

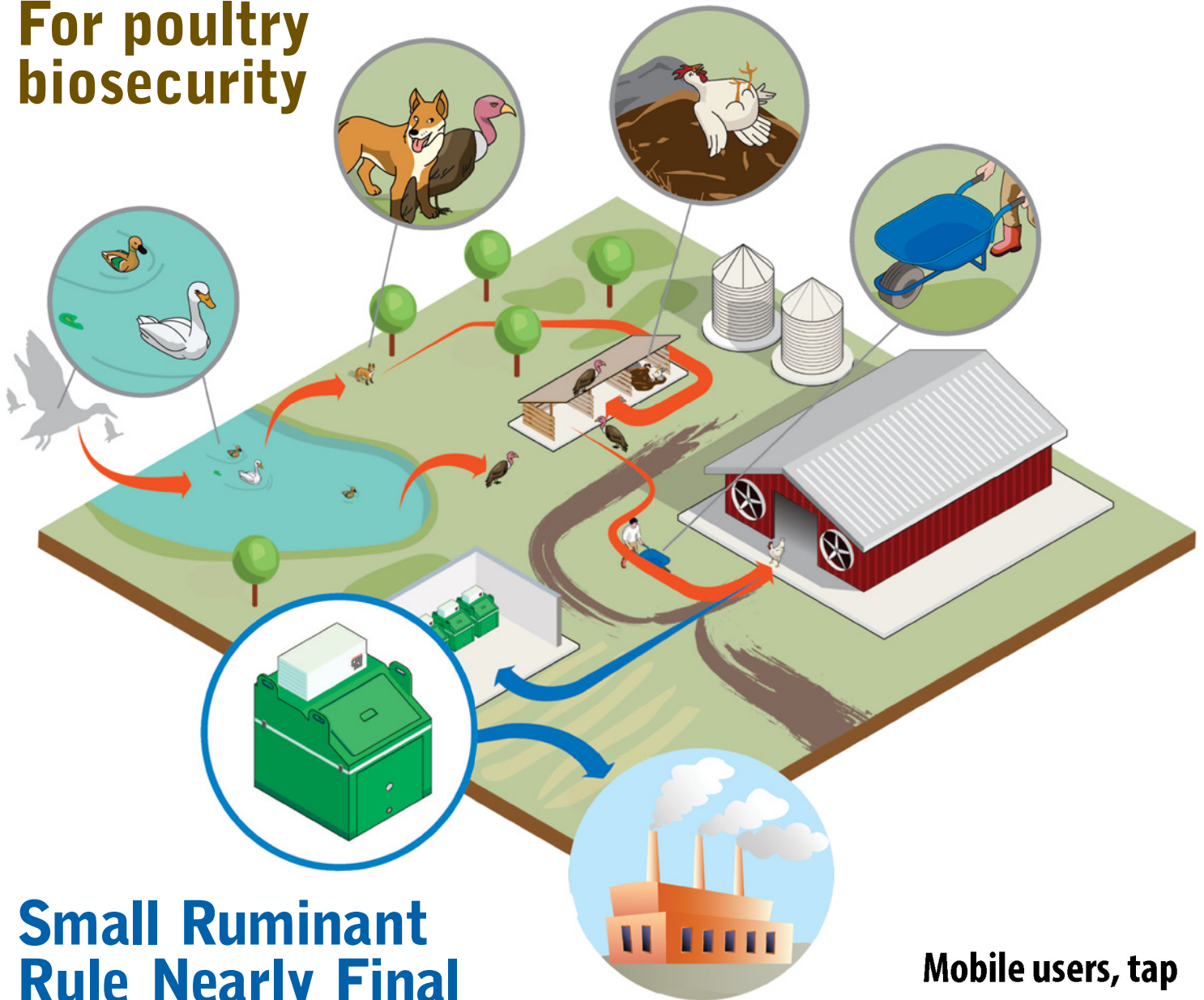
Render

The International Magazine of Rendering

October 2016

Freezing vs. Composting

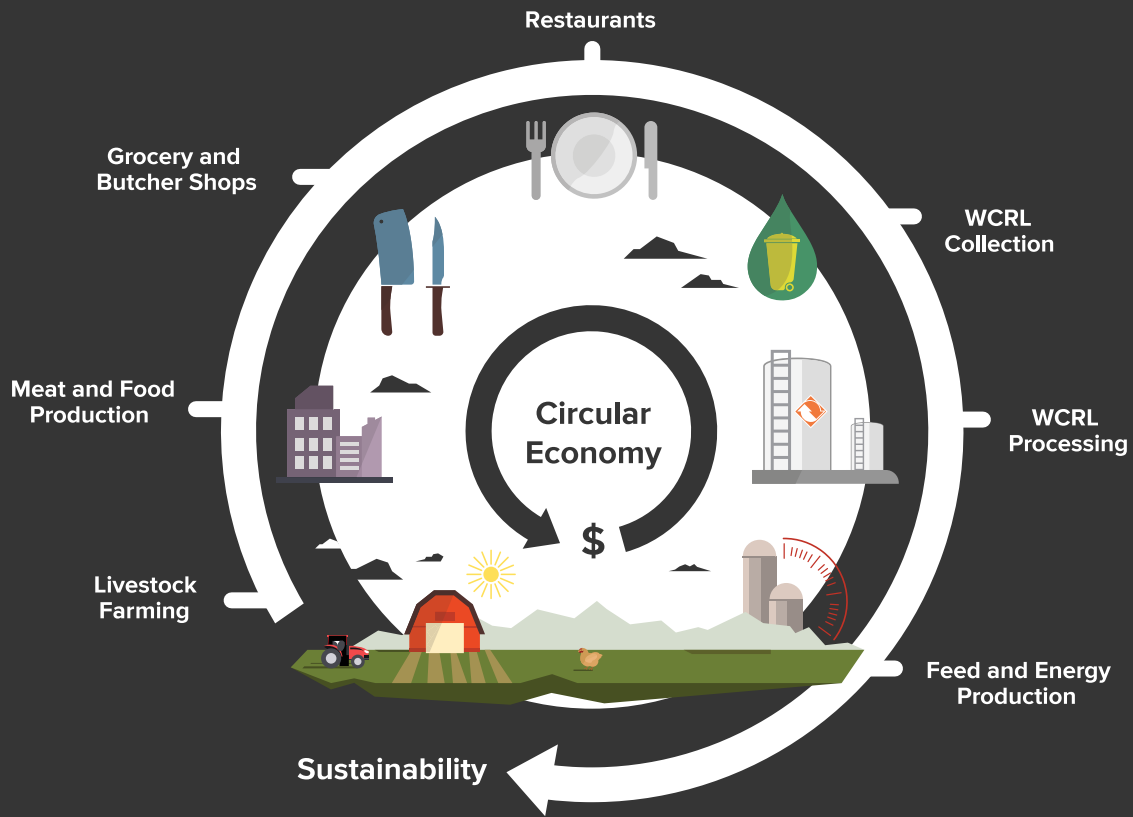
For poultry biosecurity



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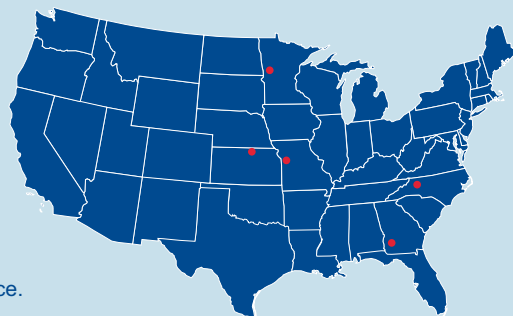
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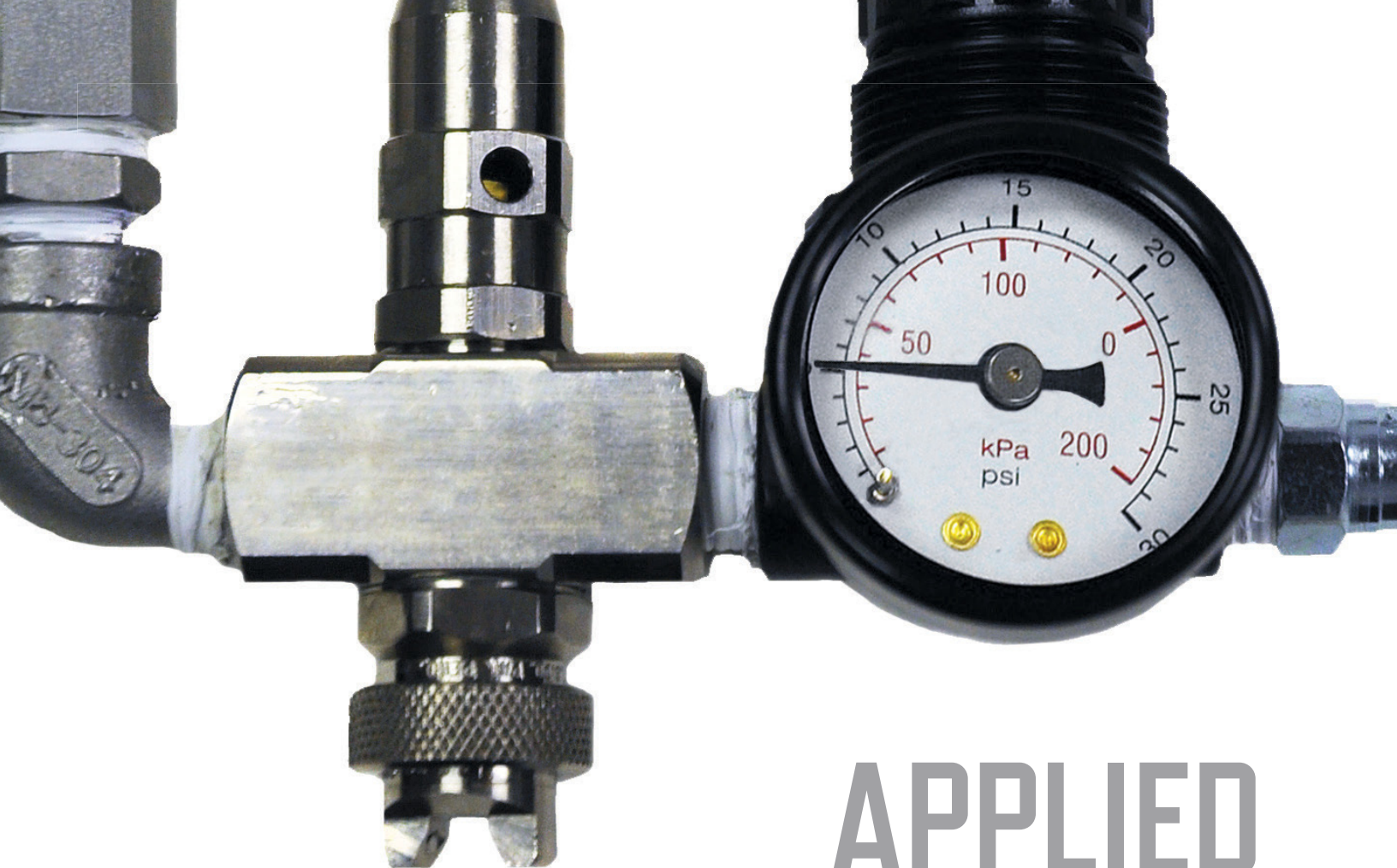
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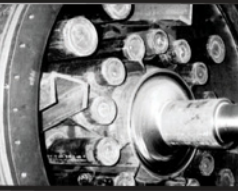

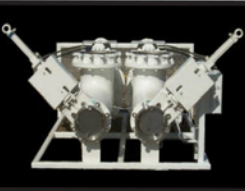
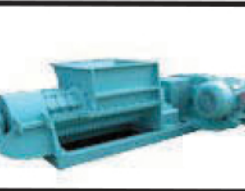

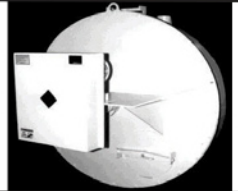
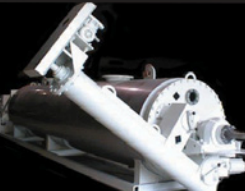


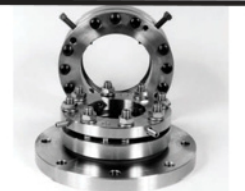
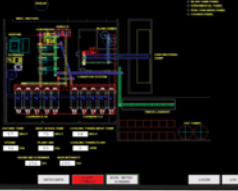









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Render (ISSN 0090-8932) is published bimonthly under the auspices of the National Renderers Association by Sierra Publishing, 1621 Glen Dr., Placerville, CA 95667 as a public service to the North American and global rendering industry. It is intended 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.

