The International Magazine of Rendering

February 2019

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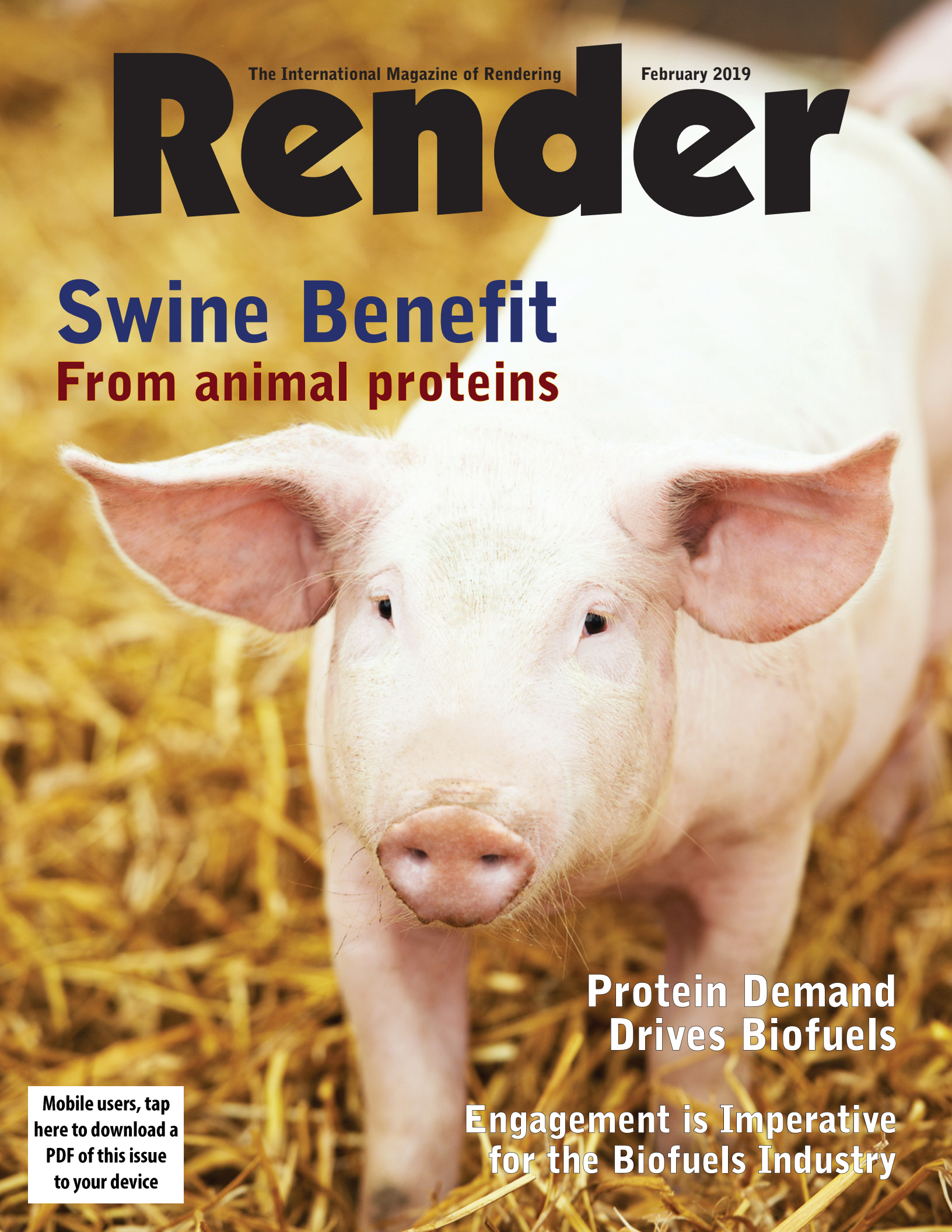

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RENDER
The International Magazine of Rendering

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Render (ISSN 0090-8932) is published bimonthly under the auspices of the National Renderers Association by Sierra Publishing as a public service to the North American and global rendering industry. It is intended to provide a vehicle for exchange of ideas and information pertaining to the rendering and the associated industries. *Render* is distributed free of charge to qualified individuals upon written request. Publisher reserves the right to determine qualification. Periodical postage paid for at Camino, CA, and additional mailing offices.

POSTMASTER: Send address changes to
Render, P.O. Box 1319, Camino, CA 95709-1319.

Rendertorial

With this February 2019 issue, *Render* magazine is entering its 48th year serving the international rendering community. That is quite an accomplishment for any publication, let alone one focusing on such a small and targeted audience! As *Render* nears its 50th anniversary (wow!), we know this milestone would not be possible without the unwavering support of the industry, *Render's* readers and writers, and—especially—our advertisers.

Render is solely funded by advertising, allowing readers to receive the publication free of charge no matter where in the world they reside. Although most readers are located in the United States, print copies are mailed around the world, from Canada to Europe, the Middle East to Australia, and Asia to Nigeria. Hundreds more digital copies are emailed to even more international subscribers, all at no cost to readers.

Therefore, *Render's* advertisers are pivotal partners to the success of the magazine…and to the success of the rendering industry. Renderers need equipment manufacturers, antioxidant providers, water treatment products and technology, trucks and trailers, grease containers, and so much more to keep their operations running efficiently and safely. Where better to look for these products and services than among the pages of the rendering industry's only publication—for 48 years! So, when seeking a service or equipment provider, look no further than *Render's* advertisers who are here to help with that new conveyor or dryer, or to assist with solving a plant odor issue.

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So thank you all…the readers, writers, and, most of all, *Render's* advertisers for 48 years of dedication to the industry's only magazine. Here's to a prosperous and healthy New Year! **R**

By Steve Kopperud, SLK Strategies

A Battle of Political Forces

The "view" from Washington, DC, these days is an even more jaundiced, cynical one than ever before. It is hoped that as you read this, the historic partial United States (US) federal government shutdown that began December 28, 2018, has ended or, at the very least, the end is in sight. In either case, confusion reigns as neither business nor government has ever navigated such a protracted federal operational shutdown and its aftermath.

Normally, federal government closures over spending sparring are short-term events, a few days at most, generally mitigated through negotiation over priorities and amounts—along with unrelated policy riders—to avoid assuming public political blame for said shutdown. There have been 10 federal shutdowns since 1980. The two longest prior to this most recent event were a 21-day total government closure in 1995–1996 when President Bill Clinton was in office and a 16-day government-wide shuttering in 2013 under President Barack Obama.

As this is written, Washington, DC, is literally digging itself out from under nearly a foot of snow, distracting, for a least a few days any way, 350,000 furloughed federal workers and a grand total of 800,000 federal government employees who are not being paid during a historically long closure of about one-third of normal government operations. While history confirms all federal workers will eventually be paid all wages suspended during the shutdown, Congress approved and President Donald Trump quickly signed a bill on Day 26 of the most recent closure guaranteeing all back wages will be paid to all affected federal employees.

So far, the shutdown has cost the US Department of Treasury roughly $1.2 billion per week, and as of Day 27 was cutting into quarterly economic growth by roughly 0.13 percentage points per week. In just the Washington, DC, area alone, unemployment claims surpassed 9,000 and state and local governments scurried to try and fill services abandoned by the federal government. Wall Street economists and analysts fear that the ripple effect of idled government spending, contractors twiddling their thumbs, reduced consumer spending, and stifled corporate investment could choke off the fuel to a currently charging economy.

In this most recent case, however, to understand what is happening, context is needed.

A Game of Spending Chicken

At the heart of the fiscal breakdown is construction, pivoting from a battle over the literal erecting of a permanent wall along the US-Mexico border to keep out illegal immigrants, to the interpretations and definitions of "border security" and when a "wall" is more than just a structure. In its simplest terms, the shutdown is the result of a totally avoidable political arm wrestling match between Trump and newly reinstalled House Speaker Nancy Pelosi (D-CA), with Senate Minority Leader Charles Schumer (D-NY) acting as Pelosi's second, in a duel of political wills. As in all things DC, it comes down to money. Trump wants north of $7 billion for border security, with $5.7 billion dedicated to building his wall. Pelosi and Schumer will only agree to $1.3 billion, and neither Democrat leader will approve dedicated wall money.

The border wall is a Trump campaign promise and woe unto anyone who tries to block the president from fulfilling a campaign promise. For Pelosi, the wall represents her first test for this term as Speaker—after a whirlwind two-month Capitol Hill vote-collecting version of *Let's Make a Deal*—and the first public performance in her personally much-touted role as "the woman needed at the table" in negotiations of any stripe with Trump and the White House.

To give a hint of the flavor of the Trump-Pelosi "negotiations," Trump tweeted after a mid-January White House meeting between him and bipartisan congressional leadership: "Just left a meeting with Chuck and Nancy, a total waste of time." Pelosi and Schumer called the president "petulant," and accused him of throwing a "temper tantrum," slapping the meeting table and abruptly walking out when Pelosi reasserted she will not support federal border wall funding. "Nancy said, NO. I said bye-bye," the president tweeted. Since then, even fiscally moderate House Democrats have ignored White House invitations to talk border security.

As the shutdown approached its thirtieth day, efforts by a bipartisan pack of Senators to get Trump to consider compromise with Pelosi failed when the White House, including Vice President Mike Pence and Trump son-in-law Jared Kushner, lobbied aggressively against a letter from lawmakers pledging to take up the president's border wall funding effort once the government reopened. A meeting with the House Problem Solvers Caucus—a bipartisan group of moderate lawmakers—was described as "collegial" but unproductive.

So, an irresistible political force collided head-on with an immovable political object. Assign roles as you will and the physical paradox notwithstanding, the result is/was the shutdown, and its effects and additional catch-22 scenarios are evolving across the government, the US economy, and society.

Technically, there are seven federal departments and a handful of independent agencies Congress failed to fully fund through fiscal year (FY) 2019. Caught up in the game of spending chicken is the $145 billion agriculture/Food and Drug Administration (FDA) FY2019 appropriations bill, along with Treasury/Internal Revenue Service (IRS), Interior/Environmental Protection Agency (EPA), Transportation, Housing and Urban Development, and immigration/border security central known as the Department of Homeland Security (DHS).

Pelosi and Schumer demanded the White House agree to reopen the federal government through September 30, the end of FY2019, before they will negotiate border security spending. House Democrats, taking a page from the GOP

2013 shutdown playbook, have offered package after package of GOP-drafted Senate spending measures as stand-alone bills to fund all the shuttered federal programs, including US Department of Agriculture (USDA) and FDA, with a short-term extension of DHS spending. Senate Majority Leader Mitch McConnell (R-KY), who opposes government shutdowns, refuses to bring to the Senate floor any spending measure that does not have a chance of being signed by Trump.

As in any Washington, DC, policy/political stalemate, Trump has a "nuclear option," a strategy considered to be a move of last resort. Trump posited in mid-January he would use his executive authority to declare the immigrant caravan situation at the southern border to be a national emergency. An executive order would follow, allowing the president to tap Pentagon monies and other administration accounts (i.e., unobligated military funds can be used by the White House during a presidentially-declared national emergency), but Democrats, contending the move is unconstitutional, immediately threatened federal court action to stop him.

"I have the absolute right to declare a national emergency," Trump told reporters during a January visit to McAllen, Texas, and the Mexican border. "If this [talk with the Hill] doesn't work out...I would almost say definitely. The law is very clear. We have the absolute right to declare a national emergency...I think we're going to see what happens over the next several days. We're not going anywhere. We're not changing our mind," Trump declared.

The declaration of a national emergency along the southern border is extraordinary, say experts, given how tough it would be to prove and justify the definition. Yet, several conservative GOP lawmakers who agree with the president are pushing the White House to take that step to show the Trump base he is deadly serious about border security.

The president backed off his threat of going nuclear, confronted by the reality of an indefinite government shutdown and a host of legal actions that would inevitably wind up in front of the US Supreme Court. This is a legal dice roll the president is not willing to chance at this point. It would not solve the ripple effects of the shutdown. Even an expedited process to get the case before the high court would take weeks or even months.

Shutdown Casualties

So how exactly does a "partial government closure with related furloughs of non-essential personnel" work?

First, Congress is unaffected as its FY2019 spending bill was approved and signed by the president, along with a handful of other major departments and agencies, including the Department of Defense, back in December. Members of the House and Senate, and their staffs and contractors, feel no fiscal pain due to the shutdown and absence of paychecks. A handful of lawmakers refused to accept their salaries while the government is/was shut down, but only a handful.

The White House, however, had just 156 folks showing up for work, and according to the *New York Times*, stopped paying its water bill about three weeks into the shutdown. The Secret Service is protecting the president, his family, and others duly assigned, but they are doing so without paychecks.

Continued on page 15

By Bruce Ross, Ross Gordon Consultants SPRL

Fuels of the Future in Europe

"Fuels of the Future" was the title of a conference recently held in Berlin, Germany. It took place adjacent to the popular International Green Week, one of Europe's biggest yearly agricultural events. This author attended the conference at the invitation of the German waste-based fuels association, which represents companies and organizations that convert wastes and residues into fuels—notably biodiesel and renewable diesel—or that trade those commodities and products. Several of the association's members buy used cooking oil (UCO) from North America. The conference was a major event with around 550 participants and included speakers from the German government as well as many biofuels stakeholders.

