILUC suggests that economic benefits from renewable fuels impact farming patterns globally. ILUC modeling attempts to quantify the future impact of such predicted land use change. ILUC has been included in analyses by the US Environment Protection Agency and the California Air Resources Board that

independently concluded biodiesel’s GHG advantage exceeds 50 percent reduction over diesel fuel.

More information on the study is available on the National Biodiesel Board’s website at www.nbb.org.

Ruling States US Biodiesel Industry Harmed by Imports

On December 21, 2017, the United States (US) International Trade Commission (ITC) issued final determinations that the US biodiesel industry was “materially injured” by imports of biodiesel from Argentina and Indonesia. The ITC said they reached the decision as those imports were found by the US Commerce Department to be subsidized. Argentina and Indonesia have both suggested the move could lead to World Trade Organization challenges by either country as a result.

Argentina exported about \$1.2 billion worth of biodiesel to the United States last year and Indonesia exported about \$268 million worth.

The US Environmental Protection Agency (EPA) noted the market impact of the import duties as a factor in their rationale for holding the biomass-based diesel requirements at 2.1 billion gallons in 2019, the same as in 2018, in its final ruling released late November 2017 that set renewable fuel volume requirements under the Renewable Fuel Standard. EPA administrator Scott Pruitt has argued that the United States should not be importing biodiesel to meet the RFS mandates.

Senate Aide Leads NBB DC Office

Kurt Kovarik, a senior adviser and legislative director of United States (US) Senator Chuck Grassley (R-IA), has been named vice president of federal affairs at the National Biodiesel Board (NBB).

“Kurt’s decades of experience in the US Senate will serve us well as we navigate the federal policy issues that most affect our industry,” said Donnell Rehagen, NBB chief executive officer. “His long history of working on energy and tax legislation, his familiarity with the key players in Washington, DC, and his knowledge base on biofuels are all reasons why we are so happy to have him on our team. Growing up on a farm in Iowa, Kurt understands the strong connections between the biofuels, agriculture, and livestock sectors, as well as the importance of continuing to establish America’s energy independence.”

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New Year, New Opportunities

Too often, strategic plans sit on the shelf gathering dust but the National Renderers Association's (NRA's) 2020 Strategic Plan is different. It drives all we do, all year long. In 2015, NRA leaders carefully crafted the five-year plan to ensure NRA focuses on the most critical future needs of the industry. The year 2020 is not that far away and major milestones have already been reached. There is still work to be done to increase market opportunities, promote rendering's sustainability, and enhance the image and value of rendered products and services.

NRA works to promote opportunities for renderers so they can thrive and grow in today's highly competitive market. The association's leaders and staff recognize the importance of working each day to earn public confidence. NRA's 2020 Strategic Plan sets out a "desired state" that "our global community will trust the unique social, environmental, and economic value that NRA members deliver." NRA's strategic vision is "To deliver sustainable rendering solutions to our global community."

Renderers work nonstop to earn the freedom to operate successfully by building and keeping the trust of their suppliers, customers, business partners, and communities. Decisions by regulators and legislators directly affect business operations so their understanding of rendering is critical. Earning and keeping trust is key to renderers' economic sustainability.

NRA's four programs focus on delivering value to our members to help improve their business and be ready for coming market trends and government decisions. NRA is also a nimble problem solver in crisis situations since an unexpected event, such as an animal disease outbreak or activist allegation, can change the course of the rendering industry overnight.

NRA's four main programs are:

- Industry Information, Science, and Regulation
- International Market Development
- Legislative Advocacy
- Communications and Membership

This year offers opportunities and challenges for renderers. While unexpected issues will undoubtedly come up, here is a preview of NRA's 2018 goals.

Science and Regulations

This year's priorities for NRA's science and regulatory program focus on assisting members with legal compliance, training, sustainability, and product safety and quality. These priorities align closely with NRA's strategic plan.

In 2018, the association intends to prepare its members for scheduled implementation of additional provisions of the Food Safety Modernization Act (FSMA). More renderers will be encouraged to join the *Rendering Code of Practice* as participating will greatly help prepare facilities for FSMA compliance and raise the average quality of rendering practices and products. The Animal Protein Producers Industry Committee intends to explore changes in its product testing

and verification programs to assist members in enhancing the safety of rendered feed ingredients and their reputation.

NRA's vigilant regulatory monitoring and close work with federal agency officials help to encourage government decisions with positive results for renderers. NRA's scientific services staff will dedicate considerable time and effort to educating regulators at the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and other federal agencies. This is an ongoing effort due to government staff turnover and new issues arising.

This year, NRA will continue to build positive working relationships with FDA, the American Association of Feed Control Officials (AAFCO), and others who play a role in defining and regulating rendered products. Standard-setting organizations such as AAFCO have considerable impact on the rendering market. Their decisions on product definitions, for example, influence FDA regulatory actions that affect renderers.

NRA will coordinate closely with the Fats and Proteins Research Foundation, the research arm of the rendering industry. This includes developing new definitions and products with the Pet Food Institute, American Feed Industry Association, and Pet Food Alliance at Colorado State University. NRA will work with regulators (AAFCO and FDA) to gain acceptance of these new definitions and products.

International Market Development

With almost 20 percent of rendered products exported each year, overseas sales are extremely important to the industry. Product movement offshore from increased demand strengthens domestic prices and returns for the entire rendering industry, including those not involved in direct export. NRA's overseas offices in Hong Kong, China, and Mexico City, Mexico, as well as a team of international consultants around the world, develop and expand export markets for US rendered proteins, fats, and oils.