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Printed in USA

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

Renderitorial

Writer's block is real and something this editor was suffering from for this column when suddenly, bam, it hit like a cold shower. Could it really be? Yes! This October issue marks 20 years I have served as editor and publisher of *Render* magazine. Wow, time really does fly when you are having fun!

Twenty years ago I stepped into some pretty big shoes when *Render's* only other editor and publisher, Frank Burnham, put down his pen after 25 years at the helm. Under his leadership, *Render* won two publishing awards in the 1970s and became the premier magazine for the North American rendering industry. Burnham also wrote the industry's first book, *Rendering: The Invisible Industry*, in 1978, which opened another door for educating others on the valuable services renderers provide.

Twenty years ago renderers in the United States and Canada were dealing with the emergence of bovine spongiform encephalopathy, a term that took months for this new editor to pronounce, let alone spell. Regulations soon followed and continue to be revamped to ensure the safety of rendered products in North America's animal food supply.

Twenty years ago this editor was meeting new people, who have now become like family. No surprise there as the rendering industry is one big family, working toward the common good of producing valuable, quality, safe feed and fuel ingredients for a growing and hungry world.

Twenty years ago *Render* was the "national" magazine of rendering. Today, its "international" tagline shows how rendering has become a global industry and that *Render* has evolved to become the premier magazine for renderers and their customers, livestock and meat producers, feed manufacturers, and regulators worldwide.

The support *Render* has received – from the industry, readers, and especially the advertisers who make publishing this magazine possible – over the past 20 years is incredibly appreciated. Your involvement has ensured a quality product is delivered six times a year.

I cannot imagine working for a greater group of people. **R**



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Trade Dilemmas

Almost as much as it craves cheap feed and low energy prices, United States (US) animal agriculture covets robust, ever-expanding export markets. The ability to sell large quantities of domestic meat production overseas offsets relatively saturated domestic markets and provides farmers and ranchers a sure-fire formula for expansion. This animal production growth phenomenon conveys the same sales expansion benefit to farm and ranch input suppliers, providing the opportunity for feed companies, ingredient suppliers – including renderers – and others to grow sales as well. Simply put, the more livestock and poultry being grown, the better it is for all industries who call farmers and ranchers either “customer” or “supplier.”

Administrations of both political stripes have for decades proudly pointed to US agricultural trade as the lone bright spot in this country’s overall balance of trade. In nearly every State of the Union speech since he took office, President Barack Obama has singled out growing agricultural exports. Most recently, Secretary of Agriculture Tom Vilsack rolled out the US Department of Agriculture’s (USDA’s) relatively rosy export outlook, the headline being that fiscal year (FY) 2017 exports overall will hit \$133 billion, a much-improved forecast from earlier this year.

USDA reports the \$133-billion export forecast is \$6 billion higher than expected based mainly on higher projected exports of livestock, dairy, poultry, oilseeds, horticultural goods, and cotton. The US ag trade surplus will hit \$19.5 billion, up 40 percent from \$13.9 billion in FY 2016. China will return as the biggest US customer, according to USDA, buying an expected \$3.5 billion in ag products, particularly pork, soybeans, and tree nuts. Oilseeds and product exports will hit \$31 billion on record soybean exports and higher values. Grain and feed exports at \$29.3 billion are unchanged, while wheat exports at \$5.1 billion are \$100 million higher than FY 2016.

The export outlook is welcome news to an animal agriculture industry beset the last few years with both global overproduction, hitting US dairy exports particularly hard, and sudden non-tariff trade barriers. The latter includes Russia’s ongoing meat import ban in its vaunted pursuit of food self-sufficiency and China’s fiddle-faddle over the use of biotechnology in US pork and poultry production, even as it proudly announces it will build its beef industry using cloning.

The optimistic US export forecast should be the icing on the cake given two major trade deals are in the pipeline. The first, the Trans-Pacific Partnership (TPP), a 12-nation Pacific Rim treaty representing more than 40 percent of global gross domestic production, is much coveted by US livestock and poultry producers as it grants greatly-expanded access to Asian markets dominated by China and undercuts China’s sales domination in Asian markets. The second treaty is the Transatlantic Trade and Investment Partnership (TTIP), a historic attempt to forge a bilateral trade deal between

the world’s largest economic entities, the United States and European Union (EU).

TPP is almost ready for prime time. The White House has begun the process of formally submitting the agreed-to trade pact to Congress for final approval on a straight up or down vote, hopefully before Obama leaves office. TTIP is in mid-gestation. While both are critical parts of Obama’s international policy and trade legacy, and potentially significant shots in the arm for the domestic economy, congressional leadership says TPP won’t be voted on this year. European leaders also say TTIP won’t be ready for consideration while Obama is in office. Both treaties face significant political danger of either being killed outright, allowed to die quiet deaths, or being significantly delayed. Any way you cut it, their individual or joint demise means the US economy could potentially lose billions in world trade.

TPP, worth hundreds of millions of dollars to US industry, particularly agriculture, began as an expansion of the Trans-Pacific Strategic Economic Partnership Agreement, originally signed in 2005 by Brunei, Chile, New Zealand, and Singapore. When the United States smelled economic and political advantages in late 2008, it joined the effort and over time brought in Australia, Canada, Japan, Malaysia, Mexico, Peru, and Vietnam. Given the final treaty includes new membership rules, Taiwan, the Philippines, Colombia, Thailand, Laos, Indonesia, Cambodia, Bangladesh, and India have expressed interest in joining the TPP club.

The final TPP negotiated deal was signed by the United States and other participating countries on February 4, 2016, four years later than planned and ending seven years of rough-and-tumble negotiations. The treaty’s 30 chapters are designed to lower non-tariff and tariff barriers and create an investor-state dispute settlement system. Overall, the treaty will “promote economic growth; support the creation and retention of jobs; enhance innovation, productivity, and competitiveness; raise living standards; reduce poverty in the signatories’ countries; and promote transparency, good governance, and enhanced labor and environmental protections.”

Lastly, existing trade deals among TPP countries, such as the North American Free Trade Agreement (NAFTA), are supposed to shrink to cover provisions not in conflict with TPP or parts that might provide greater trade liberalization than TPP. The United States, for one, considers TPP a companion agreement to TTIP.

However, unless you cared about boosting US exports of everything from pork chops to automobiles, TPP wasn’t on your political radar for most of the last seven years. That is until it appeared the treaty would actually be finalized. At that point, the Obama White House awoke to the reality it needed what is called trade promotion authority (TPA) to get the prospective treaty through Congress. TPA is authorized by Congress. The National Renderers Association, others in agriculture, and

general business communities lobbied hard and successfully to get the president TPA authority, a perk enjoyed by every president since Ronald Reagan. TPA permits the administration to negotiate trade deals based on parameters and priorities set by Congress. In return, Congress surrenders its right to amend the final document, voting simply aye or nay when the deal comes up for ratification.

The White House was doubly shocked when shots off Capitol Hill aimed at TPP did not come from conservative Republicans eager to deny Obama a major trade and foreign policy victory. Rather, they came from Democrats who had their collective nose out of joint because the president did not consult with them adequately before signing off on the TPP deal. The president's allies on all things political took him to the woodshed on TPP, contending publicly the treaty did not provide sufficient US jobs protection or protect the environment, assertions echoed by labor unions and environmental groups.

Adding insult to injury, TPP morphed into the poster child for emerging US anti-globalism. Both Democrat presidential candidate Hillary Clinton and GOP presidential contender Donald Trump regularly use TPP as a campaign punching bag. Clinton has not abandoned the deal – after all, she did, while Obama's secretary of state, call TPP the “gold standard” of trade treaties – but now she says the treaty needs to be fixed. Trump simply does not trust multi-national trade deals (e.g., NAFTA), contending the United States always gives away more than it gets. For his part, he wants the United States to abandon TPP and renegotiate NAFTA.

Vilsack remains the treaty's main political cheerleader, at least from the administration's side of the debate. He reminds his Democrat colleagues the deal is key to Obama's Asia/China foreign policy legacy. He also uses the new, more optimistic export projections as one more reason TPP must be ratified.

“The US has the opportunity to expand those [increased export] benefits even further through passage of new trade agreements...such agreements are key to a stable and prosperous farm economy,” Vilsack said. Unfortunately, that “reminder” is falling on deaf ears in an election year.

While agriculture and industry are working nonstop to try to convince congressional leadership TPP deserves its up or down vote during the post-election lame duck session, Senate Majority Leader Mitch McConnell (R-KY) and House Speaker Paul Ryan (R-WI) agree as of this writing that TPP is too controversial in an election year to bring to the floor. Labor unions and environmental groups are rapidly inserting increased job losses, prolonged global warming, and ultimate planetary ruination into the national campaign conversation on who should sit in Congress and the White House.

“The politics of trade have become rather toxic,” McConnell told the Kentucky Farm Bureau in September. “The current agreement, which has some serious flaws, will not be acted on this year but it will still be around. It can be massaged, changed, and worked on during the next administration.”

Ryan, who supports TPP, contends the Obama administration has provided too few details for Congress to

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FDA Extends Some FSMA Compliance Dates

The United States (US) Food and Drug Administration (FDA) continues to move forward implementing the Food Safety Modernization Act (FSMA). The first major compliance date was September 19, 2016, for large food facilities (more than 500 employees).

However, the agency issued a final rule on August 23, 2016, that extends the compliance dates by two years for providing customer assurances when controls are applied downstream in the distribution chain in four regulatory rules, including for animal food. These changes are part of the FDA's continuing efforts to make the rules as practical as possible while still protecting public health. This final rule addresses technical issues and better aligns compliance dates across the four rules.

The changes to the final rule impact the compliance dates for certain provisions in these four rules: the two current good manufacturing practice (CGMP) and preventive control rules for human and animal food, foreign supplier verification program, and produce safety.

The changes provide more time for manufacturers to meet requirements related to certain assurances that their customers must provide, more time for importers of food contact substances, and other extensions that align compliance dates for various other food operations or provide time for FDA to resolve specified issues.

Compliance dates for animal food producers for these provisions are now changed as follows:

- Small business (a business, including any subsidiaries and affiliates, employing fewer than 500 full-time equivalent employees): original date – September 17, 2018; extended date – September 17, 2020.
- A business that is neither small nor very small (having less than \$2.5 million in total annual sales of animal food, adjusted for inflation): original date – September 18, 2017; extended date – September 18, 2019.

The extra two years will allow FDA to develop guidance on how to conduct these assurances efficiently to avoid the expense of excessive letters being sent back and forth to conduct routine business.