EU Biofuels Back in Business

The main talking point from the speakers and participants was that the European biofuels industry is back in business, the mantra being "momentum has returned." There was plenty of optimism that appeared to stem mainly from the Paris Climate Change agreement and the decision late in 2018 on a new European Union (EU) Renewable Energy Directive (RED II) that goes into effect after 2020 and should boost renewable energy in the transportation sector. In the long run, EU stakeholders and politicians believe electric vehicles will be the main transport mode of the future; nevertheless, biofuels will be essential during the transition to the "real renewable future," as one speaker put it. While greenhouse gas emissions from the German transport sector have risen since 1990, this is due to an increase in vehicle numbers and longer vehicle life.

A minority of conference participants find RED II an unambitious compromise. Producers of biofuels from animal fats and UCO, however, were broadly pleased with the encouragement RED II gives to these feedstocks.

Biofuels from Waste and Residues

The conference included sessions on a variety of topics, including biofuels from waste and residues. This was a standing room only event with around 120 participants showing enthusiastic interest.

Fabien Hillairet of Greenea, a biofuel broker and analyst, gave a relatively optimistic outlook for the future of EU waste-based biofuels. In his view, the larger biofuel mandates for EU members that will arise from RED II should result in growing demand for double-counted biofuels, such as those produced from animal fats and UCO. He based his opinion not only on the theoretical impact of RED II but also on already-announced plans by some member states. He did point out, however, that the EU's waste-based market is reaching maturity.

The waste-based biodiesel industry in Europe remains highly dependent on the import of animal fats and UCO. There is some concern that if UCO is consumed in the country of origin, there may not be sufficient supply for the EU sector. Michael Fiedler-Panajotopoulos of Renewable Energy Group in Europe spoke about efforts in China and India to ensure that UCO used in biofuels produced in their growing domestic markets, as well as UCO exported to the EU and other regions, is of high quality and fully traceable. He pointed out that India is hindering UCO exports so it remains available to its own producers.

With its limited population, Europe is not a large source of UCO and animal fats.

The United States Energy Mix

This author was asked to speak at the waste and residue session about the United States regulatory system for biofuels and how animal fats and UCO have become such important feedstocks in America. The importance of federal schemes such as the Renewable Fuel Standard and tax credits, along with state regulations such as the Low Carbon Fuel Standard in California, was explained. Just as important, attendees heard that the collection, treatment, quality control, and export of UCO to the EU is well-organized, traceable, and certified by the EU-approved International Sustainability and Carbon Certification scheme. **R**

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Swine Benefit

From animal proteins

By Dr. Brian J. Kerr,
US Department of Agriculture-Agricultural Research Service,
and Drs. Gerald C. Shurson and Pedro E. Urriola,
University of Minnesota

The 2012 National Research Council (NRC) *Nutrient Requirements of Swine* provides energy and nutrient composition and digestibility information on 13 different animal protein meals. It is well known that animal protein meals are concentrated sources of energy, amino acids, and minerals that offer substantial amounts of energy and digestible nutrients to swine diets and help reduce diet cost depending upon their price relative to competing ingredients. The nutrient composition within types of animal protein meals among suppliers, however, is variable and has not been characterized since 1995 when a previous comprehensive survey and analysis of animal protein products was conducted (Knabe 1995).

Therefore, a sampling survey was performed from December 2012 to January 2014 with the assistance of rendering companies, feed ingredient suppliers, feed manufacturers, and commercial poultry and swine production operations to obtain various types and sources of animal protein meals. Locations and providers were selected in order to represent the inherent variability in chemical composition of a wide range of meals, including among and within rendering plants. The goal was to create a comprehensive and robust database and to select a subset of meals and sources from which to conduct subsequent energy and digestible amino acid determinations in growing pigs.

A total of 220 samples were obtained and sent to a commercial laboratory for gross energy, crude protein, crude fat, calcium, and phosphorus analysis, and for total amino acids through the assistance of Evonik Industries AG in Hanau, Germany. Table 1 is a summary of the average composition of animal protein meals collected. More detailed nutrient composition—such as mean, standard deviation, and ranges—is provided elsewhere (Kerr et al. 2017 and unpublished), with full detailed analyses listed on the University of Minnesota Conservancy Program website at https://doi.org/10.13020/D6759Q.

Overall, the types of animal protein meals collected in this survey had similar composition and variation compared with the nutrient content of animal protein meals reported by others (Dozier et al. 2003, Adedokun and Adeola 2005, Dozier and Dale 2005, Hua et al. 2005, Olukosi and Adeola 2009, Almeida and Stein 2011, Rochell et al. 2013, Rojas and Stein 2013, Sulabo et al. 2013, Castilho et al. 2015). Furthermore, the means and standard deviations of chemical composition within types of animal protein meals were similar to those reported in the survey conducted by Knabe in 1995.

While many nutritionists consider animal protein meals to be highly variable, the variation in those among and within sources was found to be comparable to other feed ingredients, such as corn co-products, which also have a moderate amount of variation in nutrient content (Kerr et al. 2009, 2016; Anderson et al. 2012). Even though there are specific classifications of animal protein meals based on their crude protein, crude fat, calcium, and phosphorus content (NRC 2012, American Association of Feed Control Officials 2015), in many cases these classifications seemed ambiguous for some of the samples collected. As a result, it is important for nutritionists to communicate their expectations for nutrient composition with feed ingredient suppliers, followed by subsequent chemical analysis to ensure accurate diet formulation when using specific animal protein meal sources.

Recent Research

While several recently published studies have determined the digestibility of energy and amino acids of several animal protein meals (Adedokun and Adeola 2005, Traylor et al. 2005, Olukosi and Adeola 2009, Almeida and Stein 2011, Almeida et al. 2013, Rojas and Stein 2013, Sulabo and Stein 2013, Sulabo et al. 2013, Castilho et al. 2015), the number of meals and sources evaluated were relatively limited within each of these studies. Therefore, from the data set of 220 samples collected in this study, a wide range in product classifications was selected to subsequently determine energy and amino acid digestibility.

A large number of animal protein meals within one trial were chosen in order to reduce experimental error across research locations when comparing energy and nutrient digestibility among meals, and to obtain samples that were compositionally diverse in an effort to generate robust prediction equations for digestible and metabolizable energy. This resulted in eight animal protein meal categories (blood meal, chicken by-product meal, chicken meal, feather meal, meat and bone meal, meat meal, poultry by-product meal, and poultry meal) from 13 sources for digestibility determinations. Energy digestibility was accomplished by using standard

energy balance procedures (Kerr et al. 2017). Standardized ileal digestibility of amino acids was realized by using ileal cannulated pigs fed a nitrogen-free diet to determine endogenous amino acid losses, which was subsequently used to calculate standardized amino acid digestibility coefficients (Kerr et al. unpublished). A summary of these data is presented in Table 2.

Overall, the digestibility of energy and amino acids were comparable to values reported in other published research studies, with current studies providing additional data for several animal protein meals that have not been extensively evaluated but may be considered for use in swine feed formulations. In addition, data presented provides information on the variability in energy and amino acid digestibility, which is critical for determining appropriate safety margins when using these meals in feed formulation.

Conclusion

The greatest challenge in capturing the nutritional and economic value of any feedstuff, including animal protein meals, is managing variability in energy and amino acid content and digestibility among and within sources of each type of feed ingredient. Results from these studies, along with data reported in previous publications, provides vital information to understand the variation and nutritional value of animal protein meals. These results confirm that animal protein meals are an excellent source of energy, amino acids, and minerals, which can be nutritionally and economically important feedstuffs for use in swine feed formulations. **R**

References for this review or additional information on this subject are available from Brian Kerr, (515) 294-0224, brian.kerr@ars.usda.gov. This research was financially supported in part by the National Pork Board and Evonik Corporation.

Table 1. Proximate and amino acid composition of animal protein meals, dry matter basis

Analyte	BM	CBM	CM	FM	MBM	MM	PBM	PM
Observations	30	19	9	23	98	17	18	6
Dry matter	90.28	96.16	96.07	92.05	95.51	97.09	97.45	96.98
Gross energy	5,878	5,338	5,083	5,877	4,349	4,672	4,686	5,099
Crude fat	0.93	14.82	13.22	6.55	11.82	14.95	12.86	13.31
Ash	2.41	13.59	18.72	2.52	28.84	24.90	23.23	17.69
Calcium	0.05	3.58	6.11	0.52	9.46	8.02	7.54	5.21
Phosphorus	0.21	2.14	3.36	0.29	4.54	3.94	3.68	2.86
Crude protein	95.48	68.33	68.23	92.11	55.60	56.79	62.81	67.55
Arginine	4.29	4.33	4.47	6.26	3.82	3.89	4.28	4.48
Cysteine	0.96	0.71	0.51	4.36	0.67	0.69	0.72	0.74
Histidine	6.70	1.38	1.45	1.00	1.14	1.28	1.11	1.23
Isoleucine	1.28	2.51	2.47	4.36	1.75	1.92	2.04	2.27
Leucine	12.77	4.51	4.38	7.63	3.51	3.76	3.80	4.20
Lysine	9.20	3.87	4.21	2.31	2.98	3.22	3.26	3.65
Methionine	1.05	1.28	1.38	0.65	0.82	0.92	1.04	1.18
Phenylalanine	6.88	2.52	2.44	4.51	2.03	2.15	2.21	2.42
Threonine	4.05	2.53	2.45	4.30	1.93	2.07	2.15	2.38
Tryptophan	1.71	0.66	0.60	0.66	0.38	0.44	0.45	0.52
Valine	8.54	3.09	2.88	6.76	2.48	2.63	2.65	2.90

Note: blood meal (BM), chicken by-product meal (CBM), chicken meal (CM), feather meal (FM), meat and bone meal (MBM); meat meal (MM), poultry by-product meal (PBM), poultry meal (PM). All values are reported on a percentage basis except for gross energy, which is reported as kilocalories per kilogram. Data obtained from Kerr et al. 2017 and unpublished.

Table 2. Gross energy and standardized amino acid digestibility of animal protein meals, dry matter basis

Analyte	BM-1	BM-2	CBM	CM	FM-1	FM-2	MBM-1	MBM-2	MBM-3	MM-1	MM-2	PBM	PM
Gross energy	93.4	88.3	83.4	82.2	68.4	82.2	66.5	63.0	66.0	73.1	69.7	77.5	68.5
Arginine	76.1	81.1	76.9	94.0	47.6	70.4	86.0	66.2	76.6	81.8	65.7	88.1	77.6
Cysteine	81.1	69.5	55.1	91.4	19.5	24.0	74.9	56.3	55.6	68.6	42.6	74.0	54.0
Histidine	85.0	81.1	78.5	94.5	43.5	64.8	91.0	75.2	85.4	87.5	63.9	88.8	89.0
Isoleucine	72.0	65.9	66.7	90.3	47.4	77.6	80.1	58.9	72.7	76.2	55.5	77.0	66.8
Lysine	79.2	84.0	71.4	90.9	47.2	62.0	79.7	54.0	71.0	71.1	52.8	77.9	74.7
Methionine	82.0	90.8	75.2	95.2	51.8	66.5	85.5	61.3	77.8	82.0	57.5	82.4	79.1
Threonine	81.1	83.7	69.7	92.1	39.1	60.2	82.1	58.5	73.4	80.1	51.5	82.5	45.5
Tryptophan	87.3	94.0	80.8	87.9	61.2	79.3	81.5	59.9	80.9	82.2	75.8	80.7	57.1
Valine	73.7	71.1	64.8	87.9	35.0	67.6	77.5	53.4	69.9	74.8	48.3	72.5	50.5

Note: blood meal (BM), chicken by-product meal (CBM), chicken meal (CM), feather meal (FM), meat and bone meal (MBM); meat meal (MM), poultry by-product meal (PBM), poultry meal (PM). Data obtained from Kerr et al., 2017 and unpublished.

Engagement is Imperative for the Biofuels Industry

By Tina Caparella

This year marks the 50th anniversary of Apollo 11 landing on the moon in 1969. "An incredible achievement of great historical significance," stated Donnell Rehagen, National Biodiesel Board (NBB) chief executive officer, last month at the National Biodiesel Conference and Expo in San Diego, California. While creating an entirely new fuel from sustainable, renewable resources during the past 25 years may not be on the same level as the moon landing, Rehagen proclaimed it as another major American accomplishment worth celebrating.

The biodiesel industry's beginnings, and its current success, can be credited to many of its early pioneers, including Imperial Western Products (IWP), a used cooking oil recycler founded in 1966 in the desert community of Coachella, California. Rehagen shared that while the company had been using its end product in animal feed for decades, it was during an industry downturn in 2000 that it welcomed Curtis Wright, a petroleum engineer, who had heard about Griffin Industries, a Kentucky renderer, making biodiesel from used cooking oil. After some testing by Wright, IWP built a biodiesel plant in 2001 with Wright as its manager, four years before the biodiesel tax credits become law, selling the fuel to whoever was interested (primarily co-ops and green-minded Californians). Today, the plant produces 10.5 million gallons of biodiesel yearly that supports about 40 jobs and accounts for 40 percent of the company's annual profits.