NRA's overseas programs are funded in part by USDA through grants under the Market Access Program (MAP) and Foreign Market Development (FMD) program. NRA receives \$1.7 million to \$2 million annually through both programs. These funds are combined with NRA member dues to promote rendered proteins, fats, and oils to overseas customers, reduce foreign trade barriers, and gain access to new markets abroad.

Successfully obtaining MAP and FMD funding from USDA is a top priority in 2018. This income directly supports NRA's overseas offices, staff, and export marketing efforts. NRA's legislative advocacy program will strongly encourage Congress to approve funds for both of USDA's export market development programs.

Increasing foreign market access contributes toward NRA's strategic "desired state" because rendering's economic value is gaining acceptance as foreign companies start to purchase and import US rendered products. Getting entry into new markets overseas also connects with NRA's strategic vision since the

association is providing rendering solutions to importing customers when they start buying US rendered products.

This year, an important goal of NRA's international market development program is to gain market access for bovine meat and bone meal (MBM) into Mexico, Peru, Colombia, and Ecuador. The Mexican market is NRA's top priority in the current negotiations between the United States, Canada, and Mexico on a new North American Free Trade Agreement (NAFTA).

Advocating for a new NAFTA that will boost rendering export opportunities is another priority for NRA in 2018. There is considerable interest in completing a framework agreement before Mexico's presidential election later this year. NRA's goals are to ensure a new agreement does not harm current rendered product trade, and gains access for bovine MBM into Mexico and mixed species fat from Canada into the United States (small ruminant rule).

China is easily the largest potential export market for animal proteins. NRA will work to engage China's AQSIQ (the country's quality supervision, inspection, and quarantine agency) directly for bovine MBM access. A goal this year is to have a Chinese audit team identified and confirmed to visit US rendering facilities.

The European Union has been an important customer for US used cooking oil. Another top priority is to maintain access into this more than \$100 million market and bring about product disappearance that directly supports domestic used cooking oil and animal fat prices.

Market access for non-ruminant protein into Taiwan may finally become a reality this year after years of work. Following an inspection audit by Taiwanese officials that NRA helped organize last fall, full entry into the market is highly likely in

2018. This would allow for exports of poultry and porcine meals into this new \$20 million to \$40 million market.

Opening new overseas markets is part of NRA's international marketing program to help achieve the overall goal of increasing exports of rendered products. This year, NRA plans to enter markets in Africa, targeting Morocco, Kenya, and Ghana, with the goal of having commercial transactions in two of the three countries this year.

Collaborating with stakeholders to extend rendering interests and funding is also a priority in the association's strategic plan and an important strategy of its international marketing program. NRA members benefit from a variety of the association's alliances since rendering's interests are further strengthened when other groups promote the same position. For example, NRA will promote feed ingredients in sub-Saharan Africa this year with several other US agricultural associations under a global initiative with USDA's Foreign Agriculture Service (FAS). This joint initiative in Africa helps NRA gain additional funding from FAS and take part in programs with a reduced administrative burden.

This year, NRA intends to continue its strategic partnership in the U.S. Sustainability Alliance, a group of agricultural organizations working together to promote the sustainability of American agricultural products to customers here and abroad. This year, the alliance is funded by \$550,000 from MAP to continue its mission (<https://thesustainabilityalliance.us>). It provides an effective communications conduit to explain the sustainability of the rendering industry and publicize work that NRA has already compiled. This delivers the industry's

Continued on page 25

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Strengthening the Pet Food Relationship

At the end of October 2017, the Global Alliance of Pet Food Associations (GAPFA) held its annual meeting and technical congress in Toronto, Canada, hosted by the Canadian Pet Food Association. The technical congress was organized to cover three topics: regional reports on conditions in the pet food industry, global nutrition standards, and a panel on transparency in food production. Representatives from Australia, Brazil, Canada, Europe, Japan, Mexico, New Zealand, Thailand, and the United States (US) updated the situation of the pet food industry in each country. In general, the pet food industry is in good shape, working to maintain a secure food chain according to the Global Food Safety Initiative standards.

A panel on global nutrition standards was chaired by Dr. Daniel Chausow, Nestle Purina Petcare, and featured a number of experts from different entities such as the US Food and Drug Administration, National Research Council, American Association of Feed Control Officials, FEDIAF (the European pet food industry federation), and Hills Pet Nutrition. All are looking forward to building agreements on the best opportunities to update nutritional standards for pets.

A panel on transparency in food production was balanced with three guests. The first was Jo-Ann McArthur from Nourish Food Marketing, which focuses on food manufacturers' marketing specializing in organizing innovative ways to grow a company's portfolio market share. Proposals varied from digital media through physical presence at retail. As an expert on food marketing, her opinion was requested on how public perception of pet food, including rendered products, can be managed in a positive manner.

Mary Emma Young from the US Pet Food Institute advocated working closer with suppliers of raw materials for the pet food industry to comply with the Food Safety Modernization Act. She suggested communicating in a professional manner to the public that every ingredient in pet food is scrutinized accordingly to deliver a safe and highly nutritional pet food.

This author was the third invited guest on the panel on behalf of the World Renderers Organization, presenting on the rendering industry's story, the sourcing of rendered products for pet food manufacturers, and the safeguards in place as part of the secure food chain. Other topics such as DNA integrity, the meaning of transparency and consumer perception of rendering, and how renderers can support the

pet food industry to debunk the myths around quality and safety of meat meal were also part of the conversation.