According to the National Renderers Association, the original compliance dates were making it challenging to meet paperwork requirements, including:

- documentation provided by the manufacturer/processor to its direct customer that the food is “not processed to control identified hazard”;
- written assurance provided by the customer to the manufacturer/processor that the customer is manufacturing, processing, or preparing the food in accordance with applicable food safety requirements (written assurance provisions); and
- provisions relating to accountability for written assurances (accountability provision).

The original compliance dates were making it challenging to meet paperwork requirements.

The main provisions in the final FSMA rules remain unchanged. Compliance dates for large food facilities that produce animal foods are as follows:

- Animal food companies other than small and very small businesses must be in compliance with CGMPs under the “Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Food for Animals” rule by September 19, 2016, and with preventive controls by September 18, 2017.
- Small businesses (businesses, including any subsidiaries and affiliates, employing fewer than 500 full-time equivalent employees) must comply with CGMPs by September 19, 2017, and with preventive controls by September 18, 2018.

Draft Guidance

In late August, FDA also issued new draft guidance to help industry comply with certain requirements in the preventive controls for human food rule. The draft guidance available for public comment by November 23, 2016, involves five chapters of what will be multi-chapter guidance designed to help businesses comply with the CGMP and preventive controls for human food rule. The draft guidance explains FDA's stance on how to comply with the requirements for hazard analysis and risk-based preventive controls and includes a discussion about establishing a food safety plan.

The draft guidance affecting renderers, *Draft Guidance for Industry #235 - Current Good Manufacturing Practice Requirements for Food for Animals*, is intended to help facilities that manufacture, process, pack, or hold animal food for consumption in the United States comply with CGMP requirements in areas such as personnel, plant and grounds, sanitation, water supply and plumbing, equipment and utensils, plant operations, and holding and distribution. The guidance also includes information on training and related recordkeeping. The CGMPs required under the preventive controls for animal food rule are flexible to address the diversity of facilities and animal foods, the wide range of animal food activities, and the potential safety risks posed by some animal foods.

The draft guidance notice is available at www.federalregister.gov/articles/2016/08/25/2016-20300/guidance-current-good-manufacturing-practice-requirements-for-food-for-animals and the CGMP guidance document is posted at www.fda.gov/downloads/AnimalVeterinary/GuidanceComplianceEnforcement/GuidanceforIndustry/UCM499200.pdf. **R**

vote to approve or reject TPP and time is running out. One thing McConnell and Ryan agree on: there will be no TPP vote during 2016. This means a new Congress – whatever that looks like – and a new president will need to figure out what the next steps should be.

If the United States simply delays TPP, there is hope for a final deal. However, if Congress and/or the White House decide the deal must be renegotiated, then the task of getting all 12 nations to agree to sit down and renegotiate falls to the United States. No nation has ratified TPP, waiting for the United States to signal its approval first.

Turning to the other side of the world, US-EU negotiations on a free trade agreement have entered their third year and, depending on to whom you speak to, have yielded “good progress” or “gone nowhere.” When informed by the Office of the US Trade Representative (USTR) that US trade talkers and their EU counterparts would hammer out a deal to lower and eliminate tariffs and non-tariff trade barriers, harmonize regulations, etc., most trade veterans in Washington, DC, all nod knowingly with some asking, “In what century do we expect to see such a deal?”

Their skepticism is rooted in the fundamental cultural and regulatory differences between the United States and EU, particularly Europe’s attitude toward technology – both existing and emerging – and its use. The cynics contend the gaps are simply too wide to bridge.

As in all international trade negotiations, one of the major sticking points between the two economic giants is agricultural

trade. The use of biotechnology in plants and food crops – and the emergence of food animal biotech, including cloning and genetically engineered salmon – puts the European Parliament into a flutter, which immediately calls for – at worst – an outright ban, but at the least mandatory warning labels. The EU still bans the import of US beef if growth hormones have been administered and sets a quota on non-hormone beef, a situation US beef producers would like to see disappear.

On dairy, the EU is playing a hardball game of “geographic designations.” The National Milk Producers Federation (NMPF) is particularly irked – it has told USTR to abandon TTIP negotiations – by the EU’s insistence that only dairy products produced in certain cities and geographic areas of Europe can carry those place names on the label. The EU insists only cheese from Parma, Italy, could be called parmesan cheese, only pork from Denmark would be called a “Danish” ham, and so on. Any other nation could process and sell those products, but could only go so far as to label and sell them as “parmesan-like.” So dedicated to its position is the EU that it tried to get “geographic designators” inserted into TPP at the eleventh hour and failed. NMPF just got back from reinvigorating its relationship with industry counterparts in Mexico so that US NAFTA partners don’t embrace the EU position.

As to the overall pace of negotiations, USTR will indicate things are moving at a good clip while industry experts both here and in Europe say progress is almost indiscernible. Trade officials in France and Germany declared in mid-September that US-EU negotiations on TTIP are dead, and an analyst

Continued on page 20

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Freezing vs. Composting for poultry biosecurity

By Tina Caparella

Researchers in the United States have known for some time that a wide range of wild mammals – including raccoons and foxes, common visitors to farms and waterways – can be carriers of avian influenza (AI). More recently, however, researchers confirmed that some mammals are not only carriers but can also transmit the virus to birds, raising new questions about how the disease may move in the environment and between farms.

“When wildlife and poultry interact and both can carry and spread a potentially damaging agricultural pathogen, it’s cause for concern,” said research wildlife biologist Dr. Jeff Root, one of several researchers from the National Wildlife Research Center (NWRC), part of the United States Department of Agriculture’s Animal and Plant Health Inspection Service Wildlife Services program studying the role wild mammals may play in the spread of AI viruses.

In May 2016, the agency issued its latest research update on the topic, highlighting experiments in which Root and his team demonstrated that skunks and rabbits can become infected with and shed the AI virus, which subsequently infected mallard ducks. Knowing this, the risks from mammals frequenting areas in and around poultry farms should be taken into consideration when crafting biosecurity plans, according to the full NWRC study published in late 2015.

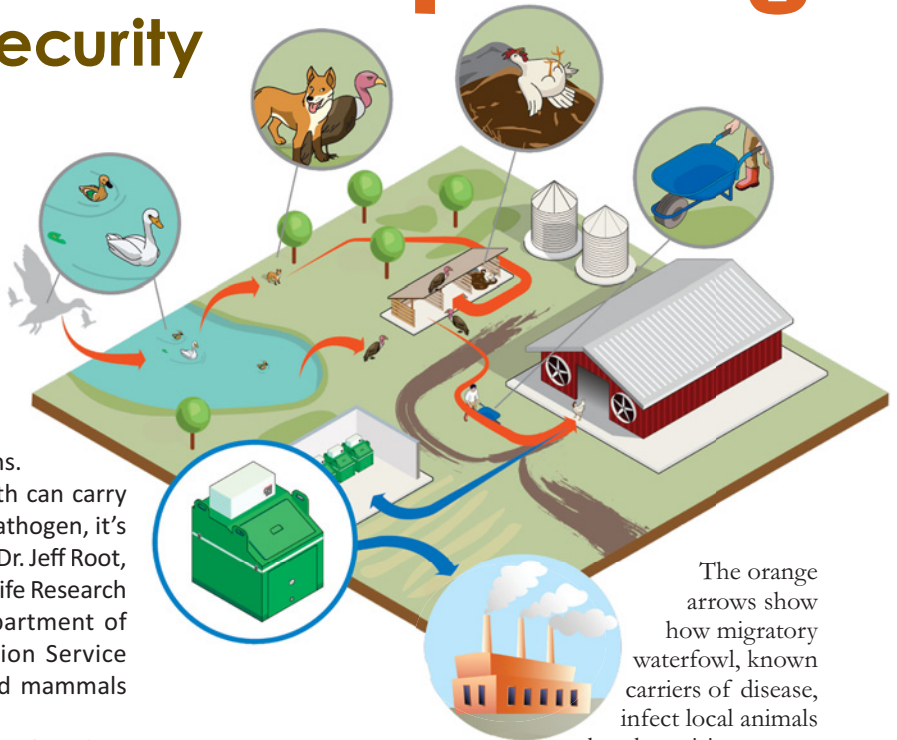
Freezing/Rendering Beats Composting for Biosecurity

That’s where the rendering industry plays a key role. One of the most effective ways to reduce the number of animal visitors on the farm is to store routine mortalities in freezer collection units for later transport to a rendering facility.

“Proper management of bird mortality is an important [often overlooked] part of biosecurity,” said Dr. Jonathan R. Moyle, an associate professor and extension poultry specialist at the University of Maryland. “Freezers can help growers by providing a simple method to dispose of the birds. Not only do freezers prevent predators from accessing the carcasses, but they can also help reduce insects, which can also be vectors of disease.”

Randall Smith of American Proteins Inc., which has been collecting poultry mortalities from farmer-owned freezer units for more than 15 years, agrees.

“Freezers are the answer to many biosecurity concerns,” said Smith, American Proteins’ farm mortality manager. “Material is collected, put in sealed freezers, cooled to preserve marketability, and then hauled off the farm, removing any disease concerns. The material is then processed in the rendering plant, which produces several disease-neutral products that can be sold and used. These useful products are from recycled material that if left in the environment can be hazardous.”



The orange arrows show how migratory waterfowl, known carriers of disease, infect local animals that then visit compost piles on poultry farms. Once introduced on the farm, the disease can spread to live poultry. The blue arrows show an alternative – storing mortalities inside a freezer unit for later transport to rendering – that eliminates the food source and therefore the disease transmission risk from wild animals.

Illustration provided by Greener Solutions.

The recent NWRC study on mammals also stated that trends in the evolution of the AI virus “reaffirm the need to assess multiple facets of farm-scale biosecurity of poultry operations, wherein all routes of viral intrusion, even those [previously] thought to be unlikely, are addressed.” Based on this new research, many in the poultry industry believe the old method of composting for managing mortality should be reassessed.

Retired University of Delaware poultry specialist Bud Malone is among them. A long-time proponent of composting, Malone now favors disposal of routine mortalities in sealed freezer collection units to significantly reduce the number of unwanted animals and flies on the farm and lessen the risk of disease transmission. He also pointed out that the majority of poultry growers do not compost properly, potentially aiding in the spread of disease.

Composting sheds are in essence open-air food sources that attract scavengers such as buzzards, foxes, raccoons, birds, and feral cats. Those same animals also visit local waterways where they can come into contact with migratory waterfowl, known carriers of AI. In 2004, Malone observed evidence of those scavengers visiting compost bins on Delaware farms that were infected with low pathogenic AI.

“Although never documented, it is my opinion that composting helped spread AI during that 2004 outbreak,” Malone told *Render*.

Practice Offers Benefits Beyond Better Biosecurity

Freezer collection is simple. Poultry growers collect routine mortalities daily, place them inside a specially-designed freezer unit, and close the lid. Once the flock has left the farm, collection trucks then empty the units into a sealed trailer and deliver the mortalities to a rendering plant. Freezer units are currently only used to store day-to-day mortalities for later transport, not for collection or disposal of catastrophic losses, such as AI-infected birds.

On average, a poultry farm that grows a 67,000-bird flock would need anywhere from four to eight freezer collection units. The units are only turned on as additional storage capacity is needed over the course of the flock so energy is not wasted. An average four-unit farm would spend about \$92 over a seven week grow-out cycle.

Poultry growers switching to this practice have been able to greatly reduce the time and money previously spent on composting, saving thousands of dollars a year in operational costs. Freezer collection units are the most labor-efficient method of disposal for poultry mortalities, according to Malone. Nonmonetary benefits for the grower include the elimination of smells, flies, and scavengers associated with composting, improving the quality of life for the farmer – and the farmer’s neighbors.