Rehagen went on to explain how biodiesel's growth in the United States (US) to nearly three billion gallons per year today is not only attributed to its early pioneers but also to the engagement of the industry with federal and state lawmakers and regulators to get tax credits and renewable fuel incentives in place to help spur the use of biodiesel. He also recognized the relationships NBB developed with other industry groups over the years for getting things done in Washington, DC.

Tim Urban, Washington Council Ernst and Young, predicts the biodiesel industry will see a tax extenders bill this year.

"By engaging in serious dialogue with organizations like the National Renderers Association, National Association of Truck Stop Operators, Society of Independent Gasoline Marketers of America, American Soybean Association, and Petroleum Marketers of America, among others, we forged a powerful advocacy network that has been instrumental in increasing support on Capitol Hill for the biodiesel tax credit and growing volumes in the Renewable Fuel Standard (RFS)," Rehagen told the crowd.

The importance of engaging with Washington, DC, politicians was addressed by political strategists during a session focused on the RFS, tax policy, and fair trade. Democratic former Senator Byron Dorgan, whose congressional career spanned 30 years in both the US House and Senate, believes the biodiesel industry will prevail as a solution to climate change policy on Capitol Hill. Although optimistic, he noted this moment in time is like no other he has ever seen in Washington, DC, referring to the unprecedented government shutdown.

Sara Fagen, a leading political and corporate issue strategist at DDC Public Affairs, noted that the industry needs to remind politicians about their commitment to renewable fuels made during campaigns, including President Donald Trump. She said that now is the time to begin educating upcoming Democrat presidential candidates as they campaign ahead of the 2020 election.

"Invite them to see and tour your biodiesel plant," Fagen commented. "Talk about issues facing your industry. Get the press and media around the event so you get them publically on record with their commitments."

State Policies Driving Demand

Several conference sessions focused on understanding West Coast carbon markets, such as California's Low Carbon Fuel Standard (LCFS) that is transforming biofuels demand, and on building coalitions in other states to advance legislation that supports biodiesel production and use. California's policies are quite complex and aggressive at reducing carbon emissions in the most populated state in the country. Floyd Vergara of the California Air Resources Board (CARB) remarked that "biofuels will play a significant role in California in the future, there is

no way around that." The state's carbon credit policy is adding from $1.05 to $1.89 of value per gallon to biodiesel, which has reduced the carbon intensity of California's fuel by about 66 percent since the LCFS was put in place in 2010/2011.

Jennifer Case, New Leaf Biofuels, reiterated that California's LCFS is the primary driver of renewable fuels in the state, sending usage skyrocketing from 10 million gallons of biodiesel per year in 2009 to over 500 million gallons of both biodiesel (180 million gallons) and renewable diesel (350 million gallons) in 2017. In addition, California has grant funding available for infrastructure construction. Currently there are from six to eight biodiesel plants in the state producing nearly 50 million gallons. Case credited the biodiesel industry's support and education of state government personnel in ensuring renewable fuels remain a big part of California's climate change policy.

"They often turn to the industry for input since we have built that trust with them," she added.

While California is one of the largest and fastest growing markets for biodiesel and renewable diesel, Oregon and British Columbia, Canada, are also passing policies that will increase biodiesel usage. Oregon's current 5 percent biodiesel mandate in petroleum diesel makes it a 50 million gallon per year market and has reduced the carbon intensity of its fuel by 18 percent. British Columbia's new CleanBC program aims to reduce the carbon intensity of its fuels 20 percent by 2030 by including biodiesel and renewable diesel in its diesel pool.

Several individuals reported on other state incentive programs that drive biodiesel production and usage. In Massachusetts, credits are available for utilities that use at least a 10 percent blend of biodiesel or other liquid biofuels, which is creating a 15 million gallon per year market. Utilities would use more biodiesel, but the state is having a supply issue at this time.

Illinois has a sales tax credit in place for biodiesel blends above 10 percent, which has increased the state's production and usage from 2 million gallons a year when the bill was passed in 2003, to between 170 and 200 million gallons annually today. The legislation has been extended twice and currently has a sunset date of December 31, 2023. Rebecca Richardson, with the National Biodiesel Board, said the industry decided to emulate an ethanol policy that already existed in Illinois so lawmakers would understand the mechanics in order to get the biodiesel tax credit passed. She encouraged others to go beyond grassroots efforts and engage directly with a few influential people to get the desired results. Illinois fuel retailers were perhaps the most influential group in the state as the tax credit bill benefited them.

Iowa, the largest biodiesel producer in the country at nearly 400 million gallons per year, also has a sales tax credit for biodiesel blends above 10 percent along with a producer credit of two cents per gallon, all which expire January 1, 2025. Infrastructure improvement grants are also available at 50 percent of the cost up to $100,000. After the tax incentives were passed, Iowa went from using 7 million gallons of biodiesel per year in 2010 to 57 million gallons currently. Since the state only uses about 780 million gallons of petroleum diesel per year, most of its biodiesel production is exported.

Continued on page 14

NBB Honors its Champions

The National Biodiesel Board's annual awards recognize a diverse group of individuals and organizations who have made significant contributions to biodiesel. From long-time champions to present-day breakthroughs, the commercial biodiesel industry would not be where it is today without these individuals. NBB recognized the 2019 "Eye on Biodiesel" award winners at the National Biodiesel Conference and Expo. The honorees are:

Climate Leader Award—Cory-Ann Wind, Oregon Clean Fuels program manager, and the Oregon Department of Environmental Quality (DEQ): DEQ administers Oregon's Clean Fuels Program (CFP), which is led by Wind. The program requires gradually increasing carbon intensity reductions for transportation fuels, culminating in a 10 percent reduction in 2025. After only two years of program implementation, biodiesel use in the state grew to 51 million gallons. In addition, biodiesel accounted for nearly 35 percent of credits earned under the CFP in 2017. DEQ and Wind have been dedicated to fostering an inclusive and collaborative environment that has led to an efficient, science-based implementation of the program.

Industry Partnership Award—NTEA, The Association for the Work Truck Industry: Confidence and promotion of biodiesel in fleet operations is instrumental in the overall success of the alternative fuel. Representing more than 2,050 companies that manufacture, distribute, install, sell, and repair commercial trucks, NTEA has been a key industry partner and continues to help the biodiesel market thrive. NBB's partnership with NTEA has been instrumental in getting biodiesel information to the critical audience in the work truck industry.

Impact Award—Casey's General Stores: In the past year, Ankeny, Iowa-based Casey's General Stores has become a leading player in the biodiesel industry, keeping biodiesel in high consumer demand. Casey's has converted more than 590 stores to biodiesel and plans to expand the use of biodiesel products to another 300 locations.

Influence Award—Ron Kotrba, editor of Biodiesel Magazine: Kotrba has served as editor for nearly a decade, providing key insights into the industry and covering every nuanced topic with precision. He has gone above and beyond to create awareness and provide an important platform for voices within the industry. His depth of knowledge on issues affecting the industry has led to strong, consistent reporting of the complex issues faced over the years.

Inspiration Award—Dr. Stephen Kaffka, extension agronomist, Department of Plant Sciences, University of California, Davis: Kaffka provided his agriculture production expertise as a key advisor during implementation of the California Low Carbon Fuel Standard (LCFS) and participated in the state's Air Resources Board's Indirect Land Use Change Expert Workgroup and the LCFS Sustainability Workgroup. His work is a prime example of how the biodiesel industry, built on research and sound scientific data, will always benefit from conscientious experts to communicate that understanding across diverse constituencies. **R**

Engagement *Continued from page 13*

Grant Kimberley, of the Iowa Biodiesel Board, shared that to be effective, all coalitions must be unified before engaging with lawmakers. For example, the slogan "Fuel Iowa" incorporates all fuels, not just petroleum or biofuels.

Minnesota took an alternative route since legislators would not pass incentives, so it became the first state to require all diesel fuel be blended with biodiesel, currently at 5 percent in the winter months and at 20 percent April through October. The state has gone from producing 16 million gallons annually in 2010 to about 110 million gallons in 2018. Mike Youngerberg, of the Minnesota Soybean Growers Association, told conference attendees a lot of hard work and a focused farmer engagement, including bus loads showing up in the state capital with signs saying "oil from the Midwest, not the Middle East," helped get the legislation passed, after moving through an unprecedented 12 committees.

Federal Policy Predictions

Although the US government had been shut down for 32 days at the time of the conference, federal biofuels policy and their future was still discussed optimistically.

"We enter 2019 in very good shape as biofuels is one thing that Trump and [Speaker of the House of Representatives] Nancy Pelosi actually agree on," stated Jim Massie of Massie Partners, "but there are challenges." Several Environmental Protection Agency proposed rules are expected this year, targeting renewable identification number reform, an RFS reset, and setting RFS renewable fuel volume obligations for 2020-2021. Massie predicted the proposed rules should come out sometime this spring.

The hot topic on everyone's radar, though, was the extension of alternative fuel tax credits, which expired at the end of 2017. Tim Urban of Washington Council Ernst & Young expects the industry will see a tax extenders bill this year. Many in the audience, however, were very concerned, with one attendee stating, "If we don't get the tax credit, there will be dire consequences for this industry." Producers were encouraged to engage with their legislators about the detrimental effect on their businesses if the tax credit is not extended, such as job layoffs, facility closures, and loss of commodity purchases from the agriculture community. **R**

Joe Gershen, Encore BioRenewables and *Render* biofuels columnist, questions a federal policy panel on the RFS.

Washington *Continued from page 7*

For those shuttered departments and agencies, a shutdown means the sitting secretary or agency administrator decides which of his/her personnel are "essential." This generally translates to subcabinet presidential appointees, their minions, and those involved in government programs designed to keep the population safe, property protected, and the nation secure. Meat and poultry inspections continue, as do "critical" FDA food safety inspections and some recalls. Transportation Security Administration inspectors continue to vet airline passengers for threats, though the number of agents calling in sick has escalated. Federal Aviation Administration personnel continue to ensure the skies are safe, the Federal Bureau of Investigations continues to investigate and prosecute, the Central Intelligence Agency continues to do those things its does, and so on and so on.

A partial shutdown, however, means that for the departments and agencies affected, routine operations and programs, rulemakings, regulatory rollbacks, product/activity reviews/approvals, assistance programs, appointments with government officials, government-sponsored meetings, report/analysis development, and so on, are suspended until funding flows are restored. Many of these programs managed to operate for a short time after the shutdown began based on surplus monies or a decision by the powers to use budgetary legerdemain.

Because the most recent shutdown snares all USDA and FDA programs and rulemakings, the Market Access Program (MAP) and Foreign Market Development (FMD) programs the rendering industry benefits from were suspended, though funding will be reinstated in full. Direct payments to producers impacted by Trump's tariff wars with US trading partners were suspended. The International Trade Commission suspended its analysis of the benefits of the new United States-Mexico-Canada Agreement and its side agreements, and congressional review and approval of that treaty cannot proceed until the report is handed to Congress.

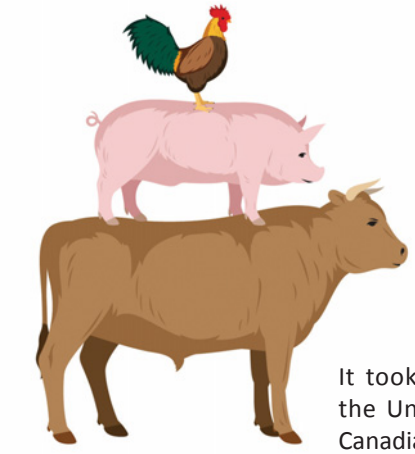
USDA closed all Farm Service Agency (FSA) county offices right at the point when producers, coming off nearly five years of depressed farm income, sought FSA assistance in making 2019 planting and production decisions. The closure has delayed loans to pay for fertilizer, farm chemicals, seed, and even land rental and purchases. Such production delays ripple throughout the ag economy, including impacting feed, animal drugs, and other purchases that rely upon producers writing checks. Agriculture Secretary Sonny Perdue reopened some FSA offices, recalling 2,500 unpaid employees on Day 27 of the shutdown to provide assistance with pending loan applications and 2018 Form-1099 tax documents. The "reopening," however, lasted just three days.

EPA's product reviews and licensing were severely limited, and its rulemakings to repeal and replace the waters of the US regulation and the president's pledge to allow year-round sales of 15 percent ethanol were delayed. Personnel were available, however, to help Acting EPA Administrator Andrew Wheeler navigate his Senate confirmation hearings to become full-time EPA administrator.

About three weeks into the closure, the administration got a whole lot more creative in handling curtailed services. The solution: order tens of thousands of furloughed workers back to work without pay. This "re-expansion" of services included the president assuring the public the IRS would process tax returns and send out refunds by bringing back more than half the agency workforce; FDA would continue critical food safety inspections, including fresh fruits, vegetables, and seafood, along with limited medical device, drugs, and biologics work; and the Department of Interior would continue selling oil and gas leases in the Gulf of Mexico.