This panel was planned to gather the respective industries together to share, listen, and understand the concerns that are worrying pet food manufacturers and to share the work renderers do to provide safe and highly nutritional value products. What was clear for all was that this information is not reaching the general public and that consumer perception is far from reality. Instead, negative myths abound about how it is better to use real meat instead of rendered animal by-products as ingredients in pet food manufacturing.

One story that GAPFA members said they had not heard prior was that the lack of inclusion of rendered meals in the food chain produces an imbalance on the phosphorous cycle on earth. Explained briefly, animals are raised with phosphorous coming from the grass or soil. Phosphorous remains in the animal's bones and when the animal is slaughtered, the bones are processed into meat and bone meal, which then goes back into building bones of animals, avoiding taking more phosphorous from the soil and depleting an extremely valuable natural resource.

After hearing this, the relevance of working together became evident and a good story for the public became apparent. Renderers and the pet food industry, along with users of pet food derived from rendered products, are part of the great story of caring for and maintaining the balance of scarce resources like phosphorous on Earth.

Still, this is only the draft of a good concept to create together. Work is needed to develop this idea into a new way of perception where consumers of pet food are part of the team.

Another good story that complements this one is the work of the Fats and Protein Research Foundation with the Pet Food Alliance. A dialogue between renderers and pet food manufacturers is modeling the beginning of a new way to understand and solve concerns. Their work was presented during the National Renderers Association convention in Santa Barbara, California, in October last year.

To deepen the understanding of the phosphorous cycle balance, a paper is available on the European Fat Processors and Renderers Association website at www.efpra.eu. In addition, the latest digital and written communication created by the Pet Food Institute entitled "How Pet Food is Made" is available at www.petfoodinstitute.org under the menu Pet Food Matters.

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US biodiesel production still up despite no tax credits.

New gov't report confirms biodiesel benefits environment and fossil fuel reduction.

environmentally-friendly message at a very low cost in the United States, Canada, and around the world. NRA also plans to develop opportunities with existing and new allies to make rendering's sustainability advantages better known.

To fight for market access for bovine MBM into China, NRA is also jointly applying for USDA funds with the Pet Food Institute and American Feed Industry Association. Monthly conference calls among the three associations promote strong coordination on important trade issues in China and enable all to communicate important positions as a coalition to FAS and USDA's Animal Plant Health Inspection Service.

Legislative Advocacy

NRA works to promote effective public policy since government decisions by Congress directly affect rendering businesses. Staff lobby on Capitol Hill and work in coalitions with like-minded associations to promote the rendering agenda. NRA has a consultant lobbyist who works with the association to monitor and represent the industry to members of Congress and their staff.

This year, NRA's key legislative issues include a new farm bill, extending expired biofuels tax credits, and a possible new NAFTA that must be ratified by Congress before taking effect. The House and Senate Agriculture Committees are rewriting the farm bill for another four years with very limited funding. This means there is huge competition for resources among agricultural, conservation, environmental, and nutrition groups to fund programs important to each. In the farm bill, NRA strongly supports robust congressional funding for USDA's MAP and FMD programs. Food waste legislation may also be included but it is too early to know for sure. NRA supports food waste provisions that ensure a level playing field for rendering with other disposal methods, such as anaerobic digestion and composting.

Other issues on the congressional agenda important to rendering are immigration reform and modernizing the nation's transportation infrastructure. This year will be a short legislative year since Congress will likely adjourn in the early fall to allow campaigning before the November midterm elections.

NRA members are encouraged to attend NRA's annual Washington Fly-in June 11-13, 2018. Participants enjoy a rendering issues briefing and roundtable discussion with senior Washington policymakers. Renderers also meet with their representatives and senators about the industry's most pressing legislative priorities. These meetings are especially important as legislators hear directly from their rendering constituents.

Communications and Membership

One of the main components of NRA's strategic plan is promoting an understanding and awareness of the value of rendering. The association's communications program advocates for rendering and works with members to help promote value to their communities and stakeholders.

This year, NRA's communications program has several important goals. One of these goals is to expand rendering's sustainability brand so members can use consistent messaging across the industry for maximum impact.

NRA members will also benefit from a new communications toolkit that can be easily used to explain rendering and its benefits to their communities. Toolkits can be customized with individual company information. Plans are underway to update the NRA website this year to ensure information is easy to find, up to date, and appealing.

Another goal is to develop a compelling yet simple new infographic that explains the rendering process, its final ingredients, and end-product uses. People continue to be amazed at the large number of uses for rendered products. This new infographic will explain how rendering recycles valuable animal leftovers into new, clean products that people use every day. NRA's current infographics on "Rendering is Recycling" and "Rendering: The Greenest Option" have been widely distributed and used extensively with customers, community groups, and government decision makers.

A high priority in NRA's strategic plan is to enhance the association's ongoing value proposition to current and new members. A new popular monthly newsletter, the *NRA Update*, was started in mid-2017. A "Frequently Asked Questions" section was added to NRA's website and quickly became one of the most visited pages by members and the public.

New member relations coordinator Heather Davis has recently joined the NRA staff and is "command central" at NRA headquarters for members with questions or who seek information. She will be attending various meetings during the year as she gets acquainted with the industry. This year, marketing materials are being developed for NRA's various classes of membership, including a new category of allied members for buyers and brokers of finished rendered products that was approved by the NRA Board of Directors last fall.