Another benefit for the grower – and the industry as a whole – is the reduced environmental impact compared with other mortality management methods. For example, composting, which is premised on land application as a second step, increases the overall nutrient load that could potentially run off into nearby waterways. The freezing/rendering model removes the material from the farm setting entirely, eliminating any potential environmental impact.

Freezing Poised for Growth

Utilizing freezer units to store routine mortalities has been in use for decades, but the increasing focus on two of its biggest advantages – biosecurity and nutrient management – has led to a resurgence of interest.

Greener Solutions is one company that sees great growth potential in pairing the two technologies of freezing mortalities and then sending them to rendering. The company’s founders began researching and developing a new “hybrid” model in 2011 that later included a state-funded pilot project tied to the nutrient management benefits of the practice. In 2014,



Once the flock leaves the farm, the poultry mortalities in the freezer unit are collected and taken to a rendering plant.

A long-time proponent of composting now favors disposal of routine poultry mortalities in sealed freezer collection units that are then taken to rendering.

the company began offering its collection service to poultry growers on the Delmarva Peninsula, an area that includes most of Delaware and portions of Maryland and Virginia.

“We saw this as a win-win for the individual grower, the industry as a whole, and of course the environment,” said Greener Solutions co-founder and poultry grower Terry Baker.

“This is a recycling model, not a disposal model like composting,” said Baker’s business partner Victor Clark, explaining that “every pound of material that is recycled is one less pound of high-phosphorous material that would otherwise have been land-applied on farm fields. We think this will be the model of the future because of the heightened interest in nutrient management and biosecurity.”

J.J. Smith, president of Valley Proteins Inc., agrees.

“It’s not a big part of our business,” he said of the two-to-three truckloads per week Greener Solutions delivers to Valley’s rendering plants in Linkwood, Maryland, and Linville, Virginia. “But there is certainly room for it to grow in the Delmarva area, perhaps 10 times the size it is now.”

Smith explained there has been a push on Delmarva farming operations to eliminate phosphorous runoff that eventually ends up in the Chesapeake Bay. The freezer bins are a good option over composting to reduce runoff and prevent transmission of possible disease by scavenger animals visiting compost piles. Other advantages of this collection method Smith sees are that mortalities do not deteriorate or degrade to the point they can no longer be rendered and collection trucks visit the farm infrequently, only in between flocks.

Smith pointed out that other areas in the eastern United States, such as North Carolina and South Carolina, have larger poultry operations than Delmarva but are not currently experiencing the same environmental pressures. However, he noted that the freezer units significantly reduce the biosecurity risk that composting brings.

“Moving mortalities after the birds have left the farm will 99 percent prevent the spread of potential diseases,” Smith stated.

Like Valley Proteins, the collection of mortalities from freezer units is a small part of American Proteins’ business, but Randall Smith believes there is room for growth in this type of collection for many reasons: the low cost and convenience of disposal to the grower, the elimination of environmental concerns, and the biosecurity of preventing the possible spread of disease.

Biosecurity is critical to the Cumming, Georgia-based renderer that collects from grower-owned freezer units in Georgia, Florida, Alabama, and Tennessee. American Proteins services the freezers as requested by the poultry grower. The company’s collection trucks are cleaned and sanitized with a special hydrogen peroxide solution by onboard sprayers before entering and upon leaving each farm and when arriving at the rendering plant to remove any potentially diseased material.

Continued on page 12

Freezing *Continued from page 11*

In addition, truck drivers spray their shoes after leaving the farm ground.

Freezers are also placed as far away from poultry houses as possible and, in most cases, collection trucks are parked further away from the freezer shed, limiting physical proximity to poultry houses. American Proteins developed a video focusing on the biosecurity of collecting farm mortality from freezer units that is available on YouTube at www.youtube.com/watch?v=69y2_Rd7arg.

Growers See Great Potential Too

About 12 years ago, Doug Brown decided to invest in a grower operation for a major poultry company in Texas with plans to build six new 40-foot by 500-foot chicken houses. While researching options for mortality disposal to ensure a biosecure farm, Brown narrowed it down to three: composting, incineration, and on-farm storage in freezer units.

After visiting several farms that had each of these choices, he opted to go with the freezer containers because they were simple to operate, economical, and “very biosecure.” Brown installed nine freezer boxes on his six-house farm and has never faced a biosecurity issue. A local poultry rendering company collects the grower’s mortalities after the flock has left the farm, about every nine weeks.

“The truck does not come while the birds are on the premises,” noted Brown, who continues to be a strong proponent of the freezers as the most environmental and biosecure way of handling poultry mortalities. “Today, after having visited other farms over the last 12 years that utilize compost and incineration, my experience says that the freezer

boxes are the most environmentally friendly, biosecure method to handle farm mortality,” he added. “It also requires the least amount of time, effort, and cost to operate.”

It was for many of the same reasons – convenience, cost-effectiveness, and biosecurity – that family-owned State Line Farms in Delaware installed the units on two of its three farms. The grower was one of the first to adopt the practice on its 82,000-bird operation in Delaware as part of a state-sponsored pilot program three years ago. State Line Farms co-owner Brent Willin said the convenience of placing the mortalities in the containers ensures the farm workforce collects the dead birds daily versus less often when composting. The company added the freezers to a second 60,000 bird operation last year and will eventually place the units on a third farm.

The 20 total freezers at the two farms are serviced between flocks by Greener Solutions and the mortalities are taken to a renderer. Willin said the freezers allowed his operation to more easily adapt to heightened biosecurity requirements, such as no sharing of equipment, which were instituted in the wake of the Midwest AI outbreak in 2015. Composting, unlike freezing, requires the use of a front-end loader, which would have been a problem for a three-farm operation that shared one front-end loader.

Willin said the only challenges are the upfront costs of the equipment and back-up power generation for the freezers should the farm lose power. Some upfront costs could be defrayed through various programs that offer cost-share subsidies for nutrient management practices in certain areas of the country.

“Overall, I’m happy with them,” Willin commented. “The containers isolate any disease that may be in the flock. The benefits outweigh any challenges.” **R**



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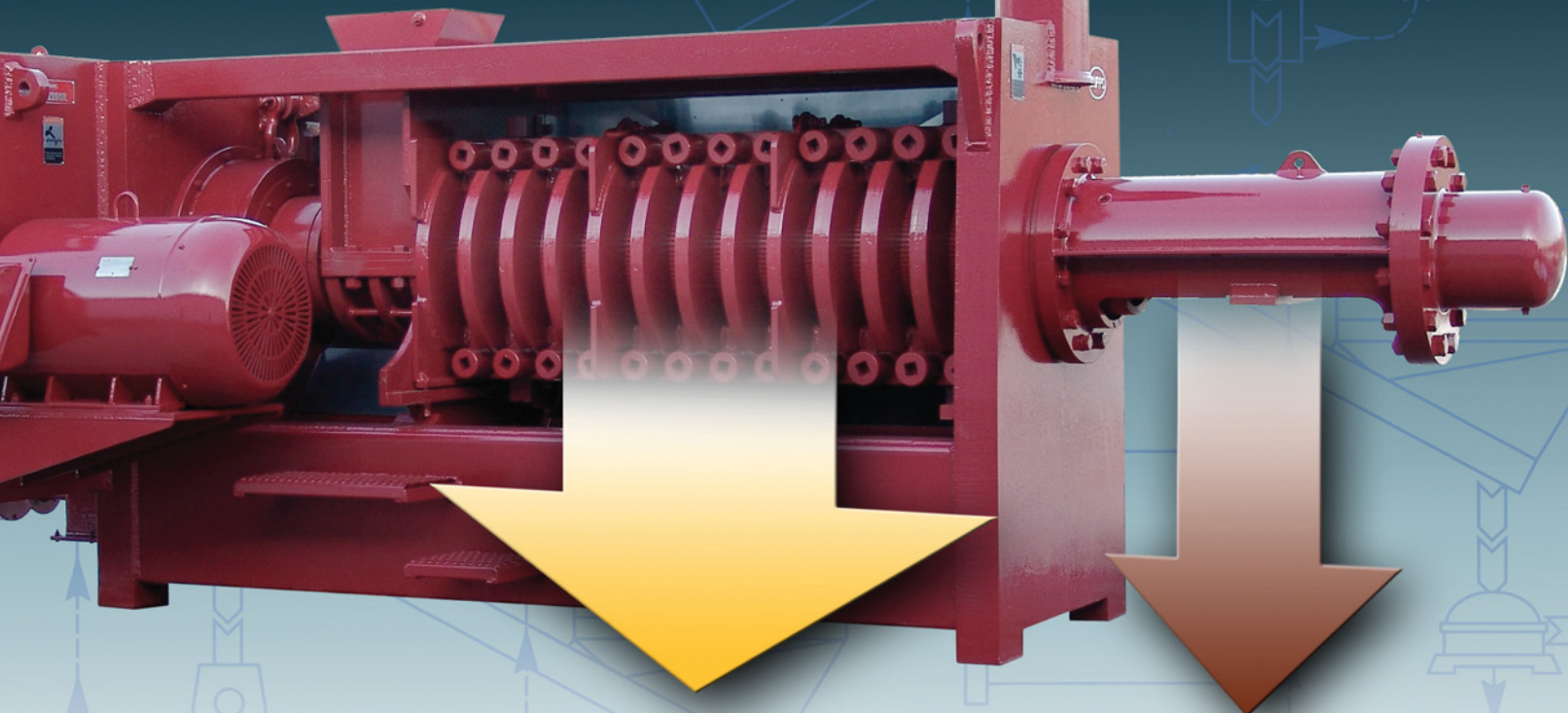
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Renderers Benefit from Convention and its Supporters

Members of the National Renderers Association (NRA) have gathered each year for over 80 years to address issues that affect how they do business, examine new markets, strategize government regulations, and receive updates on the global rendering industry. This year, NRA's annual convention will be held on Amelia Island, Florida, October 17-21. Highlights will include discussions on taking research findings to the marketplace, challenges facing the meat and poultry industry, the future of the global livestock industry, and the upcoming presidential elections.

NRA committees will also examine business matters while the Fats and Proteins Research Foundation will conduct its membership meeting and host an emerging issues seminar where researchers will focus on new discoveries benefiting the rendering industry.

Along with these important meetings is an opportunity for renderers to talk with industry suppliers to learn and discuss the latest technologies and services available. A big part of the NRA convention's success is due to companies that provide sponsorship and/or exhibit at a reception held one evening during the event. These companies were invited to provide a brief summary of their products and/or services for this issue of *Render*. The following is an alphabetical guide to this year's convention sponsors and exhibitors who responded to the invitation by press time.

AC Corporation

(336) 273-4472

www.accorporation.com

AC Corporation has been providing the rendering industry with quality equipment with a focus on air pollution control for over 45 years. Every project is designed to meet the specific needs of the facility, whether it is a single piece of equipment or a turnkey installation. AC Corporation's staff of engineers, project managers, and experienced craftsmen can handle any rendering project, from the smallest ductwork jobs to complete plant design and installation.



American Proteins Inc.

(770) 886-2250

www.americanproteins.com

American Proteins was created 67 years ago to service a fast-growing poultry industry. Today, the company operates the largest poultry protein and lipids conversion operation in the world. American Proteins is an experienced, technologically innovative leader in the processing of poultry by-products. The company has thrived because they are committed to responsive, fast, and helpful service. Whether the customer is large or small, American Proteins responds with immediate, appropriate service.