None of the real-world impacts of the closure had any influence on the politics. While Trump praised the armed guards around the White House who maintained security without pay, Pelosi poked the GOP bear in the eye one more time when she suggested Trump "reschedule" his January 29 State of the Union address to a joint session of Congress and the public until after the government reopened. She also suggested that he could just deliver the speech in writing to Capitol Hill. Pelosi reasoned it would be inappropriate to go ahead with the speech—a tradition for a sitting president—while federal workers labor without pay, and she evinced concerns, citing DHS Secretary Kirsten Nielsen, about the added strain it would place on the Secret Service and DHS during the shutdown, a concern both entities say is unfounded.

It might also be, cynics suggest, that Pelosi and Schumer do not want to give Trump an international media platform to blame Democrats for shutting down the US government in the first place. **R**



Protein Demand Drives Biofuels

By Ryan Lamberg, Environmental Consultant, and
Don Scott, Director of Sustainability, National Biodiesel Board

It took nearly 25 years for the United States (US) and Canadian biodiesel industries to reach more than two billion gallons of annual production. With biodiesel volumes still climbing and renewable hydrocarbon diesel (RHD) capacities growing, North America could see three billion gallons of biomass-based diesel production (biodiesel and RHD) by 2022 and four billion gallons by 2025. These increasing volumes are driven by West Coast carbon policies as well as the economic benefits realized from domestic fuel production. Low Carbon Fuel Standards (LCFS) in California and Oregon have attracted millions of dollars of investment into new stand-alone RHD facilities. An article in the February 2018 issue of *Render* magazine thoroughly covered the RHD subject with one caveat: investment and volumes are now coming on-line much faster than expected.

To renderers, farmers, and other industry participants, this expansion represents added value. In the United States, food and fuel are made together in harmony. Biodiesel fuel was developed in America to siphon off excess fats and oils that created economic drag on protein production. When protein is grown to feed the world, more fats are produced than can be eaten. What better use could there be for excess fats than producing fuel that powers the economy and displaces fossil carbon?

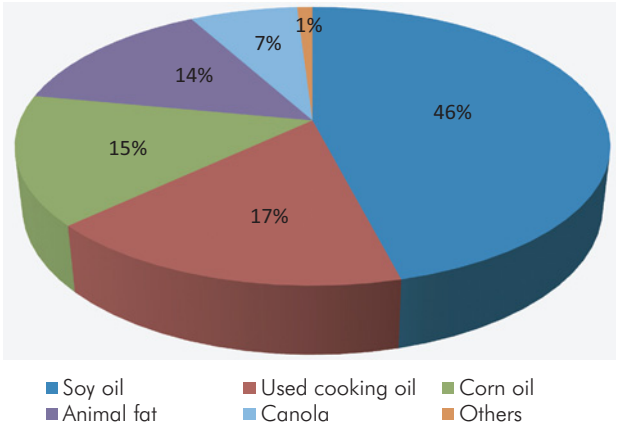
Nearly half of the biomass-based diesel in the United States is generated using soybean oil, while animal fats and used cooking oil provide about 30 percent of the feedstock with the remainder coming from distiller's corn oil. All of these feedstocks have protein co-products that are vital to the food supply. Soybeans, for instance, are grown primarily for their protein-rich meal. Protein meal constitutes 80 percent of every soybean, while the oil makes up less than 20 percent of the harvested crop.

As the global population increases from 7.5 billion people today to an estimated 10 billion by 2050, there will be more demand for protein, creating greater volumes of excess oils along supply chains for livestock feed, meat and dairy, restaurants, and processed foods. When recycled into a sustainable alternative fuel, oils lower the cost of food proteins. According to a recent report, protein demand from Asia will increase 78 percent by 2050. Because of this demand, over 50 percent of US soybean production is exported. As the largest importer of US soybeans historically, China has shown a preference for importing whole beans that can be crushed in Asia to support their own value-added economy.

Biodiesel benefits domestic livestock producers by providing value to processors who sell animal fats, returning approximately $16 dollars per head of cattle and $1.25 per hog. This return hardly encourages producers to raise more livestock, but it can marginally increase profits or lower prices for consumers.

Continued fabricated controversies and misunderstandings about biofuels persist, and could potentially slow growth of these markets. Since headlines in the mid-2000s claimed that some biofuels might be worse for the environment than petroleum, many more US scientists, national laboratories, and federal agencies have upheld the environmental benefits of US-produced biodiesel. Unfortunately, even discredited headlines contribute long-lasting confusion and rhetoric among activists and regulators. Recent paid attack campaigns are attempting to reinvigorate old accusations that diversifying markets for fats and oils lead to tropical deforestation. The facts tell a different story.

Chart 1. Feedstocks used in US biomass-based diesel production



Note: Statistics for biodiesel from US Energy Information Administration. Environmental Protection Agency Moderated Transaction System data is used to determine RHD volume and then it is assumed (based on industry sources) that the RHD is made equally from used cooking oil, animal fat, and distillers corn oil.

The United States consumes less than three percent of global palm oil, and this is almost exclusively used in processed food or household goods. This country does not produce any biodiesel from palm oil as it does not qualify as a feedstock for biomass-based diesel or advanced biofuel under the federal Renewable Fuel Standard (RFS) or state LCFSs. Independent economic analysis has shown that the RFS has not directly increased soybean oil prices, proving that protein demand remains a stronger influence than biodiesel feedstock prices when it comes to vegetable oil production. This fact nullifies assumptions that increased commodity prices carry the signal for converting forests to additional oil creation.

When counting the soybean oil exported as oil and contained in whole beans, the United States exported over 12 million tons of soybean oil in 2017. US exports of soybean oil have risen 69 percent, or more than five million tons, per year since enactment of the RFS. The United States puts more soybean oil on the market than the country consumes, and is putting more of the oil on the market than ever before.

US farms and food animal production systems are the most efficient in the world. Farmers feed more people using less land— US farmland has shrunk by more than 23 million acres since 2007—because they are planting more efficient crops like soybeans. Soy produces more protein per acre than any other crop. The world is also growing more forests today because it is farming less land. Real world data shows that global forested area has increased by 19 million acres since 2004, while global farmland has decreased by 60 million acres during the same time period as a result of growing more efficient crops and adopting more efficient animal systems.

Most importantly, biodiesel in the United States equates to massive carbon reductions. On a lifecycle basis, and using the most recent published literature, biodiesel reduces net emissions of greenhouse gases (GHGs) by 72 to 86 percent compared to petroleum.

For the heavy-duty transportation sector in particular, finding cleaner technologies poses a difficult challenge. As other sectors find pathways to GHG reduction, heavy-duty transportation likely will remain largely reliant on liquid fuels for years to come, even as an array of alternatives expands. The United States consumes more than 40 billion gallons of diesel on its roadways every year. Only biomass-based diesel offers the energy density and lifecycle properties to dramatically reduce emissions in the large heavy-duty trucking industry. Fats and oils have been around as a sustainable way to store solar energy for longer than the internal combustion engine and are 35 times more energy dense than modern electric batteries. As transportation alternatives improve on many fronts, it will be difficult to surpass the practicality of biomass-based diesel. It is far more likely that new technologies will evolve to complement the age-old storage capacity of biodiesel.

The US biomass-based diesel industry has recycled billions of pounds of by-products from the diverse protein supply chain. This industry has reduced carbon dioxide emissions by over 136 billion metric tons by displacing 16 billion gallons of diesel fuel since 2005. Other harmful emissions, such as particulate matter and carbon monoxides, are reduced dramatically as well. US biofuels represent a powerful economic synergy between job creation, fuel production, and emissions reduction. State policies piggy-backing on the RFS are influencing where those economic and environmental benefits are occurring. Future policy will dictate who benefits most as this industry continues to grow.

A recent report by the United Nations' Intergovernmental Panel on Climate Change makes climate action an imperative for global survival. Biomass-based diesel deserves broader recognition as a home-grown solution to reduce carbon today in the hardest to reach heavy-duty applications.

Because biomass-based diesel growth is intimately connected with protein demand, the growth of the industry complements food markets. Food and fuels are synergistic. The United States has demonstrated a surplus of existing of fats and oils, which are needed to efficiently and effectively feed and fuel the nation. Simultaneously, investments should be made in increasing grease recovery and vegetable oil production through cover crops and other innovative feedstock developments. America can optimize the efficient use of its natural resources to sustainably feed the world and fuel its future. **R**

By Joe Gershen, Encore BioRenewables

Eyes are on European Biofuels Market

The European Commission has proposed a definitive countervailing duty on Argentinian biodiesel and has begun proceedings to investigate Indonesian product on similar terms. The European Biodiesel Board has called for anti-subsidy duties on Argentinian biodiesel producers, declaring a large majority of European Union (EU) member states would vote to support the Commission's proposal for duties of between 25 and 33.4 percent.

EU biodiesel producers hope these moves will result in greater market share for 2019 after surviving large imports of inexpensive Argentinian soy methyl ester and Indonesian palm methyl ester last year. These imports entered the market following the annulment in 2018 of EU anti-dumping duties after five years. The Commission plans to ratify its proposed anti-subsidy duties on Argentina's biodiesel exporters by February at the latest, while duties against Indonesian producers will come later.

The EU imported 1.3 million metric tons of soy methyl ester from Argentina in the first nine months of 2018, up from just 30,000 metric tons during the same period in 2017. The imposition of anti-subsidy duties on Argentinian exporters would cut supply to the European market from around 1 million to 1.5 million metric tons in 2019. This will lead to rising demand for domestically produced European first generation biodiesel and that made from recycled oils, for which availability is already tightening globally as used cooking oil methyl ester (UCOME) consumption increases.

While EU biodiesel imports could decline once any duties are put in place, at least 14 EU member states will increase their biofuels blending mandates by the end of this year. Eleven of these double count waste-derived fuels, primarily met with UCOME and tallow methyl ester (TME).

Spain is in the process of introducing double counting of waste-derived biodiesel toward mandates, likely in the first quarter of 2019. The country's dominant palm methyl ester producer, Musim Mas, is considering converting its 200,000 metric tons (60 million gallons) per year Cartagena plant to use waste oils and fats this year. Spain's preparations to introduce double counting, likely up to 0.5 percent, will incentivize the use of UCO and other less plentiful rendered feedstocks. Spain produces around 105 million gallons per year (mgpy) of UCOME and TME combined. The recent restart of a plant at Linares, idled for at least three years, should add around 18 mg to 21 mgpy through 2019.

As demand for waste-derived biodiesel and feedstock grows, Europe's UCOME and TME producers will find themselves competing with hydrotreated vegetable oil, a drop-in diesel substitute also known as renewable diesel, for domestic and imported feedstock supply in 2019. European renewable diesel production will rise in 2019 as Total and Eni plan to start their La Mede and Gela plants in the first quarter, representing a combined production capacity of 330 mgpy. La Mede has caused controversy because it has been authorized to use up to 90 mgpy of imported palm oil—nearly half the site's required 195 mgpy of feedstock—due to sustainability concerns. The facility is able to use 45 mgpy of vegetable oil feedstock, only 15 million gallons of which is set to be rapeseed oil. The remaining 60 million gallons will come from animal fat, UCO, and residues, although there is concern whether there are enough of these feedstocks available. The majority of Gela's feedstock will come from palm oil while Eni has pledged to use as much UCO as it can.

Asia-Pacific and North America also have growing demands for biodiesel and renewable diesel, which will ultimately tighten supply of biodiesel and feedstock imported into Europe. The EU imported around 65 million gallons of UCOME from China in January–September 2018, up 48 percent year over year, but volumes have varied significantly from month to month depending on freight costs and seasonal conditions. There is also a growing domestic Chinese biodiesel market that Europe needs to be concerned about.

Biofuels Tax Credits Still Unknown

The United States (US) House of Representatives passed a package of tax provisions just before Christmas, including an extension of the biodiesel tax credit, by a vote of 220–183. The Senate, however, failed to vote on the package prior to the stalemate on remaining government funding bills that led to the partial US government shutdown. A new Congress was sworn in on January 3, 2019, marking the start of a new session so any legislation will now have to be re-introduced. As of this writing, given the ongoing stand-off on government funding and the US-Mexico border wall, it seems unlikely there will be much movement on the biodiesel tax credit or any other tax issues anytime soon.

Industry Association Happenings

On February 28, 2019, the California Advanced Biofuels Alliance (CABA) will hold its eighth annual California Advanced Biofuels Conference in Sacramento, California. The event has grown in popularity and offers attendees an in-depth perspective of one of the most compelling low-carbon transportation fuels markets in the world. There will also be opportunities to learn about California's newest legislation and regulations, and to connect with the industry's leadership, including CABA's new executive committee for the next two years: Tyson Keever, SeQuential and Crimson Renewable Energy LP, chair; Joe Gershen, Encore BioRenewables, vice chair; Ron Cardwell, ADM, secretary; and Eric Kayser, Imperial Western Products, treasurer.