NRA's communications program continues to provide accurate and factual rendering information to the media. This includes media interviews, providing background information, and educating reporters. NRA explains rendering as a sustainable, responsible, and environmentally-friendly business that aligns with consumer values in today's marketplace. Association staff also monitor for negative media affecting rendering and work closely with allied groups to promote truthful information and defend the industry.

NRA Meetings

NRA meetings during the year are excellent opportunities to network and learn about new developments in rendering. Bringing renderers together from the United States, Canada, and around the world at NRA meetings creates an important opportunity where ideas and solutions are shared and take flight. I invite you to take advantage of what they offer in order to stay on top of issues and events that could affect your business.

As part of the commitment to sustainability, NRA believes in giving back and hosts a "Rendering for Good" auction at its annual convention. This auction raises funds to benefit the Wounded Veterans Initiative of Canine Companions for Independence, which provides assistance dogs to US war veterans across the country. For veterans putting their lives back together after an injury, an assistance dog can provide the help they need to regain independence.

NRA is ready to help its members meet this year's challenges, known and unknown, and to improve opportunities for the rendering industry.

R

Research Increases Value for Renderers

The Fats and Proteins Research Foundation (FPRF) is starting 2018 strong with a varied and compelling portfolio of research that is focused on a wide variety of subjects including nutrition, feed safety, and enhanced value. FPRF funds research to not only improve current uses of rendered products and discover new ones to grow demand, but also to increase rendering efficiency with new technologies to improve operations, reduce costs, and promote product quality and safety. These varied research areas are very important to both growing and protecting rendering markets, enhancing the sustainability of rendering, and improving customers' environmental footprint.

This summary of current FPRF research projects include:

- extracting more product value from wastewater and a new non-polyacrylamide flocculant;
- high-value color pigment made from meat and bone meal for feed and medicine;
- keratin extraction from animal hair for cosmetic and biomedical use;
- omega-3 production from animal fats;
- animal by-product use for hazardous waste site cleanup;
- odor control using biodegradable microparticles;
- tissue distribution and concentration of barbiturates/ euthanasia drugs in livestock;
- benefits of tallow for hog antioxidant levels, carcass characteristics and meat quality; and
- possible *Salmonella* presence in rendered fats and how the bacteria might be distributed.

Many FPRF projects focus on particular industry problems identified by its members. Wastewater can be a challenge for rendering plants and an impediment to company growth. Dissolved air flotation (DAF) is a standard rendering industry practice to remove fats, proteins, and any other materials from wastewater. The DAF process relies on flocculants, sometimes resulting in lower quality products than desired. Drs. Vladimir Reukov and Alexey Vertegel, Clemson University, and Dr. Rafael Garcia, United States Department of Agriculture's Agricultural Research Service in Pennsylvania, have been developing a flocculent for wastewater treatment that would avoid adding polyacrylamide to rendered products. This collaboration is a good example of previously funded FPRF researchers working together on a common problem after learning about industry challenges. Vertegel and Reukov have developed a novel antioxidant using animal blood that could be used to retard oxidation in rendered materials – an all-natural product made from an animal by-product that can be used on rendered ingredients. They are working with Garcia to see if the leftover material from their antioxidant production can be utilized to clean rendering wastewater in an environmentally-friendly, cost-effective manner.

Dr. Sudeep Popat, Clemson University, is working to develop another strategy for an energy efficient method of

wastewater treatment. Popat's system would not only produce energy but would recover nutrients and potential higher-quality co-products from wastewater. Clemson researcher Dr. Christopher Kitchens is engineering a process to recover the oil component after the DAF process and potentially reuse the remaining flocculent that could result in a high-value product and increase efficiency. Drs. David Ladner and Yi Zheng, also at Clemson, are attempting to develop a remote system for testing and monitoring membrane separation in rendering plant wastewater processes on-site. This would result in the ability to capture research results in real time at actual plant speed. Sometimes projects work very well at the bench-top level in a laboratory and a field deployable pallet-based system could further test feasibility before actual in-plant testing. This project builds on previous FPRF-funded research that determined some membranes worked as well as polyacrylamide or other added polymers to filter wastewater.

Several other projects are focused on new markets for rendered products. Clemson University researchers Drs. Yu Zheng and David Ladner are focused on the biotransformation of meat and bone meal into a high-value pigment called astaxanthin. Astaxanthin is used in the animal feed industry as well as in nutraceuticals and pharmaceuticals (it is the pigment that gives salmon its pink color). Ken Tasaki from Tomorrow Water in California is working on the extraction of keratin from animal hair for cosmetic and biomedical applications. The keratin market is valuable and growing and could be a new avenue for rendered proteins.

Another high-value market could be available by producing omega-3 fatty acids. Dr. Mark Blenner, Clemson University, is developing a bioengineered bacteria that would utilize low-quality animal fats to produce omega-3 oils. Another Clemson project is using rendered products to improve soils by feeding bacteria that actively remove certain chemicals from soil. Clemson researcher Dr. Kevin Finneran is developing a system to use animal by-products to remediate contaminants in soil and groundwater in superfund sites, which would be a new use for rendered products and a sustainable way to help clean land for further use.

Drs. Daniel Whitehead and Frank Alexis, Clemson University, are continuing their work to improve odor control in rendering plants through the use of biodegradable microparticles that can bind to the malodorous compounds and sequester or destroy them. This is the second project building on their previous nanoparticle work. They have found these new materials are slightly larger but cheaper and more robust than the nanomaterials that were previously used.