Alfa Laval

(866) 253-2528

www.alfalaval.us

Alfa Laval is a leading provider of process solutions for edible and inedible protein by-product processing. Their research and development advancements in heat transfer, evaporation, separation, and fluid handling continue to define the industry standard for specialty and traditional by-product processing methods, including the reduction of dissolved air flotation skimmings and converting by-products into biofuel. All products are backed with Alfa Laval Service – to improve uptime, minimize total cost of ownership, and maximize service intervals.



Bolton & Menk Inc.

(515) 233-6100

gregsi@bolton-menk.com

Bolton & Menk provides the following professional services to the rendering industry: wastewater treatment facility design, permit applications, assistance in defense of enforcement actions, city treatment agreements and rate negotiations, wastewater operations assistance, and environmental audits.



Total nitrogen, phosphorus, chloride, and total dissolved solids (TDS) discharge limits are significant rendering wastewater issues. Bolton & Menk designs facilities for nitrogen and phosphorus removal and is a leader in development of alternatives for meeting chloride and TDS limits.

Alloy Hardfacing & Engineering Co. Inc.

(800) 328-8408

www.alloyhardfacing.com

Alloy's focus is on customized engineering solutions for not only process stream but also environmental and regulatory concerns. For a packer-renderer this year, Alloy installed a Ramveyor piston pump that allowed, in combination with other system improvements, for the shutdown of one of the facility's boilers. With over 50 years of experience serving renderers, Alloy has been drawing from a wide range of options to solve customer problems.



Brown Industrial Inc.

(937) 693-3838

www.brownindustrial.com

Brown Industrial is celebrating 80 years of business in 2016. Their WaBo line is the leader in mobile aluminum, steel, and 409 stainless steel rendering equipment offering container grease, bucket, barrel grease, vacuum barrel, vacuum combination, dead stock, and rendering end dump units. They are continuously improving and expanding their



See ad on page 3.

product line. Brown's newly expanded 130,000-square-foot facility has allowed them to grow to meet industry needs. Brown thanks the rendering industry for its many years of patronage and looks forward to many more.

Brown's Milling and Industrial Supply

(402) 721-7899

www.brownsupply.com

Brown's Milling and Industrial Supply believes in relationships with its customers. They offer competitive pricing and quick, reliable delivery schedules. Customers don't want excuses, they want results. Brown's sells Schutte hammer mills, Sweco classics, Industrial Magnetics magnets, and offers gearbox service, interchangeable parts, replacement screens, and boots and balls for the major incline shakers. Since 1986, Brown's has been a fixture in rendering because they are not afraid to get their hands dirty. If you are not a current customer, you should be.



Camlin Fine Sciences

(515) 278-1559

www.camlinfs.com

Camlin Fine Sciences (CFS) provides high-quality ingredients to extend the shelf life of rendered products. Their product lines include the Xtendra range of traditional antioxidant solutions and the NaSure range of plant-based antioxidant solutions. With over 30 years of experience, CFS delivers the expertise of a global leader with a supply chain serving more than 80 countries. Customers can count on CFS for the control and production standards they need.

See ad on page 31.



Diversified Laboratories Inc.

(703) 222-8700

www.diversifiedlaboratories.com

For over 35 years, Diversified Laboratories has served the rendering industry as an independent, United States Department of Agriculture-accredited and ISO 17025-certified analytical laboratory specializing in pesticide residue and feed quality analysis. The company is a strong supporter of NRA and what it represents to its customers. As part of a hazard analysis and critical control point program, their testing provides clients with cost-effective, confidential, rapid, and accurate results, reducing the risk of an expensive recall, regulatory intervention, and lost customer confidence.



Elementar Americas

(800) 787-1970

www.elementaramericas.com

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(304) 549-5118

www.elginseparationsolutions.com

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See ad on page 27.

FoodSafe Technologies

(866) 339-3751

www.FoodSafeTech.com

FoodSafe Technologies is a leading supplier of antioxidants and antimicrobials for human nutrition, animal nutrition, and pet food ingredients. Their line of products includes Extend-Ox and SafeNature antioxidants that stabilize fats and rendered proteins. TopShieldR Plus eliminates gram-negative bacteria, including *Salmonella*, in pet foods and rendered animal proteins.

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See ad on page 7.



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hf-press-lipidtech.com

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www.hychem.com

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Continued on page 16

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See ad on page 2.

Kusters Water

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www.kusterswater.com



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See ad on page 35.

Onken Inc.

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www.onkens.net



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See ad on page 17.

Rosedowns

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www.desmetballestra.com



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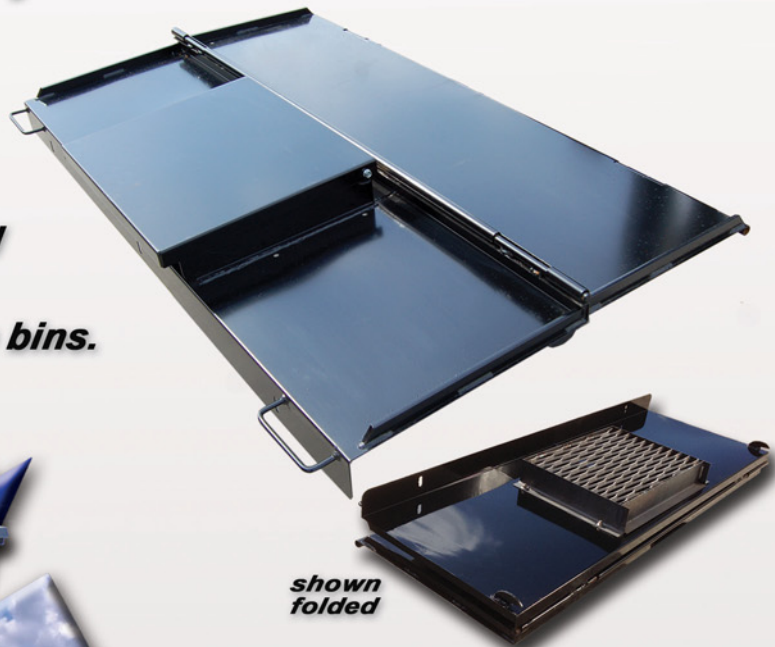
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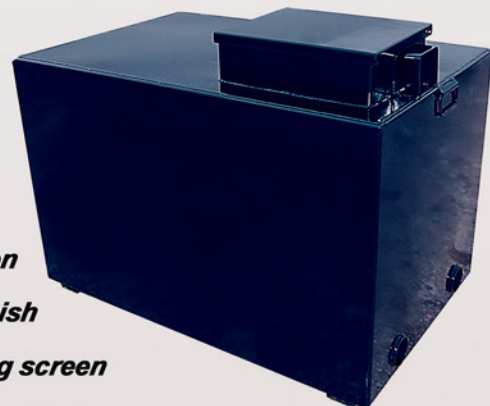
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See ad on page 12.

Universal Maintenance Inc.

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www.universalmaintenanceinc.com

Universal Maintenance's new Super SPN System "cracks" – without shearing – animal fat, protein, and solids from water. This unique system pasteurizes secondary protein nutrients (SPN), stops free fatty acids, decreases odor, and makes two-day-old SPN as fresh as new. The system was featured through Enterprise on Fox Business Network.



See ad on page 20.

For a complete list of the sponsors and exhibitors for this year's convention, visit <http://convention.nationalrenderers.org>. NRA thanks all the sponsors and exhibitors who so generously contributed to the success of this year's convention. Their continual support of the industry is much appreciated.

NRA extends a special thanks for the continued support of the convention's "patron" sponsors:

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www.darlingii.com



With roots dating back to 1882, Darling Ingredients Inc. has evolved into the world's leading innovative producer of sustainable organic ingredients. This year the company opened two new protein conversion facilities in Winesburg, Ohio, and Pochantas, Arkansas, supplying premium proteins for the pet food industry, and two new wet pet food facilities in Ravenna, Nebraska, and Pudacah, Kentucky, producing high-end frozen protein pet food ingredients. Darling Ingredients continues to specialize in natural solutions for the world's food, feed, and fuel needs.

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See ads on pages 13 and inside back cover.

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www.haarslev.com



Haarslev Industries is the market leader for rendering solutions and mechanical and thermal dewatering for the processing of animal by-products. Upgrading of products, energy savings, and environmental protection are important parameters for supplies from Haarslev, whether it is a single piece of equipment or a complete turnkey plant.

With offices and manufacturing facilities around the globe, including North America, Haarslev Industries offers more than 100 years of experience in designing, manufacturing, installing, and servicing rendering equipment.

See ads on pages 1 and 19.

Tyson Foods Inc.

(800) 950-2344

www.tysonanimalnutritiongroup.com



Tyson Foods Inc. has been making animal feed for its operations along with feed ingredients for sale for a very long time. From its earliest years as a company, founder John W. Tyson made chicken feed to ensure the quality and quantity he needed for a growing business. Soon Tyson's Feed and Hatchery was a trusted name in the business and every bag of feed proudly proclaimed, "There is no substitute for quality." Tyson believes that statement is as true today as it was then.

Valley Proteins Inc.

(540) 877-2590

www.valleyproteins.com



Headquartered in Winchester, Virginia, Valley Proteins Inc. is one of the largest non-captive recyclers of animal and poultry by-products and waste cooking oils in North America. The business was founded in 1949 by Clyde A. Smith and is currently owned and operated by his two grandsons. The company operates in the mid-Atlantic, southeast, and southwest regions of the United States and exports fats and proteins worldwide. It is also one of the nation's largest processors of poultry by-products and is the market-leading servicer for the turkey industry.

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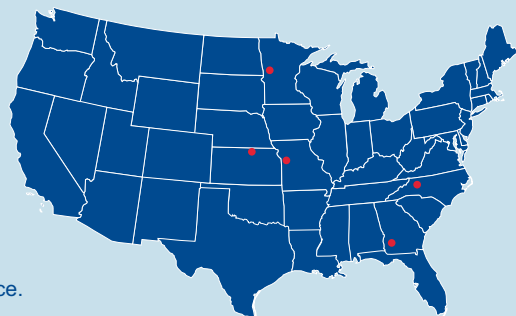
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advising such declarations by the EU's two economic powerhouses means TTIP "dies with a whimper." After three years of talks, the German trade minister said TTIP has "de facto failed." His French counterpart said there is no political support in France for TTIP and he wants a "clean" end to the formal trade talks.

"The Americans have given nothing, or just crumbs," the French trade minister said. Belief in this statement is reflected in growing popular dissent over TTIP, with consumer activists taking to the streets of Paris, France, Rome, Italy, and Berlin, Germany, to protest the United States' alleged attempt to rollback EU food safety protections. Whether the French and German statements reflect reality or are negotiating ploys with the United States remains to be seen. German Chancellor Angela Merkel and French President Francois Hollande continue to publicly support TTIP, at least in concept.

Further muddying the future of TTIP is the impact of the United Kingdom's (UK's) vote to exit the EU. Great Britain had been the greatest supporter of TTIP

but with its positive Brexit vote, the UK is no longer a player. Rather, the UK will concentrate on renegotiating bilateral deals with the United States and other nations to replace or retain advantages it enjoyed while included in EU trade agreements.

US and EU officials, as expected, said reports of the death of TTIP talks are premature and greatly exaggerated. Per the European Commission: "The ball is rolling right now...talks are entering a crucial stage. We are ready to make submissions on all pending chapters." The United States indicates the talks are making "steady progress." Special Trade Representative Michael Froman, however, now regularly meets with his EU counterparts to "assess progress."

As if the demise of two hard-fought multi-billion-dollar international trade treaties isn't enough, the comity of North American trade is once again strained.