National Biodiesel Board (NBB) members also recently voted in a new slate of officers with Kent Engelbrecht, ADM,

returning as chairman; Chad Stone, Renewable Energy Group, as vice chairman; Ryan Pederson, North Dakota Soybean Council, as treasurer; and Ron Heck, Iowa Soybean Association, as secretary. In addition, eight new board members were elected for two-year terms and include Troy Alberts, Ag Environmental Products; Rob Shaffer; American Soybean Association; Mike Rath, Darling Ingredients Inc.; Jeff Lynn, Illinois Soybean Association; Tim Keaveney, Lake Erie Biofuels DBA Hero BX; Greg Anderson, Nebraska Soybean Board; Robert Morton, Newport Biodiesel LLC; and Tom Brooks, Western Dubuque Biodiesel, LLC. The board reflects the wide range of member companies in the biodiesel industry from feedstock operations to producers.

NBB has hired Kate Shenk as director of regulatory affairs and David W. Cobb as director of federal affairs. Both individuals will work in the board's Washington, DC, office. Shenk previously worked for the Biotechnology Innovation Organization where she led a regulatory affairs committee and developed analyses and comments on regulatory policies. Cobb most recently served as federal affairs director for CHS Inc., a Fortune 100 company and the nation's largest farmer-owned cooperative, where he advocated for the company's legislative and regulatory policy priorities.

Washington State Policies on the Move

Washington Governor Jay Inslee (D) and key Democratic state lawmakers are proposing new climate policies for the 2019 legislative session that include legislation for a Low Carbon Fuel Standard (LCFS) targeting greenhouse gas (GHG) emissions from the transportation sector. Not coincidentally, Inslee has announced his intention to run for US president in 2020 on an aggressive environmental protection platform. With a LCFS, Washington State would become the final member of a West Coast alliance on bold climate policies. California, Oregon, and British Columbia already have successful LCFS programs in place to address GHG reduction in the transportation sector. It remains to be seen if Inslee can wrestle the carbon reduction leadership mantle away from his other West Coast partners and successfully use it to win the White House in less than two years.

Prior to the current GHG reduction policy targets, a Washington State tax bill failed to receive enough votes in the state legislature and voters rejected a carbon tax ballot initiative in last November's election—the second such failed ballot attempt since 2016. The governor's proposal would require a 10 percent reduction in the carbon intensity of transportation fuels by 2028 and 20 percent by 2035. The proposal is much more likely to pass now after the November election since Democrats increased their majorities in both chambers of the legislature—they now enjoy a seven-vote margin in the state Senate and a 16-vote margin in the House.

If Inslee is successful, he will have raised his profile and environmental policy credentials. Whether that will help him on the national stage is unclear, but it will certainly create a North American West Coast LCFS movement not easily ignored on the world stage.

Continued on page 25

By Nancy Foster, President, National Renderers Association

Looking Ahead in 2019

It seems there is always a snowstorm here in Washington, DC, when it comes time to write the year's first column for *Render* magazine. While the wind whistles and snowflakes whirl outside, it is a good time to consider the possibilities and expectations the year holds.

This year will be one of change for the National Renderers Association (NRA). For 2019, this includes new NRA leadership, strategic plan, communications director, and political consultants. There is also a new United States (US) Congress this year and hopefully a fair-minded international relationship with major trading partners so US renderers can increase exports. What will not be changing is the unwavering commitment of the NRA staff to promote and defend the industry.

NRA Chairman Ridley Bestwick of West Coast Reduction completes his two-year term in October. At that time, Doyle Leefers of National Beef Packing Company will take over as NRA's chairman and will serve until 2021. Each chairman brings their own individual vision to the association and leaves their mark when they depart. NRA's tradition of outstanding leadership, including the chairmen, board of directors, and committees, is a hallmark of the association.

A new US Congress brings renewed focus on the environment and climate change in the Democratic House of Representatives, tempered by a more conservative Senate. Still unknown is whether both will be able to work together to pass legislation, and President Donald Trump's administration is an important but unpredictable force in the mix.

Plans are underway for NRA's 2020 strategic plan to be refreshed by year end for a new five-year look ahead at the association's priorities and programs. A director of communications recently joined NRA to promote rendering's sustainability brand to the media, the public, customers, and legislators. The association has also engaged new political consultants this year after the retirement of its long-time lobbyist.

To promote opportunities for rendering, NRA focuses on seven priorities to serve its membership:

- Science, regulations, and industry information
- International market development and promotion
- Congressional advocacy
- Communications
- *Rendering Code of Practice*, safety, and training
- Membership development
- Meetings

NRA also operates two overseas offices in Hong Kong, China, and Mexico City, Mexico. The association has representation in the European Union and consultants around the world working to promote US and Canadian exports of rendered products.

Science, Regulations, and Industry Information

Continued smooth regulatory implementation of the Food Safety Modernization Act (FSMA) is the top priority of NRA's regulatory program this year. When NRA members experience difficulties with inspection or compliance, NRA's staff is ready to troubleshoot and problem solve. Renderers will continue to transition to the new FSMA regulatory system with support from NRA's education programs, including *Rendering Code of Practice* training. The association will also maintain a strong voice in its relationships with the American Association of Feed Control Officials, the Food and Drug Administration, the US Department of Agriculture (USDA), and other federal agencies.

Changing customer expectations and demands, brought on in part by FSMA, are leading to rendering challenges in today's animal food safety environment. NRA will strengthen its collaboration with the pet food industry and other customer groups for joint problem solving in the areas of policy, research, economic, and sustainability that should yield positive benefits for renderers. The Pet Food Alliance at Colorado State University, which brings together renderers, pet food companies, and researchers, is an example of such collaboration and the synergy between NRA and the Fats and Proteins Research Foundation.

This year, NRA will continue to monitor new regulatory developments and challenges for the rendering industry. Short- and long-term issues include pentobarbital residue in euthanized animals, planning for a possible animal disease outbreak (i.e., African swine fever, porcine epidemic diarrhea virus, avian influenza, or foot and mouth disease), antibiotic residues, foreign matter in raw material, and attacks on the rendering industry by uninformed consumer activists.

A new project this year is NRA's upcoming major study on sustainability and the economic impacts of the rendering industry in the United States, with the possibility of expanding its scope to include Canada. To effectively communicate and advocate for rendering, the industry needs updated statistics about its operations and impact on the economy, the environment, and communities. Such information is vital to effectively promote rendering in the face of numerous challenges. For example, new data will provide credible and transparent answers to questions such as:

- the economic, animal health, and sustainability impacts on suppliers and customers of swine veterinarians who recommend pork producers not use swine by-products for protection from African swine fever;
- the economic, animal health, and sustainability impacts of the vegetarian diet trend for poultry; and
- the economic and sustainability impacts of pet food manufacturers that avoid the use of processed animal by-products.

NRA's new sustainability and economic impact study will gather information on:

- volumes and types of animals rendered;

- markets and values for finished products, blood products, and raw by-products;
- types and amounts of energy used;
- renewable fuels used in rendering;
- number of employees; and
- amount of services to restaurants/food service/ grocery stores/slaughter houses, food processing plants, and animal producers.

Community support and involvement by renderers will be tallied, as well as capital investment and results to improve air, water quality, energy efficiency, and carbon footprint reduction. Truck, rail, and ship transportation use, among other factors, will also be examined.

Outreach to scientific, food, and agriculture groups about rendering's sustainability this year will further improve the reputation of the rendering industry regarding the environment and its role in society's sustainability.

International Market Development–A Rising Tide Lifts All Boats

Overseas sales of rendered products help strengthen domestic prices by reducing local supplies, benefiting all US and Canadian renderers. NRA's international marketing program will continue work this year to overcome foreign trade barriers and open markets lost recently in the current trade war and years ago due to bovine spongiform encephalopathy. NRA's two overseas offices in Mexico City and Hong Kong execute these activities along with a team of international consultants.

NRA is working to finalize access to new markets such as Mexico and Peru. USDA's Animal and Plant Health Inspection Service is engaged in negotiations to gain entry into Colombia and Ecuador. Market access talks with Japan and South Korea are starting.

In January, the Taiwan market opened for imports of non-ruminant US proteins after years of negotiations and a visit by Taiwan's Bureau of Plant and Animal Health Inspection to audit US non-ruminant protein facilities. Taiwan is another potential market worth $25 million, and NRA will operate promotional activities in that country this year.

NRA will conduct market maintenance seminars and promotions this year in Indonesia and China in coordination with USDA. The association plans to encourage used cooking oil demand in Germany and the Netherlands with USDA. Due to the nutritional benefit of rendered products in aquaculture feed, NRA will also hire an aquaculture consultant this year to focus on this important growing market.

The US government is entering into negotiations with Japan, the European Union, and the United Kingdom for new trade agreements. NRA will encourage a reduction in foreign import barriers and greater market access for rendered products into these markets.

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. The alliance is funded under USDA's Market Access Program (MAP) and its website provides an effective communications conduit to explain the sustainability of rendering and publicize NRA's information. This delivers the industry's environmentally-friendly message to the United States, Canada, and the rest of the world at a very low cost. To learn more, see the U.S. Sustainability Alliance website at https://thesustainabilityalliance.us.

Congressional Advocacy—Rendering's Compelling Story

With a new Congress this year, it is important to educate the many freshmen about rendering and its sustainability. Members of Congress now in leadership positions and those on key committees will also benefit from a refresher.

NRA's legislative agenda is ambitious since many issues expected to gain attention in Congress this year will affect rendering. These include "green" issues such as sustainability, climate change, and carbon tax proposals prompted by the new Democratic House majority. Gaining congressional approval for full funding of USDA's MAP and Foreign Market Development programs is a high priority for NRA.

The association also supports passage of the United States-Mexico-Canada Agreement in Congress. At press time, the trade pact faces a challenge to gain the necessary votes for passage given liberal demands for changes in its environmental and labor provisions.

NRA will continue to advocate for congressional renewal of tax credits and an aggressive federal Renewable Fuel Standard. Rendered fats and oils provide almost 30 percent of the feedstock for US biodiesel and renewable diesel production.

Now that the 2018 farm bill is law, NRA will work closely with USDA to help ensure its food waste provisions are implemented to conform with congressional intent so as not to commercially disadvantage rendering in favor of composting, anaerobic digestion, or other means of disposal.

Since large volumes of raw material and finished rendered products are moved by truck, rail, and ship, transportation issues are important to the rendering industry and NRA. Renderers own or operate some of the largest trucking fleets in the country. NRA supports federal funding for needed major infrastructure improvements and reform of truck length, width, and hours of service regulations. This appears unlikely, though, unless Congress and the White House can work collaboratively together. It will be a long road back to a manageable working relationship from the current standoff. The reality is that the 2020 elections are driving virtually every play among Washington, DC, politicians since those votes will determine the next president and the future control of Congress.

NRA's rendering members are invited to the annual Washington DC Fly-In June 24-26, 2019, for high-level briefings on important issues affecting rendering. Renderers will also meet with their members of Congress to educate them about challenges facing the industry.

This year, NRA engaged new political consultants after the retirement of long-time rendering lobbyist and industry friend, Steve Kopperud. Now representing NRA is The Russell Group, based in Washington, DC, which brings extensive legislative and regulatory experience on agricultural issues to the rendering industry. The staff of this boutique firm together represent decades of work and deep relationships with Republicans and Democrats in Congress and the

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By Fernando Mendizabal, President
World Renderers Organization

OIE BSE Standards Re-examined

In December, the World Organization for Animal Health (OIE) published a report from its Scientific Commission for Animal Diseases meeting held in Paris, France, in September 2018. Of special interest to the global rendering industry is the revision of bovine spongiform encephalopathy (BSE) standards in the *Terrestrial Animal Health Code*. The following is a summary of the relevant topics discussed in the report. At this point, OIE Director General Dr. Monique Eloit is requesting ad hoc groups bring only scientifically-driven proposals.

OIE is working on two lines of action. The first one is strengthening the risk assessment methodology that supports the categorization of BSE risk status. The second is for reconsideration of the systematic impact of the occurrence of an indigenous case of classical BSE in cattle younger than 11 years of age on an officially recognized BSE negligible risk status.

The World Renderers Organization believes it can enrich this conversation and is discussing with its Scientific Advisory Panel on how to better approach OIE on this matter.

Group Assessment of BSE Risk

The OIE ad hoc group on BSE risk assessment provides independent analysis and advice to OIE on the risk-based provisions applicable to the categorization of BSE risk status as well as on the recommendations for international trade. Eloit welcomed this group to revise the provisions of the *Terrestrial Animal Health Code* Chapter 11.4 on BSE, in particular the provisions pertaining to the categorization of official BSE risk status, which may no longer be appropriate to the current probability and may not reflect the latest scientific evidence. She emphasized that revision of the BSE standards was considered a priority for OIE and its members. Eloit insisted that while BSE might be both a sensitive and political issue, the group's proposals should be only scientifically driven.

In response to OIE member comments requesting the removal of official recognition of BSE risk status in Article 1.6.1 in the *Terrestrial Code*, the European Commission (EC) reiterated that following the sharing of the scientific and technical document assessing the current risk associated with BSE (Annex 18 of a February 2017 EC report), a majority of members did not support the discontinuation of the OIE official recognition of risk status for BSE. They instead requested revision of OIE standards on BSE as a priority and a first step toward the discussion. This work has commenced and is in progress by two ad hoc groups, one dedicated to BSE risk assessment and one to BSE surveillance requirements.