Dr. Greg Aldrich, Kansas State University, is working to characterize the flow behavior and spray coating efficiency of antioxidant application to rendered products. This could lead to more efficient and effective use of antioxidants. Dr. Steve Ensley and others at Iowa State University are

evaluating the presence or absence of tissue distribution and concentration of barbiturates and commonly used euthanasia drugs in livestock species. The collected information will help determine how euthanasia drugs break down and in which tissues they may localize, potentially helping the rendering industry solve possible problems.

FPRF has teamed up with other organizations to fund two more projects. The foundation is working in conjunction with the National Pork Board to investigate the benefits of different fat sources, such as tallow, and vitamin E on antioxidant status, carcass characteristics, and meat quality of pigs grown to a heavy slaughter weight. This is important because market hogs are increasingly heavy and new research is vital for nutritionists developing livestock diets.

FPRF is also working with the Pet Food Institute and Drs. Valentina Trinetta, Cassandra Jones, and Aldrich, all at Kansas State University, to determine if *Salmonella* is present in rendered fats and to assess factors that could influence the distribution of bacteria. How the bacteria are dispersed could impact mitigation strategies. Joint funding allows FPRF to leverage its dollars to support larger research projects than the foundation could fund independently as well as bring renderers and allies together to work on common problems. **R**

Mark Your Calendar

March

California Advanced Biofuels Conference

March 1, Sacramento, CA • <http://caadvancedbiofuelsalliance.org>

Pacific Coast Renderers Association Annual Convention

March 2-3, Carmel Valley, CA • Contact Marty Covert at co@martycovert.com or (703) 754-8740

National Grain and Feed Association 122nd Annual Convention

March 18-20, Scottsdale, AZ • www.ngfa.org

New Zealand Meat Industry Association Renderers Group Symposium

March 22-23, Waitangi, Bay of Islands, New Zealand
<http://mia.co.nz/what-we-do/events/renderers-symposium>

20th Annual International Aboveground Storage Tank Conference

March 27-29, Orlando, FL • www.nistm.org

April

National Institute for Animal Agriculture Annual Conference

April 9-12, Denver, CO • <https://animalagriculture.org>

Petfood Forum 2018

April 23-25, Kansas City, MO • www.petfoodforumevents.com

National Renderers Association Spring Meeting

April 24-26, Vancouver, BC, Canada • Contact Marty Covert at co@martycovert.com or (703) 754-8740

May

Animal Agriculture Alliance Stakeholders Summit

May 3-4, Arlington, VA • www.animalagalliance.org

American Oil Chemists' Society Annual Meeting and Expo

May 6-9, Minneapolis, MN
<http://annualmeeting.aocs.org>

FENAGRA 2018 – Brazilian Rendering Congress

May 16-17, Sao Paulo, Brazil
www.editorastilo.com.br/fiai-2018/fenagra

22nd World Meat Congress

May 30-June 1, Dallas, TX
<https://2018wmc.com>

June

National Renderers Association Central Region Meeting

June 6-8, La Crosse, WI
Contact Mike Karman at mike.karman@sanimax.com



Members of the Fats and Proteins Research Foundation fund research to enhance current uses of rendered animal products, improve the processes used to make them, and develop novel applications.

What's your priority?



To join or for more information,

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Gasification: Solving Modern Manure Pollution

In recent decades, raising livestock has shifted from family farms to large commercial operations. With thousands of cattle and hogs or hundreds of thousands of chickens, the old self-contained cycle of farming – manure feeds the crops, then the crops feed the animals – is overwhelmed by the large amount of manure and/or litter. Animal manure has become a modern pollution problem.

Excess manure is a challenge in many ways. A lactating dairy cow, for example, can produce 110 to 130 pounds (50 to 60 kilograms [kg]) of manure per day while 20 broiler chickens will produce almost four pounds (two kg) of manure a day. Beside the pervasive smell, the manure is a growing source of gases such as methane and carbon dioxide. It can wash into streams and waterways and creates air pollution.

When too much manure and/or litter is produced, there is currently no cost-effective way to either use it productively or dispose of it properly. While government regulation and better manure and/or litter management practices can make a difference, animal manure is and will continue to be an issue. However, it also offers opportunities.

A Manure Revolution

A new way of solving the manure problem has arrived in the form of an energy-based environmental solution called gasification. Anaerobic digestion facilities are sometimes faced with a number of challenges, such as partial reduction of the discharge of harmful gases, the issue of digestate, no possible elimination of solid manure and/or litter, and poor protection against leaks or overflows that can contaminate water supplies. Gasification avoids all of these concerns.

Many products are suitable for gasification, including poultry litter/manure, hog and cattle manure, category 1 meat and bone meal from Europe, and biosolids. Through the use of readily available technologies, the resulting clean heat can be

converted into a number of usable energy forms like steam, electricity, hot water, and hot air.

Yield from the gasification process includes valuable energy and formulated “ecochar” that is significantly reduced (more than 85 percent) in bulk from the original material. The ecochar is dry, pathogen-free, has a commercial value, and can be more easily transported. Based on the characteristics of the fuel being gasified, ecochar has variable qualities.