While the United States barely escaped about \$3 billion in retaliatory tariffs threatened by Canada and Mexico over this nation's country-of-origin labeling (COOL) law on fresh meats – the World Trade Organization three times

said the US law was discriminatory – in mid-September, two senators wrote to Froman and Vilsack demanding they investigate Canada's recently reinvented domestic dairy pricing system. They contend the new system is aimed at and discriminates against US producers.

Senators Charles Schumer (D-NY), set to become either Senate minority leader or the Democrats' new majority leader depending on how the political winds blow on November 8, and Tammy Baldwin (D-WI) said Canada is exacerbating bilateral dairy trade tensions by setting limits on US milk imports while telegraphing it intends to impose more restrictions the senators say violate bilateral trade agreements (i.e., NAFTA). Schumer accused Canada of setting prices designed to "clamp down" on US dairy products and he wants Froman and Vilsack to investigate the current and prospective Canadian pricing schemes. Schumer and Baldwin say these "unfair" policies cost their constituents "tens of millions of dollars."

Pricing changes expected this fall include Canada's new National Ingredients Strategy, modeled on an Ontario provincial dairy pricing program. The program allegedly incentivizes Canadian processors to avoid buying US dairy imports, including New York and Wisconsin milk, and discourages use of US ultra-filtered milk, a product currently enjoying duty-free access to Canada under NAFTA.

NMPF praised the senators for "holding one of our largest trading partners to its international commitments." The US Dairy Export Council said Canada has a long history of erecting "roadblocks" to American dairy imports.

House Agriculture Committee ranking member Representative Collin Peterson (D-MN), no fan of NAFTA over how it allowed Canada to skate on increased US dairy exports, said during TPP negotiations he would just as soon see no TPP deal if it allowed Canada to continue its protectionist domestic pricing regime. For that and a lot of other reasons – mostly political – he just may get his wish. **R**



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The Year in Review

This year will go down as a good but challenging year for the United States (US) and Canadian rendering industries, and for the National Renderers Association (NRA). The association is proud of its results and what has been accomplished so far, with new tools to help members comply with the US Food Safety Modernization Act (FSMA), more communications to members, increased overseas market access, and an active presence in Washington, DC.

While renderers had their share of challenges, NRA responded to each one head-on, representing the industry's best interests, protecting the market, and promoting rendering's important role. NRA's accomplishments helped achieve important strides for the US and Canadian rendering industries. From training renderers on how to comply with FSMA to opening the Chinese market for US tallow, and from developing new infographics promoting the industry to supporting biodiesel and sensible regulations, this has been an eventful and demanding year for renderers and NRA.

NRA's Board of Directors is a strong group of committed leaders. At the helm this year have been Chairman Tim Guzek of Sanimax, Vice Chairman Ridley Bestwick of West Coast Reduction, and Second Vice Chairman Doyle Leefers of National Beef Packing Company, along with members of the association's executive committee. NRA's 11 working committees provided direction to individual association programs and made recommendations to the board of directors.

It speaks volumes about NRA and the rendering industry that there are so many members eager to share their knowledge and talents. In all, some 73 individuals from rendering companies across the United States and Canada stepped forward to serve on NRA committees. As a member-driven organization, the association thrives with each member's support and input to continue its important work.

The association represents over 95 percent of rendering production in both countries. Active members are independent renderers (many of which are multi-generational family-owned companies) and integrated packer-renderers who process their own animal by-products. NRA also welcomes suppliers of rendering services and products as associate members. Together, the board, volunteers, and active and associate members here and abroad continue to further the mission of NRA with programs and services that add value to the industry.

NRA's mission is to advocate for a sustainable food chain, public health, and the environment through the production and marketing of rendered products and services. To accomplish this, NRA promotes effective public policy, regulation, and technology; encourages responsible business practices; supports free movement of rendered products in domestic and international markets; and works to improve stakeholder awareness and understanding of the value of rendering.

NRA's financial footing is sound with commitment to a conservative budget to get the job done. The group depends upon membership dues to make its programs possible. These dues also provide the cost-share funds needed to qualify for \$1.8 million in US federal grants NRA receives each year to promote the export of rendered products.

Some highlights of NRA's work this year to improve opportunities for renderers and their business partners are as follows.

Industry Information, Science, and Regulation

NRA's scientific services provide members with relevant and timely information, and promote the interests of the rendering industry to regulators, standard-setting organizations, and others influencing government and market decisions. Providing specialized training for NRA members to comply with FSMA was a high priority this year. The Animal Protein Producers Industry (APPI) Committee held a training seminar to instruct industry personnel on how to comply with this new regulation and become preventative control certified individuals under the provisions of the law. This training was also available online through a course developed by NRA with Kansas State University. While FSMA training is available elsewhere, this is the only course on rendering compliance. So far, 166 people have received this training.

This year, the rendering industry's biosecurity program continued its work to improve the microbiological quality of animal proteins and feed fats by providing a weekly testing program and continuing education. In addition to FSMA training, APPI created a new video and posters to assist renderers with educating employees on basic animal food safety as required by FSMA. APPI also developed a white paper validating rendering cooker temperatures based on data from several research projects funded by the Fats and Proteins Research Foundation (FPRF).

NRA's new Sustainability Committee began creating an industry-wide data profile and is working to provide tools for individual companies to develop their own sustainability profiles. FPRF-sponsored research by Dr. Charles Gooding at Clemson University resulted in a carbon footprint tool that calculates rendering efficiencies of energy use to measure sustainability. Gooding also recently published a scientific journal article about how rendering is a more sustainable method of handling meat by-products than composting or anaerobic digestion.

NRA worked successfully this year with the Association of American Feed Control Officials (AAFCO) on revised definitions for rendered feed ingredients. Improvements were made in AAFCO's initial proposals, resulting in new definitions for used cooking oil and yellow grease acceptable to the rendering industry. In addition, there were changes to the animal fats definitions that the industry supports overall. AAFCO terminated the feeding fat definition that could have affected

the use of trap grease and will soon begin considering revisions to nearly all feed ingredient definitions, including rendered proteins. NRA will continue to monitor these technical developments closely.

Promoting Exports, Expanding Trade

The goal of NRA's international market development program is to expand exports by increasing overseas demand for rendered products. The program also provides technical trade servicing assistance for members who encounter trade restrictions or other problems. Overall, 18 percent of total US production is exported; 18 percent of rendered animal proteins and 17 percent of rendered fat is sold overseas. Top markets are Mexico, China, Indonesia, Chile, the European Union (EU), and Canada.

NRA receives approximately \$1.8 million annually from the US Department of Agriculture (USDA) to develop, maintain, and open foreign markets. NRA cost-shares with USDA to operate 45 projects in 57 countries, two overseas offices (in Hong Kong, China, and Mexico City, Mexico), and nine consultants in aquaculture, poultry, pet food, and EU policy. These programs enable the rendering industry to have a unified effort to grow its exports.

In July, USDA proposed its long-awaited rule on small ruminant imports to finish bringing US bovine spongiform encephalopathy (BSE) import regulations into compliance with the World Organization for Animal Health, or OIE. NRA advocated for this rule for years. Without it, trade in small ruminants and their products from countries affected by BSE and/or scrapie has been severely restricted. Renderers from Canada who might have small ruminant products in their yellow grease or used cooking oil and/or tallow have been unable to export to the United States. NRA submitted regulatory comments in support of USDA's proposed rule that would allow small ruminant tallow to be imported to the United States. The association recommended the rule be finalized as soon as possible.

Throughout the years, NRA has hosted visiting trade delegations, foreign buying teams, and technical inspectors who want to learn about US rendering and its quality products, and to visit

processing plants. This fall, individuals from China's Administration of Quality Supervision Inspection and Quarantine plan to visit the United States to audit the US production system for non-ruminant processed animal protein meal exports. This audit is a requirement every five years for companies wanting to export these products to China. NRA is working with USDA's Animal and Plant Health Inspection Service (APHIS), the American Feed Industry Association, and the Pet Food Institute to arrange this important trip in November. The audit

needs to be completed by the end of the year to avoid trade disruption.

After China closed its borders to US poultry products because of the outbreak of highly pathogenic avian influenza in the United States last year, NRA successfully worked with USDA/APHIS and the Chinese government to develop a technical protocol to reopen the market. This year, NRA also gained new market access for US tallow into China after lengthy work with

Continued on page 24

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Association Continued from page 23

both governments and is coordinating member company plant certification so exports can begin. NRA continues to pursue gaining market access into Mexico for US ruminant meat and bone meal.

At APHIS' invitation, NRA provided rendering training to new agency veterinarians to encourage well-informed decisions on import and export regulations.

Rendering's Story on Capitol Hill

With many new members in Congress this year, education about rendering and its challenges was a top priority. As a result, congressmen and senators could make more knowledgeable decisions about environmental, biodiesel, animal food safety, export funding, and other issues affecting the rendering business. Collaborating with customer associations continued as an important part of NRA's effective advocacy, including working with beef, pork, poultry, animal feed

and pet food, and biodiesel producers. Working in coalitions sends a common message with maximum impact.

In June, renderers from across the country attended NRA's 16th Annual Washington Fly-in for policy briefings and congressional meetings. National speakers talked about the agricultural economic outlook, livestock and poultry markets, and the fall elections. Participants met with USDA's new chief veterinarian, Dr. Jack Shere, who plans to work closely with the industry to prepare for possible future animal disease outbreaks. Breakfast with Representative David Rouzer (R-NC), chairman of the House Livestock and Foreign Agriculture Subcommittee, was a meeting highlight.

Renderers held over 200 meetings on Capitol Hill with their elected representatives on important rendering issues. These included the industry's sustainability, the need to extend biomass-based diesel tax credits beyond 2016, the Renewable Fuel Standard (RFS), water and air environmental regulations, food waste disposal, and the significance of strong export funding for USDA. To encourage continued expansion of biomass-based diesel production, NRA advocated for a higher 2014-2016 RFS for advanced biofuel than was announced by the Environmental Protection Agency (EPA). NRA joined an amicus ("friend of the court") brief in support of the National Biodiesel Board's legal challenge against the agency contesting its use of waiver authority to set the RFS at a lower level than intended by Congress. If successful, the lawsuit will prevent EPA from establishing a reduced waiver-based RFS in the future.

Efforts to divert food waste from landfills emerged at the national level this year with legislation introduced in the House and Senate to encourage alternative disposal methods. NRA educated legislators that raw material going to rendering plants is not food waste. Some industries support government incentives to gain access to this material and dispose of it in other ways, such as anaerobic digestion or composting. NRA opposes such incentives and believes a level playing field is best among competing interests.

To explain rendering's interest in food waste, NRA met with the congressional bill sponsors, EPA, USDA,

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and members of the Food Waste Reduction Alliance representing food and beverage companies, food retailers, and the foodservice industry. While the current legislation will die at the end of this Congress, NRA is working with bill sponsors on improvements in the event it is reintroduced next year.