The Commission reviewed and endorsed a July 2018 report of the ad hoc group on BSE risk assessment that initiated the revision of the risk-based provisions for the categorization of official BSE risk status. The Commission commended the work of the ad hoc group in two specific areas:

- in strengthening the risk assessment methodology that supports the categorization of BSE risk status, and, in particular, for taking into consideration different husbandry and farming practices and the associated likelihood of exposure to and recycling of the BSE agent; and
- for reconsidering the systematic impact of the occurrence of an indigenous case of classical BSE in cattle younger than 11 years of age on an officially recognized BSE negligible risk status.

The Commission noted that revision of the risk-based provisions for the categorization of official BSE risk status will be continued by this group and by an ad hoc group on BSE surveillance.

BSE Testing Methods and Maintenance of Official Risk Status

In order to better monitor compliance with BSE diagnostic methods used by OIE members having an officially recognized BSE risk status with the recommendations of the *Terrestrial Code*, the Commission recommended that beginning November 2018, members should document BSE diagnostic methods used in their reconfirmation for BSE risk status. Consistent with the recommendations in Chapter 2.1 of the *Terrestrial Code* and the OIE *Handbook on Import Risk Analysis for Animals and Animal Products* (Volume 1, 2010), the categorization of BSE risk status should be determined from a comprehensive risk assessment composed of four steps: entry assessment, exposure assessment, consequence assessment, and risk estimation. The current provisions for the official recognition of BSE risk status primarily place the emphasis on determining whether or not a country has implemented appropriate measures, particularly through a feed ban, to mitigate against risk factors associated with recycling and amplification of the BSE agent. This pathway proved appropriate for countries that have reported indigenous cases of classical BSE in their cattle populations and for those whose import history indicated there was a non-negligible likelihood that the BSE agent may have been introduced.

The ad hoc group, however, acknowledged that the impact of local husbandry and farming practices on the likelihood of the BSE agent being recycled were insufficiently taken into account. This is particularly relevant for those countries whose cattle populations are reared either predominantly or exclusively under extensive pastoral systems, or where there is practically no animal rendering production. The group therefore emphasized the need to recognize there are two pathways whereby the BSE risk status of the cattle population of a country or zone can be considered to pose a negligible risk. One is from a negligible likelihood of cattle being exposed to the BSE agent due to local husbandry and farming practices (e.g., extensive pastoral systems), and the other from the implementation of appropriate measures to mitigate risk factors for recycling and amplification of the BSE agent. The group recommended explicit incorporation of these two pathways for achieving a BSE negligible risk status,

together with risk-based provisions addressing these distinct scenarios as defined in the *Terrestrial Code*.

The impact of the occurrence of one or more indigenous cases of classical BSE in cattle born after a ruminant-to-ruminant feed ban on BSE risk status of countries or zones recognized as posing a negligible BSE risk should be assessed on the basis of an epidemiological investigation and an updated risk assessment. Demonstration of compliance with the requirements for negligible BSE risk status for an insufficient period of time would result in a controlled BSE risk status categorization. This would represent an intermediate step for countries or zones to ultimately achieve negligible BSE risk status.

Atypical BSE

Importantly, the ad hoc group determined that classical BSE is the only BSE strain recognized as being transmitted via feed and considered for the purpose of OIE. Official BSE risk status recognition, and the possible recycling and amplification of all BSE agents, including that of atypical BSE, must be considered when assessing the risk of exposure (Article 11.4.2.b).

As specified in Article 11.4.1 of the *Terrestrial Code*, BSE primarily affects cattle. Although sheep can be experimentally infected by oral inoculation and can transmit BSE under usual husbandry conditions, there is no evidence that BSE has become established in the commercial sheep population.

BSE Risk Status of a Country, Zone, or Compartment–Article 11.4.2

The ad hoc group noted that since legislation supporting a feed ban was likely to be national in scope, monitoring its implementation at the level of a zone or compartment would likely be challenging. The need for an animal identification and traceability system that underpins the establishment of a zone or compartment was highlighted. The group also stated that only a few zones have been officially recognized to date, and that some of these were defined "artificially" to exclude portions of the territory of a country where the youngest indigenous BSE case was less than 11 years of age. Nevertheless, the group determined that provisions for the definition of BSE risk status at the level of a zone or compartment should remain in the *Terrestrial Code* to provide sufficient flexibility to members in defining a BSE strategy that would best accommodate their specific situation as well as ensuring consistency with provisions for other diseases in the code.

Risk Assessment

It is specified in the introduction of point 1 of Article 11.4.2 in the *Terrestrial Code* that the risk assessment should be reviewed annually. The group agreed with this recommendation, but advised that it should be captured in Articles 11.4.3 and 11.4.4 within the provisions for the maintenance of a BSE risk status.

Regarding the entry assessment, the group noted that it included both local factors (points i and ii: presence/absence of the BSE agent in the indigenous population and production of meat and bone meal or greaves) and factors associated with the introduction of the BSE agent through import (points iii to vii). The group suggested that consistent with recommended approaches on risk assessment, including provisions of Chapter 2.1 of the *Terrestrial Code* on Import Risk Analysis and the *Handbook on Import Risk Analysis for Animals and Animal Products*, the entry assessment should focus on the likelihood of imported commodities being infected or contaminated with the BSE agent. Local factors should be addressed in the exposure assessment.

With respect to the exposure assessment, the group clarified that exposure to the atypical BSE agent should be taken into consideration. While to date there is no evidence that atypical BSE is transmissible, recycling of the atypical BSE agent has not been ruled out and should be avoided as a precautionary measure. The group stated that this represents another reason why an exposure assessment should be performed regardless of the outcome of the entry assessment.

Categories of BSE Risk Status–Article 11.4.3

The ad hoc group agreed that the level of BSE risk could not be considered similar for all members and therefore determined that a categorization should be retained to facilitate trade from countries having a lesser risk of BSE. It determined that a negligible BSE risk status could result from either:

- a negligible likelihood of a cattle population being exposed to the BSE agent due to local husbandry and farming practices (e.g., extensive pastoral systems) for more than the 95th percentile of the incubation period (i.e., for at least eight years); or
- the appropriate mitigation of risk factors for recycling and amplification of the BSE agent for the same duration as defined above (i.e., at least eight years).

The group recommended that these two pathways for achieving a negligible BSE risk status should be recognized in the *Terrestrial Code* and provisions adequate for these distinct scenarios should be proposed.

Prerequisites for the Detection of BSE

The ad hoc group concurred that regardless of which pathway leads to a categorization of negligible BSE risk status, requirements for an ongoing awareness program, compulsory notification, and investigation of clinical suspects, as well as a laboratory examination of appropriate samples performed in accordance with the *Terrestrial Code*, continue to be relevant as to support the identification of BSE cases. It was recommended by the OIE Scientific Commission that the ad hoc group on BSE surveillance determine how long these requirements need to have been in place before a BSE risk status can be officially recognized by OIE (currently seven years based on the provisions of Articles 11.4.3 and 11.4.4).

It was also suggested by the Scientific Commission that the ad hoc group on BSE surveillance define the surveillance provisions for countries posing a negligible BSE risk, as well as the duration for which these provisions should have been applied, before an official BSE risk status can be recognized by OIE.

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Association *Continued from page 21*

administration. On behalf of the entire association, we wish Kopperud the very best in his retirement.

Communicating on Sustainability and Rendering

With sustainability being the core brand of the rendering industry, communications is a vital program at NRA. Plans this year include an increased social media presence and an updated website with compelling messages and graphics, easy navigation, and a fresh look and feel. Tools for NRA members to use with their customers, communities, and stakeholders are also being developed. Sustainability and rendering's important role to agriculture and the economy will be points of focus, along with developing media contacts and gaining media coverage on rendering. NRA's publications, such as its monthly newsletter, will keep members up to date with information affecting their business.

To meet these goals, NRA welcomes Anna Wilkinson as its director of communications. She joined in late January after working in marketing and public relations for the transportation and waste disposal industries. Wilkinson brings experience in waste recycling and broad communications expertise to NRA.

Meetings and Membership

NRA meetings offer unique opportunities to learn the latest news in rendering, understand coming trends that will affect the industry, and network with rendering leaders. The association represents over 95 percent of rendering facilities in the United States and Canada. NRA members will meet April 9–11, 2019, in Chicago, Illinois, for the spring board and committee meetings, and October 28–November 1 in Carlsbad, California, for NRA's annual convention. Be sure to mark your calendars.

If these programs and activities strike a chord, think about joining NRA. All renderers and their business parts are welcome. Among the benefits of belonging is unique access to expert advice in immediate challenging situations, valuable insight for business plans, and a strong voice for rendering. We invite you to join us!

I wish you and your families good health, happiness, and prosperity in 2019! **R**

For more information on NRA, contact Heather Davis, coordinator of member relations and operations, at hdavis@nationalrenderers.com, or NRA president and article author Nancy Foster at NancyFoster@nationalrenderers.com, or call (703) 683-0155.

International *Continued from page 23*

Feed Ban Assurances

The ad hoc group emphasized that depending on traditional husbandry and farming practices, particularly in countries with extensive pastoral systems, a legislated feed ban enforced by national regulations may not always be necessary to assure that ruminants are not fed meat and bone meal or greaves derived from ruminants. It remains reasonable, however, that under such circumstances, these countries would be required to demonstrate that neither meat and bone meal nor greaves derived from ruminants have been fed to ruminants for at least eight years. In addition, it would need to be demonstrated that the consequences of cross contamination that might occur in a terminal feedlot would be negligible.

Rather than official control and audits, the group recommended documented evidence be provided to substantiate any claims made concerning the impact of husbandry and farming practices on mitigating against BSE related risks. This would include a detailed explanation of husbandry and farming practices for both ruminant and non-ruminant species, the demographics of the cattle population and other farmed animal species, the protocols for dealing with cattle mortalities and slaughterhouse waste, and the existence or lack of rendering facilities and feed mills. Such an approach would allow for more flexibility to accommodate different situations and practices, particularly in lower and middle income countries.

Taken together, the results from the EU's ongoing surveillance program confirm that the occurrence of a limited number of classical BSE cases in EU animals born after the total feed ban was enforced in January 2001 is not indicative of gaps or failures in a feed ban. Rather, they are more likely to be indicative of isolated, residual pockets of infectivity with extremely limited opportunities of exposure involving one or a few animals that ultimately have negligible consequences in terms of recycling of infectivity. Overall, the group could not conclude that the occurrence of one or a few cases of classical BSE in animals born after a feed ban systematically reveals a breach in the effective enforcement of the feed ban. **R**

Biofuels *Continued from page 19*

New Biodiesel Plant for Canada

Benefuel, a solid catalyst technology provider, plans to build a 40 million gallon per year biodiesel facility in British Columbia, Canada, in wake of the province's recently publicized climate policy called "CleanBC" that includes an expanded LCFS. Benefuel claims its biodiesel refining process is one of the most capital efficient solutions for carbon reduction in liquid transportation fuels and will have a negative carbon intensity score. The company stated this project will reduce GHG emissions by over 550,000 metric tons per year, which is equal to roughly 10 percent of British Columbia's 2030 target reduction for the transportation sector as detailed in the CleanBC report.

US Energy Programs Renewed, Hardship Waivers Continue

In late December, US President Donald Trump signed the 2018 farm bill into law after a nine-month effort. The $867 billion Agricultural Improvement Act of 2018, or H.R. 2, reauthorizes several energy programs, including the Biorefinery Assistance Program and the Bioenergy Program for Advanced Biofuels. The 2018 farm bill also authorizes $2 million a year for the Biodiesel Fuel Education Program from 2019–2023.

Also at the end of December, the US Environmental Protection Agency (EPA) released updated data on small refinery hardship waivers filed under the Renewable Fuel Standard (RFS). Seven new waiver petitions for the 2018 compliance year and one new petition for the 2017 compliance year were filed between November 10 and December 18, 2018. In total, 22 petitions seeking small refinery waivers for the 2018 compliance year have been filed. All are still pending.

Per regulation, EPA must account for small refinery hardship waivers when setting RFS annual renewable volume obligations (RVO); however, it has not accounted for waivers approved after publishing the final RVO rule. Data shows that the retroactive waivers destroyed demand for more than 300 million gallons of biodiesel and renewable diesel last year. Biofuel groups have argued that, by law, EPA can only extend existing waivers, not grant new ones. **R**

Mark Your Calendar

February

International Production and Processing Expo
February 12–14, Atlanta, GA • www.ippexpo.com

International Rendering Symposium
February 14–15, Atlanta, GA
www.ippexpo.org/edu_prgms

3rd National Congress on Animal-Derived Proteins, Tallow, and Fats
February 27–March 1, Mar del Plata, Argentina
www.camsubprodganaderos.com.ar

California Advanced Biofuels Conference
February 28, Sacramento, CA
www.caadvancedbiofuelsalliance.org

March

Pacific Coast Renderers Association Annual Convention
March 8–9, Carmel Valley, CA
Email Marty Covert at co@martycovert.com

National Grain and Feed Association 123rd Annual Convention
March 17–19, Amelia Island, FL • www.ngfa.org

April

21st Annual International Aboveground Storage Tank Conference and Trade Show
April 2–4, Orlando, FL • www.nistm.org

National Institute for Animal Agriculture Annual Conference
April 8–11, Des Moines, IA • www.animalagriculture.org

National Renderers Association Spring Meeting
April 9–11, Chicago, IL
Email Marty Covert at co@martycovert.com

Pet Food Forum
April 29–May 1, Kansas City, MO • www.petfoodforumevents.com

May

Animal Agriculture Alliance 2019 Stakeholders Summit
May 8–9, Kansas City, MO
www.animalagalliance.org/summit

Visit www.rendermagazine.com for a complete updated list of industry meetings and digital copies of past issues.