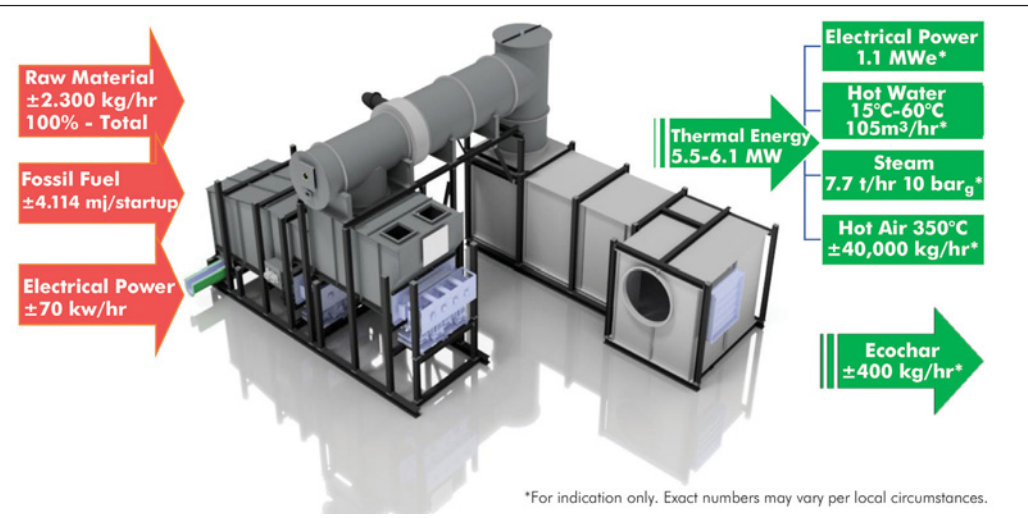
How it Works

Gasification is a chemical reaction caused by heating material in an oxygen-starved environment. The main product of gasification is carbon monoxide (CO) with some hydrogen and methane gases, called synthesis gas, or syngas. The syngas composition is fuel dependent, with temperatures typically ranging between 1,470 to 1,560 degrees Fahrenheit (F) (800 to 850 degrees Celsius [C]). Once the syngas leaves the gasifier and flows into the oxidizer, ambient air is introduced to start a chemical reaction with the syngas (oxidation) while the CO is converted to carbon dioxide. The reaction produces a hot airstream that has an energy content between 5.5 to 6.1 megawatt (MW) thermal at a temperature between 1,800 to 1,980 degrees F (980 to 1,080 degrees C). The base gasification system uses only limited fossil fuel (+/- 4.100 megajoule [mj]) at start up and is switched off completely when the unit is at operating temperature. Further, during operation the system consumes only +/- 70 kilowatt (kw) per hour.

The main component of the gasification technology is a downdraft fixed-bed gasifier. This patented design is generations ahead of wood-fueled systems and is engineered to support a variety of fuels, including manures, category 1 meat and bone meal, and other biomass. The gasification process takes place in the primary unit in an oxygen-starved environment, thus controlling nitrogen oxide formation.

The ability to use the thermal energy product as direct heat, hot water, steam (up to 7.7 metric tons, 10 bar gauge/hour), or electricity (up to 1.1 megawatt equivalent net production) is a simple matter of adding equipment. The modular design makes construction quick and relatively easy, and the addition of components is comparatively simple. Gasification is often confused with incineration, although they are totally different processes.

Gasification is a chemical reaction caused by heating material in an oxygen-starved environment



Gasification is an economical, ecological, and ergonomic way of handling manure, litter, and organic manure and/or litter challenges while targeting a total supply cycle system and multiple revenue streams. It could be one of the answers to future energy needs that will result in reduced air pollution and a reduction in agricultural manure and litter issues.

A Powerful Soil Enhancer

The ability to control the operating parameters of the gasification technology allows it to produce various grades of ecochar, offering significant economic and environmental value to projects. Ecochar is a solid material obtained from the carbonization of biomass. This carbon-rich material has high levels of phosphorous, potassium, calcium, and magnesium. Furthermore, it is valuable for improving stability in soil as it is retained in the soil over many decades, unlike fertilizers that typically require annual application, due to its superior nutrient-retention properties. Ecochar thus provides benefits to both the environment and agriculture.

It also has a variety of other uses, like bedding additive in stables, animal feed supplements, and as a water filtration medium. Ecochar converts agricultural manure and/or litter into a soil enhancer that can hold carbon, boost food security, and discourages deforestation. It is a technology that is relatively inexpensive, widely applicable, and quickly scalable. Furthermore, it helps animal agriculture and the industry reduce their environmental footprint and become more sustainable.

Mavitec Green Energy has partnered with Earthcare LLC to offer solutions to gasify organic streams into a number of usable energy forms, including heat, steam, electricity, and high-quality ecochar through the use of readily available technologies. In cooperation with Wageningen University in the Netherlands, Mavitec has also researched the characteristics and quality of ecochar. Presently there are five gasifier systems worldwide that are successfully running full-scale with three gasification projects under construction. Mavitec Green Energy is a Dutch company that is part of The Mavitec Group, an exclusive distributor for The Dupps Company in Europe. **R**

AOCS adds “Proteins” to its Updated Mission

The American Oil Chemists’ Society (AOCS) Governing Board approved the addition of “proteins” to the group’s mission as part of the society’s 2018–2020 Strategic Plan. AOCS’ updated mission is to advance the science and technology of oils, fats, proteins, surfactants, and related materials to enrich the lives of people everywhere. The new strategic plan is available on the society’s website at www.aocs.org.

Cargill Acquires Pro-Pet

Cargill rang in 2018 by purchasing Pro-Pet, an Ohio-based manufacturer of private label and co-manufactured pet foods. The acquisition makes Cargill the only national supplier of both animal feed and pet food offerings in agriculture retail.