Communications and Education

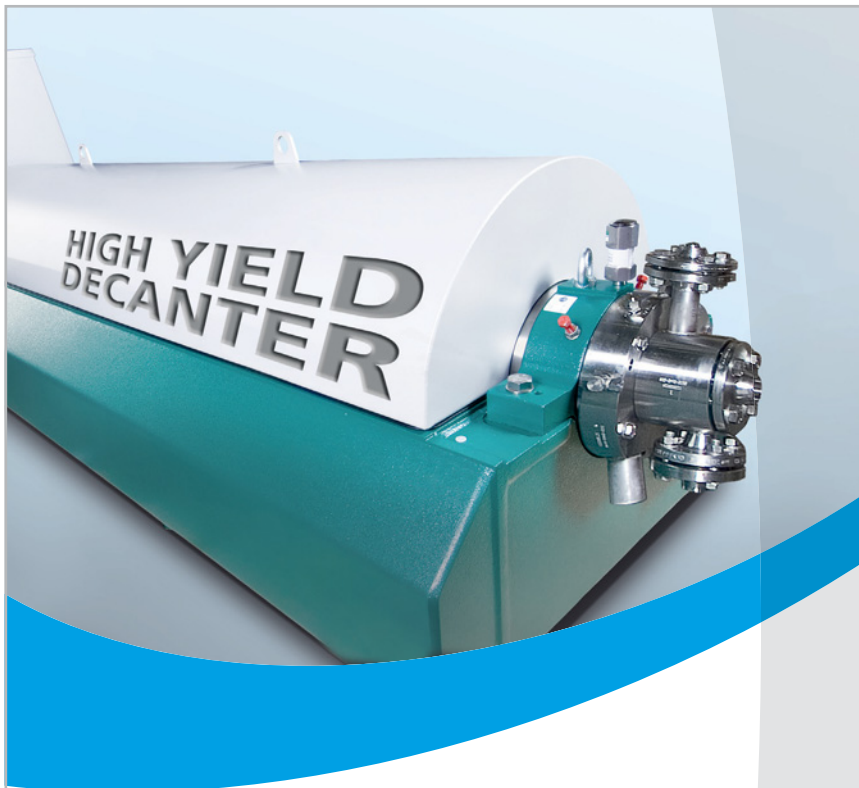
This year, NRA engaged in social media to promote rendering and produced, on behalf of the APPI Committee, a new video with posters for member plants to enhance animal food safety and FSMA compliance. A new infographic on food waste disposal was also developed for use on Capitol Hill and with regulators. NRA staff presented speeches to a wide variety of audiences and responded to media questions about rendering.

A popular new section with frequently asked questions was added to the NRA website in addition to the launch of an *NRA Update* industry newsletter and “Rendering 101” teaching module for university professors in meat science and other courses. By increasing understanding among undergraduate and graduate students, the industry seeks to build enthusiasm for rendering and attract new top-flight individuals to a career in the industry.

NRA’s meetings provide educational and networking opportunities for its members. In April, NRA’s Board of Directors and committees met and were joined by APHIS officials to discuss exporting more rendered products. NRA’s annual convention each October continues to be the premier gathering for North American renderers, who are joined by colleagues from around the world. NRA members gain new market intelligence from a variety of speakers addressing topics such as sustainability, livestock markets, and the rapidly growing pet food industry.

Looking Ahead

This has been a fast-paced year and 2017 looks to be even more so. If you are not an NRA member, I invite you to become part of our efforts. NRA connects you, as a member, to the information, resources, programs, and advocacy needed for business success. NRA works to improve your business and provide tools to get you there. **R**



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California Advances its Climate Policies

In early September, California Governor Jerry Brown signed two bills into law that extend and bolster the state's fight against climate change. California is now committed to pursue the strongest greenhouse gas emissions reduction targets in North America. Renewable fuels are expected to play a large part in helping to reduce those emissions.

The first, Senate Bill (SB) 32, authored by Democratic Senator Fran Pavley, requires the state to slash its greenhouse gas emissions 40 percent below 1990 levels by 2030. The bill follows Assembly Bill (AB) 32 passed nearly 10 years ago that called for California to reduce emissions to 1990 levels by 2020. The state is on track to meet or even exceed this target so this new law delivers continuity.

The second bill, AB 197, authored by Democratic Assemblyman Eduardo Garcia, accompanied SB 32 and provides for greater legislative oversight of the California Air Resources Board, whose authority has become controversial, and increases investments for reducing emissions in the state's disadvantaged communities.

The California Biodiesel Alliance (CBA) coordinated support for both bills with members of the California Cap and Trade Biofuels Initiative coalition, Environmental Entrepreneurs, Calstart Inc., and other non-governmental organizations and members of the low carbon fuels sector. Collectively they disseminated the message about the jobs renewable fuel businesses are creating in the state and the benefits they are bringing to disadvantaged communities, all while reducing emissions.

"We know that together we played a key role in securing this historic victory for our state's bellwether climate policies," said CBA executive director Celia DuBose.

Another critical result of CBA's efforts was the safeguarding and extension to 2030 of California's Low Carbon Fuel Standard (LCFS), which had been in jeopardy during bill negotiations. CBA and low carbon fuels supporters were intent on ensuring the governor and legislature recognized the success of the LCFS and agreed not to sacrifice it to safeguard SB 32.

Germany's Biodiesel Trade Gap

Demand for German biodiesel waned significantly in the first half of 2016. At just over 570,000 metric tons, exports to other European countries were down about one-fifth from the same time in 2015. Countries that absorbed only small amounts the previous year bought even less in the first six months of 2016 while sales to the main destinations, such as the Netherlands and Poland, increased.

During the same time period, Germany imported more biodiesel from abroad at 390,000 metric tons, up 46 percent from 2015. More imports came via ports in the Netherlands and Belgium as well as from Poland and Austria. By contrast, direct shipments from Southeast Asia saw a slight dip.

Agrarmarkt Informations-Gesellschaft mbH indicated that foreign trade statistics show biodiesel exports continue to play an important role for German biodiesel plants. However, it is unknown whether this trend will continue in the second half of this year.

The growing use of biodiesel produced from used cooking oil methyl ester (UCOME) may be one factor explaining the current slump in foreign demand. UCOME may be double-counted toward renewable quota obligations in countries like the Netherlands, Poland, and Great Britain.

High Plains Bioenergy Acquires St. Joseph Plant

High Plains Bioenergy (HPB), a subsidiary of Seaboard Foods, is increasing its biodiesel production through the acquisition of the former Blue Sun biodiesel plant in St. Joseph, Missouri. The facility has been renamed HPB-St. Joe Biodiesel and will use regionally sourced feedstocks, such as distillers corn oil from ethanol plants, to produce 28 million gallons annually once at full capacity. Although a Seaboard Foods subsidiary recently built a new pork processing facility in St. Joseph, Gene Binder, director of sales and business development with High Plains Bioenergy, told *Biodiesel Magazine* the plant has no plans to use animal fats as a feedstock at St. Joe as it does at its 30-million-gallon-per-year biodiesel facility in Guymon, Oklahoma.

KLM to Use Biofuel in LAX Flights

KLM Royal Dutch Airlines has signed a three-year contract for the supply of sustainable biofuel to be used in all its flights at Los Angeles International (LAX) airport in California. The biofuel will be produced by local biofuel refinery AltAir Fuels and supplied by SkyNRG. Los Angeles is the second airport in the world to incorporate biofuel into its regular refueling process. Oslo, Norway's airport was first to do so in March of this year. KLM was also involved in that initiative.

SkyNRG will supply the biofuel, which is made from used cooking oil by AltAir Fuels in Los Angeles. AltAir Fuels is the first and only refinery in the world that continuously produces biofuel for aviation, making it the first to supply biofuel to the airline industry on a commercial basis. Biofuels contribute to reducing carbon dioxide emissions from all KLM flights taking off from LAX, contributing to the airline's ambition of achieving a 20 percent reduction in carbon dioxide emissions per passenger by 2020 (compared to 2011).

KLM operated its first commercial flight using biofuel in 2011. Since that flight to Paris, France, numerous KLM flights using sustainable biofuel have been operated by various aircraft types.

JetBlue to Purchase Millions of Gallons of Renewable Jet Fuel

JetBlue has agreed to buy more than 33 million gallons of blended jet fuel per year for at least 10 years beginning in 2019, making it one of the largest renewable jet fuel transactions in aviation history. The airline entered into a 10-year purchase agreement with SG Preston to purchase renewable jet fuel made from bio-based feedstocks that do not compete with food production. The fuel will consist of 30 percent renewable jet fuel produced from select plant oils blended with 70 percent traditional Jet A fuel. JetBlue plans to supply New York metropolitan airports with the renewable jet fuel.

Nebraska Biodiesel Plant Starts

Flint Hills Resources and Benefuel Inc. have started up the Duonix Beatrice biodiesel plant in Beatrice, Nebraska, using Benefuel's innovative technology of converting lower-cost feedstocks such as recycled cooking oil and distillers corn oil into high-quality biodiesel. Once fully operational, the plant will produce approximately 50 million gallons of biodiesel annually. The plant has already made commercial sales of product that meet or exceed ASTM International specifications for biodiesel.

Benefuel's technology uses a solid catalyst that combines esterification of high free fatty acid feedstocks and transesterification of triglycerides into a single step,

eliminating waste, improving process efficiency, and expanding feedstock options. The product is further enhanced by an upgraded, backend distillation process that removes additional impurities and, when used on high free fatty acid feedstocks, produces a higher-quality biodiesel with superior cold weather performance.

Since 2010, Flint Hills Resources and Benefuel have been working together to test and validate the technology for commercial-scale production. Flint Hills Resources acquired the Beatrice biodiesel plant in 2011. The plant was originally built in 2008 but was not finished and never operated. In May 2013, Benefuel announced a joint venture with Flint Hills Resources, known as Duonix LLC, to develop domestic biodiesel production capabilities. Duonix Beatrice is the first joint commercial venture from the companies.

Neste Renewable Diesel to Power Another California Fleet

Neste's renewable diesel is now being used by the County of Sacramento, California, joining other green fleets in the state including the City of San Francisco, the City of Oakland, the City of Walnut Creek, the City of Carlsbad, Google, and UPS.

By switching from petroleum diesel to Neste's renewable diesel, which is made from waste and residues, the County of Sacramento will reduce greenhouse gas emissions from its fleet by up to 80 percent. The county will use renewable diesel

Continued on page 28



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in a range of heavy-duty vehicles, including more than 400 municipal public works and specialty vehicles, and estimates it will reduce greenhouse gases by about 8,000 tons annually.

World Energy Buys Facility on Mississippi River

World Energy has acquired Elevance Natchez Inc.'s (ENI's) 72-million-gallon-per-year biorefinery located on the Mississippi River in Natchez, Mississippi. World Energy had been supplying biodiesel from the plant under a production contract with ENI since January 2013. The plant is currently fully staffed and in full operation. There will be little change in transition to the new ownership.

US Biodiesel Production up Two Million Gallons in June

Monthly production of biodiesel in the United States (US) was two million gallons higher in June than the previous month at 135 million gallons, up two percent from May, according to US Energy Information Administration (EIA) data. Production in June 2015 was reported at 122 million gallons.

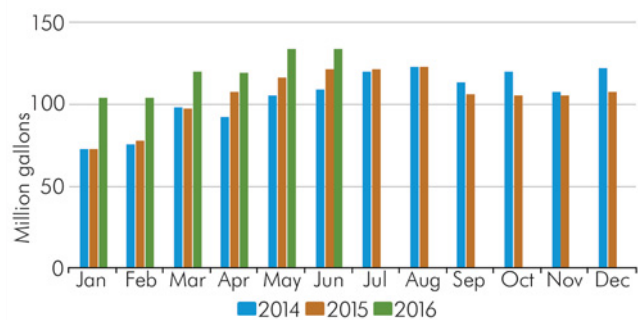
Of the 980 million pounds of feedstock used to produce biodiesel in June 2016, 52.9 percent was soybean oil, down by more than three percent from May, per EIA. Soybean oil

remained the largest biodiesel feedstock (519 million pounds consumed) followed by canola oil (112 million pounds), yellow grease (112 million pounds), and corn oil (103 million pounds). Total animal fats (tallow and poultry fat) used in June was 53 million pounds.