By David L. Meeker, PhD, MBA
Research Director, Fats and Proteins Research Foundation

Research Investments Yield Benefits

Several Fats and Proteins Research Foundation (FPRF) projects were recently completed and each yielded useful results for renderers. Several additional projects and initiatives are underway that will improve the rendering world. FPRF research benefits all renderers, and all renderers are encouraged to be involved.

Effect of Different Fat Sources and Vitamin E Status in Swine

Dr. Merlin D. Lindemann and his colleagues at the University of Kentucky studied a variety of energy sources commonly added to swine diets, Vitamin E supplementation, and their influence on performance and pork quality. The effect of a fat source on the pig itself, as well as the ultimate pork quality, is a function of the amount of fat in its diet and the amount of time the pig is fed the particular fat source. Vitamin E serves as an antioxidant and may improve the oxidative stability of pork and prolong its shelf life. This project was funded by the National Pork Checkoff, FPRF, and the DSM company. Key findings were:

- Dietary Vitamin E supplementation improved growth performance, antioxidant status, and meat oxidative stability of pigs, but not carcass characteristic and meat color in pigs grown to 150 kilograms (kg).
- Dietary fat sources affected lean growth, fat deposition, belly firmness, pork oxidative stability, tissue fatty acid profile, and antioxidant status in pigs grown to 150 kg.
- Dietary Vitamin E supplementation interacted with dietary fat sources on plasma Vitamin E concentration. Plasma Vitamin E concentration generally increased in pigs fed for a longer period of time with 200 international units/kg Vitamin E, but it elevated faster in pigs fed with supplemental tallow or coconut oil compared to pigs fed with supplemental corn oil or no added oil.
- Dietary Vitamin E supplementation affected both liver and muscle tocopherol content, but it affected liver tocopherol content that would impact overall body antioxidant status to a greater degree (which influences pork quality).
- Pigs fed any fat-added diet used less feed for each unit of weight gain compared to pigs fed a diet without additional fat.

Altering the dietary fatty acid profile by adding different fat/oil sources altered meat quality related to the fatty acid profile of fat tissues and liver. Interactions between fat sources and Vitamin E supplementation in plasma, Vitamin E concentration, and several other measurements were occasionally observed. More details care available from FPRF.

Deriving Keratin from Hog Hair for Value-added Products

Dr. Ken Tasaki of Tomorrow Water, a private research firm in Los Angeles, California, worked on a project last year called "Extraction of keratin from animal body parts for cosmetic and biomedical applications." Keratin is a common protein in animal parts, such as in hair, wool, nails, and skin, but is difficult to hydrolyze and has poor digestibility as feed. Hog hair, in particular, is challenging for renderers to deal with. Keratin-based animal parts are also hard to degrade, giving rise to environmental concerns. On the other hand, the global keratin market is expected to grow considerably over the next five years, primarily due to its increasing demand in the personal care and cosmetic industry. Difficulty in extracting keratin protein, however, is an obstacle for large-scale production. This project aimed to investigate an alternative thermal hydrolysis process for keratin extraction that is quicker and cheaper than conventional methods.

Tasaki demonstrated it is possible to extract keratin from hog hair without the use of chemicals by using only water at high temperatures and under high pressure. The temperature was varied from 160 to 220 degrees Celsius (°C) (320 to 428 degrees Fahrenheit [°F]), while the pressure changed from 88 to 316 pounds per square inch. The pressure corresponded to the saturate vapor pressures of each operation temperature. The highest keratin recovery yield, 67 percent, was achieved at 200°C (392°F) for one hour after preheating at 140°C (284°F) for one hour among different conditions. The recovery yield was estimated relative to the original protein content in the hog hair and is higher than many conventional, chemical, or enzymatic processes.

There is a trade-off between the high cysteine residue content and high recovery yield when thermal hydrolysis process is applied for keratin extraction. Further study is warranted to examine how high the cysteine residue content can be increased by adjusting the reaction conditions including pretreatments of raw materials. More research is also required to understand how high the cysteine residue content should be for keratin hydrolysates to be used for commercially successful cosmetic products.

Tasaki said that since the proof of concept has been realized, he will focus on the commercialization of the new process. Further information is available in the FPRF report.

Preventing *Salmonella* in Animal Fat

Drs. Cassie Jones and Valentina Trinetta from Kansas State University recently finished a project titled "Assessing factors affecting *Salmonella* in poultry fat," funded jointly by the Pet Food Institute (PFI) and FPRF. The research was well received by the pet food industry and will lead to continued cooperation. The research showed that:

- *Salmonella* harborage and growth in poultry fat is impacted by a multitude of factors, including form of contaminant (i.e., dry versus wet), level of contamination, storage temperature, and moisture.
- If storing poultry fat at 48°C (118°F), care should be taken to prevent *Salmonella* cross-contamination as

the adulteration may persist for several days, well beyond transportation and delivery.
- Keeping poultry fat at high temperatures (76°C, 168°F) can help prevent adulteration via post-processing cross-contamination that may serve as a prevention activity at pet food facilities.

Additional details are available in the FPRF research report.

What Happens to Pentobarbital in Animal Carcasses?

Dr. Brett A. Sponseller and his colleagues at the Iowa State University Veterinary College have been studying the presence, tissue distribution, and concentrations of residues from pentobarbital administration for euthanasia in livestock. They also examined potassium chloride (KCl) as a possible euthanasia alternative. This study population consisted of 13 horses, 6 cows, and 5 pigs. Data collected before euthanasia included species, age, weight, breed, sex, standardized body condition core, and treatment history. During the euthanasia process, the time, route, and amount of sedatives, tranquilizers, and barbiturates were recorded. The cattle and swine were euthanized with pentobarbital. The horses were euthanized with either pentobarbital or KCl. Key findings were:

- Pentobarbital was found in all tissues of treated animals, with highest levels being found in the kidneys, and it is not known if those amounts can be decreased by high temperatures.
- The results mean that renderers cannot use any pentobarbital-treated animal or parts of a treated animal under the current zero tolerance regulation.
- There was no significant difference in tissue KCl levels between the animals euthanized with KCl and those euthanized by other means.

The FPRF research report will soon be available and will contain more data.

Rendering Center at Clemson University

The Animal Co-Products Research and Education Center (ACREC) at Clemson University continues to give FPRF the ability to focus research and provide sustainable funding in areas of inquiry important to renderers while developing a cadre of researchers familiar with rendering. This endeavor has produced useful research results in food safety, product quality, new uses, and new technologies, all important to marketing rendered products competitively worldwide. Watch this space in future issues of *Render* magazine for updates from ACREC.

Virtual Center Concept Coordinated by Colorado State University

The National Renderers Association (NRA) is working to strengthen relationships with the pet food industry and ensure rendering industry participation in this strong market long into the future by working together to solve joint problems in policy, procedures, and research. For a new research approach, FPRF entered into a five-year agreement in 2017 with Colorado State University (CSU) to coordinate the new Pet Food Alliance, although researchers from many universities will be involved. The mission for the CSU/FPRF Pet Food Alliance is to bring together members of the pet food, meat, and rendering industries to collaboratively develop implementable solutions for industry challenges and identify opportunities for innovation, growth, and mutual achievement. The ultimate success of the Pet Food Alliance will depend on these central pillars:

- Uniting members of the pet food, meat, and rendering industries.
- Engaging and encouraging widespread participation from industry members.
- Facilitating research guided by industry input to address real-world industry challenges.
- Establishing multidisciplinary collaborations with academia and businesses across the country.
- Proactively engaging in building industry sustainability across all efforts.

In several meetings so far, plans have been developed on these action items:

Salmonella and Product Safety

- Completion of transportation gap assessment for rendering and pet food industries.
- Continue efforts to train/educate plant employees on foreign materials handling.

Oxidation and Product Quality

- Call for research proposals to better understand oxidation challenges (i.e., matrix issues, analytical variations, and interpretation of results).
- Continue efforts on validation of extraction methods.
- Continued communication between the rendering and pet food industries.

Sustainability and Consumer Perception

- Work with existing NRA and PFI members, and academic partners, to enhance internship programs to engage young people in career development.
- Develop strategies regarding consumer perception of rendered products and pet food.
- Continue efforts to revisit nomenclature to improve customer understanding and acceptance.

This is a dynamic process that will evolve and change as needs dictate. The Pet Food Alliance is still early in the development stage and new participants are welcome. **R**

By Mark A. Lies II, Seyfarth Shaw LLP

OSHA Liability 2019: Merrily We Roll Along

Editor's note—Mark A. Lies II is an attorney and partner in the Workplace Safety and Environmental Group in the Chicago, Illinois, office of Seyfarth Shaw LLP. He 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.

As 2019 gets underway, it is important to look back at what occurred in 2018 under Occupational Safety and Health Administration (OSHA) regulations to learn from events and modify responses to scenarios that are likely to arise this year. This article will identify several salient compliance issues likely to arise in 2019 and provide recommendations.

OSHA Enforcement in 2018

In 2018, OSHA essentially continued to operate as it had during President Barack Obama's administration since no new Assistant Secretary of Labor for OSHA had been nominated by President Donald Trump and approved by Congress to replace Dr. David Michaels after he departed in January 2017. As a result, OSHA career workers continued to operate as they had in the past. For those employers with nationwide operations, it was very common in 2018 for OSHA regulations to be enforced inconsistently from one regional or area office to another because there was a lack of central direction from Washington, DC. This inconsistency was further complicated by a continued significant number of career baby-boomer retirements at OSHA regional or area offices, as well as in the solicitor's office, which prosecutes citations.

This inconsistency was also evident within state plan OSHA programs. An employer could expect to be treated with different interpretations of the underlying federal OSHA regulations depending on whether it is cited (for example) in Indiana, Michigan, Minnesota, Nevada, or Washington. State plan regulations often do not recognize federal interpretations of federal regulations or case law from the OSHA Review Commission or federal courts, resulting in further uncertainty. Employers also need to be aware that state plan OSHA programs have or are developing their own regulations that may create additional compliance duties.

OSHA Experience in 2018

The following are areas of immediate concern in 2019 based upon 2018 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. Since employers are frequently unaware of these rights, they never inform employees of these rights or prepare employees for interviews, or consider "debriefing" them after interviews. Similarly, many employers do not know what documents they are required to maintain and produce for OSHA, often supplying documents containing information that is outside OSHA's authority, or the proper scope of the OSHA inspection, which results in citations. More serious is the fact that employers often will produce documents that are "legally privileged" from disclosure because the employer has engaged legal counsel. This waives important legal privileges for documents, including post-accident investigations that were done under the direction of legal counsel.

OSHA Log Production: During the course of OSHA inspections, the agency will typically request the OSHA 300 Log, Form 301, and Form 300A. Many employers are unaware that regulations require producing these documents within four hours of the request. If not made available within this timeframe, or OSHA specifically confirms that it waives the requirement, the employer will receive a citation with a monetary penalty. In some jurisdictions, OSHA has cited employers with penalties up to $12,000 for not providing the log documents in a timely fashion.

OSHA 300A Submission: On or before March 2, 2019, certain employers are required to submit their 300A injury and illness data electronically to OSHA. The directions for submitting the data are available on OSHA's website at www.osha.gov/injuryreporting. OSHA logs are maintained on the basis of individual worksites, or "establishments," and not upon an employer's entire workforce. Only a small fraction of establishments are required to electronically submit their Form 300A data to OSHA. Establishments that meet any of the following criteria do not have to send their information to OSHA:

- The establishment's peak employment during the previous calendar year was 19 or fewer employees, regardless of the establishment's industry.
- The establishment's industry is on OSHA's list (available on its website), regardless of the size of the establishment.
- The establishment had a peak employment between 20 and 249 employees during the previous calendar year and the establishment's industry is not on this list.

Remember, these criteria apply at the establishment level, not to the employer as a whole.

Post-incident Drug Testing: In 2018, OSHA modified its previous policy that significantly restricted an employer's rights to conduct post-incident drug testing. For years, OSHA's position on post-incident drug testing confounded employers, and employers faced complicated questions in the stressful hours following workplace safety incidents involving an employee injury. OSHA's Standard Interpretation now clarifies that "most instances of workplace drug testing are permissible," including:

- random drug testing;
- drug testing unrelated to the reporting of a work-related injury or illness;

- drug testing under a state worker's compensation law;
- drug testing under other federal law, such as a Department of Transportation (DOT) rule; and
- drug testing to evaluate the root cause of a workplace incident that harmed or could have harmed employees.