Pro-Pet has more than 150 employees and three pet food manufacturing facilities in Owatonna, Minnesota; St. Marys, Ohio; and Kansas City, Kansas. The purchase provides Cargill with increased production capacity and proximity to existing agricultural retail customers to better meet the company’s growth needs within pet food. Pet food is a top-growing category among agriculture retailers with an estimated eight percent distribution share and continues to evolve with changing consumer preferences.

Cargill operates 50 animal feed production and distribution facilities across the United States, offering branded and private label pet food to agriculture retailer customers. The company’s animal nutrition business has more than 20,000 employees at over 275 facilities in 40 countries.

Frontline Expands Footprint in Asia

Ohio-based Frontline International, a leading provider of cooking oil management systems for foodservice operators around the world, is expanding its reach in Asia with an agreement with Philippines-based Technolux for distribution and service of its products in the region. Technolux has a 65-year history in the Philippine market and is the country’s largest importer and supplier of food service equipment to the major players in the nation’s food and hospitality industries. Frontline International’s fresh and waste cooking oil management equipment will continue to be designed and manufactured in the United States.

Kemin Acquires Canadian Company

Kemin Industries has created a Canadian division by acquiring the assets of its long-time distributor Agri-Marketing Corp., which was founded in 1973 in Mont-Saint-Hilaire, Quebec, Canada, and has provided exclusive distribution and manufacturing services for Kemin products in Canada. A seamless transition for customers is expected as Agri-Marketing sales employees become Kemin employees. The new location will focus on serving the animal nutrition and health market as well as the pet food and rendering industries.

New Partnership in Australia Meat Industry

The Craig Mostyn Group (CMG) has acquired V&V Walsh to create a major commercial platform to produce food for the Australian market as well as significant export income for Western Australia. A family owned and operated business since 1957, V&V Walsh is one of the largest meat processors and exporters in Western Australia specializing in lamb and beef processing from its meat processing facility in Bunbury. As part of the Australian agribusiness sector for more than 94 years, CMG is one of the leading suppliers of pork into the West Australian market and a significant exporter of food products into Asia. The two companies will jointly employ more than 1,400 Western Australians. **R**

OSHA Liability 2017: *Déjà vu* All Over Again

Editor's note – Mark A. Lies II is an attorney in the Environmental, Safety, and Toxic Tort Group in the Chicago, Illinois, office of Seyfarth Shaw LLP. He is a partner who focuses his practice in the areas of product liability, occupational safety and health, workplace violence, construction litigation, and related employment litigation. Individual circumstances may limit or modify this information.

Although 2017 is now in the rear-view mirror, it is important to look back at what occurred last year and hopefully learn from these events because, as human beings, if we do not learn from history, we are doomed to repeat it, in this case, with tragic results. The Romans understood this because they had a mythical god, Janus, who had two heads, one looking backward to the past and one looking to the future.

The month of January is named after him and was supposed to be a time to reflect on the prior year's experiences and hopefully avoid similar events in the coming year.

OSHA Enforcement in 2017

In 2017, the Occupational Safety and Health Administration (OSHA) essentially continued to operate as it had during the President Barack Obama administration since no assistant secretary of labor for OSHA had been appointed and approved by Congress to replace Dr. David Michaels. As a result, the career OSHA bureaucrats continued to operate as they had in the past. For those employers with nationwide operations, it was very common to see in 2017 that the OSHA regulations were being enforced unevenly or inconsistently from one region to another because there was a lack of central direction from Washington, DC. This inconsistency was further complicated by the fact that OSHA has experienced a significant number of retirements of career baby boomers in the DC and regional office levels, as well as in the solicitor's office that prosecutes the citations at trial.

This inconsistency was also evident within the state plan OSHA programs. An employer could expect to be treated with very different interpretations of the underlying federal OSHA regulations depending on whether it was cited, for example, in Indiana, Michigan, Minnesota, Nevada, Washington, and other states. Oftentimes the state plan regulations do not recognize federal interpretations of federal regulations or case law from the OSHA Review Commission or federal courts, creating further uncertainty.

OSHA Occurrences in 2017

The following are some pitfalls to expect in 2018 based upon 2017 occurrences:

OSHA inspections: Many employers lack basic understanding of the process, especially in the area of OSHA employee interviews that are the source of 60 to 70 percent of citations. Employers oftentimes do not inform their employees of these rights and do not prepare employees for the interviews

or consider "debriefing" them after the interviews. Many employers do not know what documents they are required to maintain and produce for OSHA.

Particular hazards: some of the more frequent hazards encountered in 2017 included the following.

- Lockout/tagout (LOTO)/machine guarding—Employers are required to have a written LOTO procedure for each piece of equipment. In 2017, many employers were found to be lacking these procedures, were not current as to the correct procedure, or employees were never trained how to use the equipment. Other employers did not conduct the annual periodic inspections. Regarding machine guarding, many employers failed to conduct a job hazard assessment to identify whether guarding was necessary, adequate, or, worse, failed to enforce keeping guards in place. As a result, there were many fatalities and amputation-type injuries.
- Powered industrial trucks (PITS) – Employers cannot allow employees to operate PITS unless and until they have been trained, authorized, and certified with supporting documentation. Employees must also be recertified every three years and retrained after an accident or near miss. Employers were cited in 2017 for failure to train PITS operators or to enforce the safe operation of the equipment. In addition, many employers allowed outside contractors or temporary employees to operate the equipment without training. PIT accidents typically result in serious injury or death.
- Personal protective equipment (PPE)—Employers are required to conduct a hazard assessment to identify hazards that require PPE (i.e., gloves, eye protection, foot protection, etc.), to certify the assessment, and certify that PPE was provided. In addition, employers must enforce the use of PPE. Many employees sustained serious injuries because PPE was never provided or required to be used.
- Fall protection – Employers are required to protect employees against the hazard of a fall. OSHA has extensive regulations requiring the use of fall protection (i.e., guardrails, safety nets, or personal fall protection) when employees perform elevated work. Last year saw many tragic accidents where employees fell off roofs, mobile equipment, interior structures, truck trailers, towers, and other elevated equipment.
- Hazardous substances – Employers must provide hazard communication training to employees working with hazardous substances and document such training. There are also requirements for labeling. Failure to provide this training has resulted in employee exposure to hazardous chemicals or

other substances that may be in the worksite.