Accordingly, employers may lawfully implement random drug testing programs, DOT drug testing programs, drug testing programs under a collective bargaining agreement, and post-incident (also post-accident) drug-testing programs. Post-incident drug testing should be conducted consistently on any employee whose conduct may have contributed to an accident and not merely the employee who was injured in that accident. For example, if a forklift operator collides with a pedestrian and injures that pedestrian, both the operator and pedestrian should be drug tested. OSHA reiterated that employers may not use a post-injury drug testing program (which the agency would view as retaliatory) to discipline an employee solely because the employee sustained injury. Discipline administered for merely sustaining a workplace injury may also expose an employer to worker's compensation retaliation claims. Any discipline should focus on violations of an employer's policy prohibiting an employee from using drugs or being impaired, as well as the violation of safety policies, and not on the fact that the employee sustained an injury.

Employer Safety Incentive Programs: OSHA's Standard Interpretation also reverses course on the 2016 retaliation regulation's prohibition of safety incentive programs. With limited adjustments, OSHA now permits employers to bring back reporting-based safety programs, which the Standard Interpretation lauds as an "important tool to promote workplace safety and health." The standard permits a program that offers a prize or bonus at the end of an injury-free month, thus allowing employers to bring back cash bonuses or the much-criticized monthly pizza party. It also permits programs that evaluate managers based on their work unit's lack of injuries.

To lawfully implement such a safety program, however, the employer must implement "adequate precautions" to ensure that employees feel free to report an injury or illness and are not discouraged from reporting. OSHA's primary concern is the discouragement of employees from reporting injuries because those employees do not want to forfeit the prize or other benefit. According to OSHA, a mere statement that employees are encouraged to report and will not face retaliation if they do is insufficient. Employers need to adopt additional "adequate precautions" that will undercut any inference of a retaliatory motive, such as:

- an incentive program that rewards employees for identifying unsafe conditions in the workplace;
- a training program for all employees to reinforce reporting rights and responsibilities that emphasizes the employer's non-retaliation policy;
- a mechanism for accurately evaluating employees' willingness to report injuries and illnesses; and/or
- a statement that the employer will investigate the accident, and if it is determined that the accident was not due to the employee violating the employer's safety and health policies, the prize or other benefit will be reinstated.

The Standard Interpretation thus permits and encourages safety incentive programs that reward employees for identifying unsafe conditions in the workplace. A second precaution, a brief training on reporting illnesses and injuries, would be simple for employers to conduct and add to new hire orientation. The "mechanism for accurately evaluating employees' willingness to report" could be a regularly scheduled, random questionnaire on employee willingness to report injuries and illnesses. Accordingly, if employers adopt these low-burden precautionary measures, they may now bring back or adopt popular safety programs that are effective at reducing workplace injury rates.

OSHA Citation Penalties: OSHA has announced it will evaluate its proposed penalty structure on an annual basis. While no employer wants to accept citations that are not factually or legally accurate, they sometimes do so for expediency. Employers must be aware that every citation it accepts (including other-than-serious) can be used as a basis for repeat citations in the subsequent five years if there is another "substantially similar" violation (or for a willful violation).

In 2019, OSHA revised its penalty structure with increases in the penalty amounts to the following:

- Serious, other-than-serious, and posting requirements: $13,260 per violation
- Failure to abate: $13,260 per day beyond the abatement date
- Willful or repeated: $132,598 per violation

Particular Hazards

Following are some of the more frequent hazards encountered in 2018:

Lockout/Tagout and Machine Guarding: In most cases, employers are required to have a written logout/tagout procedure for each piece of equipment where energy sources must be de-energized prior to performing servicing or maintenance. In 2018, many employers were found to be lacking these procedures, were not aware of the current procedure, or had never trained employees how to use them. Other employers did not conduct the required annual periodic inspections and maintain the required documentation. Regarding machine guarding, many employers failed to conduct a job hazard assessment to identify whether guarding was necessary or adequate, or worse, failed to enforce keeping guards in place. As a result, there were many fatalities and amputation injuries.

Powered Industrial Trucks: Employers cannot allow employees to operate powered industrial trucks (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 for failure to train PIT 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 frequently result in serious injury or death.

Personal Protective Equipment (PPE): Employers are required to conduct a written assessment to identify hazards

Continued on page 31

New Communications Director at NRA

Anna Wilkinson has been named director of communications for the National Renderers Association (NRA) and Fats and Proteins Research Foundation (FPRF). She brings extensive experience in public relations, marketing, and media relations to the rendering industry.


Anna Wilkinson

Before joining NRA, Wilkinson worked for several transportation, waste disposal, and recycling companies where she directed their communications programs. She graduated from Marymount University in Virginia with a bachelor's degree in communications and a minor in art.

In her new position, Wilkinson will be responsible for expanding and executing the overall communications strategies of NRA and FPRF. She was drawn to the association after learning about rendering's sustainability and zero-waste impact. Wilkinson will be attending the International Production and Processing Expo in Atlanta, Georgia, in mid-February, for the opportunity to meet with many in the industry.

Dupps Delivers Rendering Cooker, Recognized as Healthy Workplace

The Dupps Company's Brazilian subsidiary, Dupps do Brasil, has manufactured and delivered what is believed to be the largest rendering continuous cooker in Latin America. The Dupps Model 440U Supercookor, delivered to a major rendering facility in Buenos Aires, Argentina, can process up to 35 metric tons—over 77,000 pounds—of raw material per hour. The pressure vessel measures nearly 50 feet long.

"In North America, the Dupps Supercookor has become an icon of durability and efficiency," said Leandro Ferreira, director of Dupps do Brasil. "We had to make a machine that is just as robust and reliable, a machine that can operate continuously 24 hours a day, seven days a week."


Dupps' new 440U Supercookor

Dupps do Brasil serves renderers throughout South America with the complete line of Dupps equipment as well as an experienced staff of maintenance and repair specialists. The firm's manufacturing facility is in Mauá, Sao Paulo. Dupps is headquartered in Germantown, Ohio.

In the United States, Dupps was honored by the American Heart Association (AHA) with Gold Level Workplace Health Achievement recognition. The company was one of only 23 businesses nationwide of its size to earn the AHA's highest level of recognition based on an assessment that measures both the health of an organization's workplace and the health of its workforce.

According to Melinda Hardin, human resources/well-being coordinator at Dupps, "The American Heart Association was very thorough in their evaluation of both our company's wellness efforts and our workforce's adoption of a healthy lifestyle. While it's wonderful to be recognized as a company with this award, we couldn't be prouder of all the people here who have taken positive steps toward better health." Dupps' Commit 2B Fit program of healthy activities includes on-site health screenings, in-house health provider care, wellness counseling, and financial incentives for maintaining a healthy lifestyle.

In addition to this latest recognition by the AHA, Dupps received the 2018 Dayton's Healthiest Employers Award, the 2018 Ohio Healthy Workplace Award, and the 2018 Fabricators and Manufacturers Association Safety Award of Merit.

Darling Opens Fertilizer Plant

Darling Ingredients Inc. has opened a second organic fertilizer production facility in Turlock, California, on a 21-acre site that will produce 35,000 tons of the company's Nature Safe Natural and Organic Fertilizer product annually. The new plant will also provide 4,500 tons of storage capacity to meet the needs of organic growers operating in the entire western region of the United States.

Darling has operated Nature Safe out of its original Henderson, Kentucky, plant since the early 1990s, where it will continue to produce its premium fertilizer for customers in the rest of the country. The strength of the organic fertilizer market in the western United States has the company already working on plans to double the new Turlock plant's production capacity by the end of this year.

REG Names Leader

Cynthia "CJ" Warner has been named president and chief executive officer of Renewable Energy Group Inc., effective January 14, 2019. Randy Howard, who has served in both positions since July 2017, will remain on the board, a position he has held since February 2007, and assist in the transition.

Warner brings more than 35 years of experience in the energy industry, including an extensive background in refining. Most recently she served as executive vice president, operations for Andeavor (formerly Tesoro Corporation), an integrated marketing, logistics, and refining company. Previously, Warner served as executive vice president, strategy and business development of Andeavor, and before that she served as president, chief executive officer, and chairman of the board of Sapphire Energy, a biofuels company. Warner has also worked for BP (British Petroleum) and is currently a member of the IDEX Corporation Board of Directors and a member of the National Petroleum Council. **R**

Law *Continued from page 29*

that require PPE (i.e., gloves, eye protection, foot protection, etc.), certify the assessment, and certify that the PPE was provided. In addition, employers must enforce the use of PPE. Many employees sustained serious injury because PPE was never provided, employees were not trained how to use it, or the employer did not enforce its use.

Fall Protection: Employers are required to protect employees against fall hazards. 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 of roofs, mobile equipment, interior structures, machinery, truck trailers, towers, and other elevated equipment.

Hazardous Substances (Employee Right to Know): Employers must provide hazard communication training to employees working with hazardous substances and document such training. There are also requirements for labeling. The failure to provide this training has resulted in employee exposure to hazardous chemicals or other substances that may be in the worksite. Employers were cited for failing to train employees about how to understand Safety Data Sheets, where they are located, and how to access them. Employers also failed to maintain an inventory of the data sheets for all hazardous substances at the worksite.

Multi-employer Worksites: Another significant liability that many employers are unaware of is the "multi-employer worksite" doctrine, which exists where there are a number of employers at the same worksite. Each employer has OSHA duties not only to its own employees, but also to other employer's employees at the site depending on whether the employer:

- creates the hazard for other employees;
- exposes the other employees to the hazard;
- is responsible to correct the hazard to which the other employees may be exposed; or
- has control over the worksite or a particular hazard, typically the owner of the worksite, a general contractor, or a subcontractor with a sub subcontractor.

Many employers are totally unaware of these liabilities and fail to take appropriate action to protect other employees who may be at the worksite, including independent contractors and temporary staffing employees.

General Duty Clause—Expanding Liability

In addition to its formal regulations, OSHA can cite employers for "recognized hazards" likely to cause serious injury or death. To be compliant, an employer must be vigilant to such hazards and develop feasible means to protect its employees. There has been considerable OSHA citation liability for hazards, including:

- Workplace violence (several states have developed regulations to address this hazard)
- Heat illness (rash, cramps, exhaustion, and heat stroke)
- Electric arc flash/blast (exposure to energized electrical equipment)
- Ergonomic stressors (repetitive motion, awkward motions, extreme temperature environment)

Employers are required to maintain their OSHA 300 Log for such hazards when recordable. The General Duty Clause also requires employers to investigate each incident and take feasible corrective action.

OSHA Informal Conferences

Many employers fail to adequately prepare for the OSHA informal conference after citations are issued. Unfortunately, many miss the typical 15 working day period (state plan program time periods may vary) to attend a conference, file a written contest, or appeal the citation, and it becomes a final court order. In other instances, employers do not adequately prepare for the conference to assert their factual and legal defenses, so when they attend, they cannot articulate their defense and OSHA is not motivated to vacate or amend the citations. Worse yet, many attend and make "admissions" of liability that support the violation.

Many employers are unaware that every accepted citation creates a five-year period going forward, during which time any subsequent violation that is "substantially similar" can result in a repeat citation with significant penalties. In so doing, employers who accept citations for reason of expediency that should have been contested, risk a potential legal minefield that may be created in the subsequent five year period.

Conclusion

Hopefully, employers can learn from their own unfortunate experiences, or those of others, to avoid repeating errors that result in accidents or regulatory liability in 2019. We wish everyone a safe and prosperous New Year. **R**

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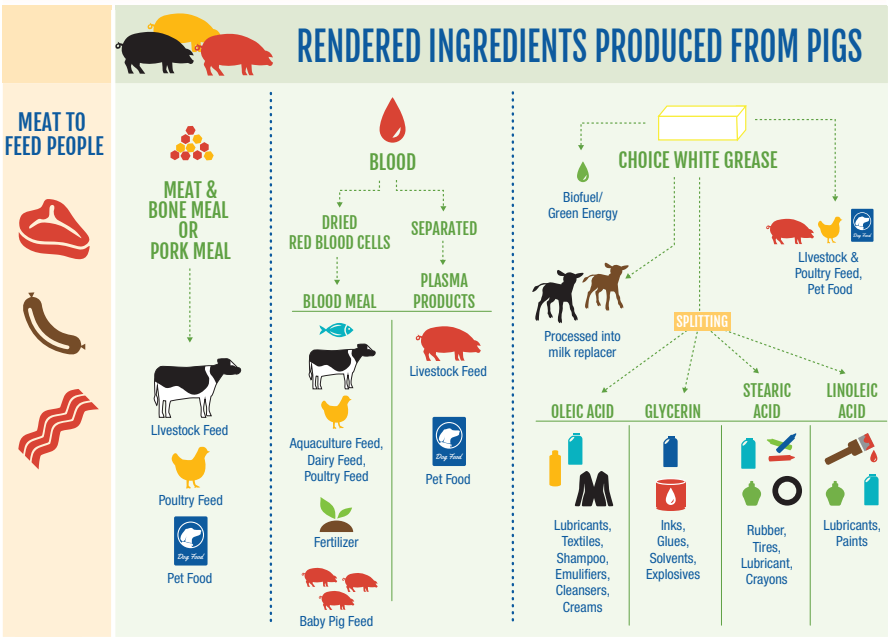

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