- Multi-employer worksites – Another liability involved multi-employer worksites where there are a number of employers at the same worksite. Each employer has OSHA duties to other employer's employees at the site depending on whether the employer is one of the following: one who creates the hazard, one who exposes the employee to the hazard, one who is responsible to correct the hazard, or one who has control over the worksite or a particular hazard. Many employers are totally unaware of these liabilities and fail to take appropriate action to protect other employees, including independent contractor and temporary staffing employees.

OSHA Informal Conferences

Many employers failed to adequately prepare for the OSHA informal conference after citations were issued. Unfortunately, many missed the typical 15-working-day period (state plan program time periods may vary) to attend a conference or file a written contest to the citation and then it becomes a final court order. In other instances, employers did not adequately prepare for the conference to assert their factual and legal defenses and when they did attend a conference, they could not articulate the defenses. Worse yet, many attended and made "admissions" of liability that supported the violation.

Many employers are unaware that every citation that is accepted creates a five-year period during which any subsequent violation during that time that is "substantially similar" can result in a repeat citation with significant penalties. In so doing, they accept citations that should have been contested for expediency and have no conception of the potential legal minefield that may be created in the next five years.

Hopefully this year and beyond, we can all learn from our own and others' unfortunate experiences and avoid repeating errors that cause accidents or result in regulatory liability. Wishing you all a safe and healthy 2018. **R**

US Worker Fatalities Up in 2016

The United States (US) Bureau of Labor Statistics reported there were 5,190 fatal work injuries recorded in the country in 2016, a 7 percent increase from the 4,836 fatal injuries reported in 2015. This is the third consecutive increase in annual workplace fatalities and the first time more than 5,000 fatalities have been recorded by the Census of Fatal Occupational Injuries (CFOI) since 2008. The fatal injury rate increased to 3.6 per 100,000 full-time equivalent workers from 3.4 in 2015, the highest rate since 2010.



Type of Incident

Work injuries involving transportation incidents remained the most common fatal event in 2016, accounting for 40 percent (2,083). Violence and other injuries by persons or animals increased 23 percent to become the second-most common fatal event in 2016. Two other events with large changes were exposure to harmful substances or environments, which rose 22 percent, and fires and explosions, which declined 27 percent.

Fatal work injuries involving violence and other injuries by persons or animals increased by 163 cases to 866 in 2016. Workplace homicides increased by 83 cases to 500 in 2016, and workplace suicides increased by 62 to 291. This is the highest homicide figure since 2010 and the most suicides since CFOI began reporting data in 1992.

Falls, slips, or trips causing fatal work injuries continued a general upward trend that began in 2011, increasing 6 percent to 849 in 2016 and 25 percent overall since 2011. Falls increased more than 25 percent in 2016 for roofers, carpenters, tree trimmers and pruners, and heavy and tractor-trailer truck drivers. Overdoses from the non-medical use of drugs or alcohol while on the job rose from 165 in 2015 to 217 in 2016, a 32 percent increase. Overdose fatalities have gone up by at least 25 percent annually since 2012.

Occupation Fatalities

In 2016, fatal injuries among transportation and material moving occupations increased by 7 percent to 1,388, the highest number since 2007 and accounting for more than one-quarter of all work-related fatalities. Occupations with increases greater than 10 percent in the number of fatal work injuries in 2016 include food preparation and serving, 64 percent; installation, maintenance, and repair, 20 percent; building and grounds cleaning and maintenance, 14 percent; and sales and related occupations, 11 percent.

Declines greater than 10 percent in the number of fatal work injuries in 2016 include health care practitioners and technical occupations, 19 percent; military, 15 percent; and production occupations, 14 percent. Logging workers continued to have a high fatal injury rate in 2016, increasing to 91 from 67 in 2015.

A number of occupations recorded their highest fatality counts in 2016 since CFOI adopted the Standard Occupational Classification system in 2003. This includes first-line supervisors of construction trades and extraction workers with 134 fatal injuries; landscaping and grounds keeping workers, 125; roofers, 101; tree trimmers and pruners, 84; driver/sales workers, 71; automotive service technicians and mechanics, 64; and farmworkers, farm, ranch, and aquacultural animals, 61. Fatal work injuries among protective service occupations increased by 68 fatalities (32 percent) in 2016 to a total of 281. This included an increase of 24 fatalities among police officers, 13 fatalities among first-line supervisors/managers of law enforcement workers, and 23 fatalities among miscellaneous protective service workers, including crossing guards and lifeguards, ski patrol, and other recreational protective service workers. Police officers incurred 51 homicides in 2016, up 50 percent from 34 fatalities in 2015. **R**

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Industry Websites

American Fats and Oils Association	www.fatsandoils.org
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Animal Protein Producers Industry	www.nationalrenderers.org/biosecurity-appi
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