Producer sales of biodiesel in June included 68 million gallons sold as 100 percent biodiesel (B100) and an additional 72 million gallons of B100 sold in biodiesel blends with petroleum diesel. Production came from 95 biodiesel plants with an annual production capacity of 2.1 billion gallons per year. Sixty-eight percent of production was in the Midwest.

Following that news, Renewable Energy Group Inc. (REG) announced the company sold approximately 50.9 million gallons of biomass-based diesel during the month of August 2016, a first in the company's history. The figure does not include sales from Petrotec, the German biodiesel producer in which REG has majority ownership. **R**

US monthly biodiesel production, 2014-2016



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Small Ruminant Rule Nearly Final

In the spring of 2012, the United States Department of Agriculture's (USDA's) Animal and Plant Health Inspection Service (APHIS) published two proposed rules to bring the US bovine spongiform encephalopathy (BSE) import regulations into compliance with the World Organization for Animal Health. At the time, it was decided to publish two separate rules, one focused on cattle and cattle product imports and the other focused on small ruminants.

The first rule became known as the BSE comprehensive rule and was finalized on November 1, 2013. However, the second rule, known as the small ruminant rule, was never finalized. In essence, without this second rule, small ruminants and their products from countries affected by BSE and/or scrapie are severely restricted. This means that yellow grease/used cooking oil and/or tallow from Canada that might contain small ruminant material cannot be exported to the United States. The following is an excerpt from the *Federal Register* announcing the advanced notice of proposed rulemaking in 2012, titled "Bovine Spongiform Encephalopathy and Scrapie; Importation of Small Ruminants and Their Germplasm, Products, and Byproducts."

"Abstract: This rulemaking would amend the bovine spongiform encephalopathy (BSE) and scrapie regulations regarding the importation of live sheep, goats, and wild ruminants and their embryos, semen, products, and by-products. Some countries from which such imports would be allowed under this rule are currently those from which the importation of live sheep, goats, wild ruminants, their embryos, and ruminant products and by-products are prohibited under existing BSE regulations. Some products would be allowed importation without restriction due to the inherent lack of BSE risk regarding the product. Certain other products and live animals would be allowed importation if it can be certified that the live animals or the animals from which the products were derived were born after implementation of

an effective feed ban. The proposed scrapie revisions regarding the importation of sheep, goats, and susceptible wild ruminants for other than immediate slaughter are similar to those recommended by the World Organization for Animal Health in restricting the importation of such animals to those from scrapie-free regions or certified scrapie-free flocks."

In 2013, the National Renderers Association (NRA) met with then chief USDA veterinarian officer Dr. John Clifford who said the rule would be finalized by the end of that year. NRA, as part of a small APHIS stakeholder group, put the small ruminant rule as a priority in the APHIS yearly action plan.

The following year, NRA again put the rule as a priority in the APHIS yearly action plan after no action had been taken. APHIS repeated that the rule would be finalized by year-end. At NRA's congressional fly-in in June 2014, Clifford was questioned about the status of the rule and he reiterated it would be final by the end of the year. NRA Chairman Ross Hamilton also met with Clifford to propose allowing tallow into the United States for renewable fuel production.

The same scenario was repeated in 2015. This time, the Canadian Renderers Association proposed via the Canadian Feed Inspection Agency that APHIS allow tallow and/or yellow grease to be imported after being tested with a polymerase chain reaction test for goat and sheep material. APHIS rejected this proposal. NRA again met with Clifford and reiterated the importance

of finalizing the small ruminant rule. Clifford said the rule was now at the Office of Management and Budget (OMB) for review but President Barack Obama's administration was considering many rules, creating a slowdown in the rulemaking process. He noted it could be toward the end of 2016 at the earliest before the rule would be published.

In early 2016, NRA met with USDA's new chief veterinary officer, Dr. Jack Shere, who said OMB was expected to complete its review of the small ruminant rule by June. On July 18, a proposed rule titled "Importation of Sheep, Goats, and Certain Other Ruminants" was published in the *Federal Register* with public comments due September 16. The draft rule proposes to allow the importation of tallow and used cooking oil derived from cervids, camelids, ovines, and caprines. NRA supports this provision and submitted comments commending APHIS for releasing the proposal and urging the rule be finalized and implemented as soon as possible to avoid any further trade restrictions.

"This disruption of the imports of small ruminant-based tallow products, including used cooking oil, is burdensome to companies in the United States that need those products," Kent Swisher, NRA international programs, stated in the association's regulatory comments. "We urge USDA-APHIS to finalize and implement this rule as soon as possible. Rendering companies in the US support the open trade of tallow and used cooking oil, which does not pose a health risk based on the best available science." **R**

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Integrating Safety, Environment, and Quality Systems

In 2013, the World Renderers Organization (WRO) published its first *Guidelines for Hygienic Rendering*. Developed by the WRO Scientific Advisory Panel and edited by Stephen Woodgate, the document was intended to provide best practice guidelines to offer useful advice and uniform approaches to the rendering industry on a global scale. The terms of references for the guidelines were prepared and a range of topics were listed.

At the time, it was proposed and supported by WRO members that the first guidelines be about hygiene and product safety thus it contained the following sectional topics:

- Management plan
- Construction of premises and equipment
- Operation requirements
- Heat treatments
- Microbial testing
- Ruminant feeding
- Traceability
- Training

Of particular note, the guidelines highlighted best practices as shown in table 1.

WRO recognized that some countries already have well-established legislation or codes of practice relating to the safety of rendered products. The WRO guidelines were not intended to be used in place of those existing parameters – extracts from existing codes and legislation were incorporated into the guidelines – but rather were developed to define the minimum requirements that could be augmented in different countries depending on circumstances. While countries may have codes and legislation that differ from the WRO guidelines, the guidelines should demonstrate that renderers facing common issues around the world can address them by applying universal principles.

Every renderer should have a quality management system to help manage business and production processes. In some cases, systems may be an in-house design that meets business needs. In other cases, the management system

may be industry- or standards-based, such as ISO 9001, which is administered by the International Organization for Standardization (ISO). The complexity of the system will depend on the scope of coverage.

The WRO guidelines advise best practices for the management plan to implement and comply with ISO 9001 or ISO 22000. These international standards provide a guide for an organization to establish policies and procedures for the planning and execution of managing quality-related business processes. Rendering plant operators, however, not only need to produce safe products while meeting the needs of the customer, but must also be able to manufacture the product safely and without damaging the environment. Therefore, the next generation of management systems should integrate quality, safety, and environmental systems.

The rendering industry is no stranger to dealing with environmental concerns. Through design and technological advances, commitment, and capital outlay, renderers are meeting environmental and safety obligations. As rendering plants are modernized or replaced, higher standards of operation are put into place so facilities comply with improved plant safety and environmental standards.

Where ISO 9001 was identified as best practice for a management plan, should we also consider integrating safety and environmental management systems? Is best practice being compliant with the global environment and safety management systems of OHSAS 18001 (British Standard for Occupational Health and Safety Assessment Series) or Australian/New Zealand Standard 4801 and ISO 14000, respectively? Are there certain elements of management planning that could tie safety and environment in with the quality management system?

Operating a rendering facility raises safety and environmental concerns that need to be effectively managed. Implementing a model systems approach incorporates management of risk and maximizes opportunities. Integrating management systems where quality, safety, and environment are all covered makes good business sense.

Table 1. WRO recommendations for best practices in hygienic rendering

Guideline Section	Rendering Best Practice
Management plan	To document a quality management system that complies with either of the international standards: ISO 9001:2008 "Quality management systems – Requirements" ISO 22000:2005 "Food safety management systems – Requirements for any organization in the food chain"
Construction of premises/equipment	For rendering building, raw material receiving areas and product storage areas to be in an enclosed building that effectively restricts access for insects, birds, vermin, and rodents. For floor and walls to be constructed from smooth and impervious material and surface be maintained in this state for ease of cleaning. For floor to ceiling walls that enclose raw material handling, rendering process, milling, and meal storage in separate areas.
Operation requirements	To employ separate staff in raw material and cooked products areas.

Rendering has progressed from “recycling” to “sustainable” and it is a good story to tell. The industry is doing the right thing servicing customers through collection and processing. Renderers manufacture products that are in high demand by various industries. We are obliged to operate our plants safely and with regard to the environment.

The industry’s commitment to quality, safety, and the environment should include the provision of safe working practices, a safe working environment, pollution prevention, safeguards against all identified risks, assessing audit results, analyzing the cause of non-conformances, and evaluating the effectiveness of corrective actions. Operating an integrated quality, safety, and environmental management system that meets the requirements of international standards would be a generational change.

The next WRO meeting is in conjunction with the National Renderers Association convention on Amelia Island, Florida, October 17-21, 2016.

A revision to the WRO guidelines needs to be considered as ISO 9001 has recently been updated. The new standard, ISO 9001:2015, was reviewed to ensure it is relevant and reflects current business practices and processes, and market demand. The most recent change is significant and will impact current management systems.

For further information on this topic please contact the author, Tim Juzefowicz, at tim.juzefowicz@csfproteins.com.au or +61 418 170 583 (Australia).



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Innovative Ideas for New Markets

One of the main priorities of the Fats and Proteins Research Foundation (FPRF) is to fund research to discover non-feed uses of rendered products. Uses for processed animal proteins and fats beyond animal feed could increase marketing options and rendering profitability in the future. New product

innovation is needed to drive potential market demand for rendered products. One of the challenges in this area has been finding researchers to focus on end uses not only in demand now but also those that could add value in the future. Currently there are two projects at the Animal Co-Products Research and Education Center (ACREC) at Clemson University that are strong examples of new uses research; one project is focused on proteins while the other is on animal fats.

The first is Dr. Srikanth Pilla's project, "Self-healing rendered protein based thermosets for high-value automotive application." The overarching objective of this research is to develop high-strength, toughened, self-healing, cross-linked thermoset composites from animal proteins. This is important because the automotive industry is mandated to make vehicles more fuel efficient and environmentally friendly by 2020. One way to do that is making a vehicle weigh less by using lightweight components derived from animal proteins.

There are always unexpected developments or difficulties to overcome in research. Pilla's group encountered such issues during the initial stage of this research, especially in getting the animal protein to react with epoxy polymers necessary to create high-strength composites for automotive applications. They recognized the problem might be that the epoxy is strongly hydrophobic and the animal protein is hydrophilic, hindering complete cross-linking. They hypothesized that a hydrophilic polymer matrix would have much better reactivity and validated this hypothesis when the researchers created a unique animal protein-waterborne polyurethane hybrid polymer. It not only exhibited excellent compatibility between the constituents but also demonstrated a highly cross-linked



Fats and Proteins Research Foundation

architecture. Currently the researchers are working toward applying a similar technology to a water-based epoxy system with excellent mechanical properties.

Epoxy is widely used in the automotive industry. Imparting self-repairing capability to epoxy systems

can make them highly recyclable, leading to a considerably reduced environmental footprint of a vehicle. Pilla plans to introduce nano/microcapsules with hydrophilic agents into the epoxy-animal protein matrix to impart self-healing characteristics to the newly developed epoxy substance. This will lead to higher acceptance of the new composite by the automotive industry, creating enhanced value of animal proteins.

The researchers managed to develop capsules that were of optimal size for self-healing applications and found by using a fluorescent dye that the capsules could encompass the healing agent within the shell. However, the constructed capsules were not robust enough to withstand the harsh environment encountered during manufacturing. Pilla's group is currently working on this problem and trying to optimize capsule shell thickness and strength.

ACREC is conducting another project to increase the value of animal fats. The goal of Dr. Mark Blenner's project, "Biocatalytic conversion of rendered animal fats to value-added products including omega-3 fatty acids," is to develop a process for converting saturated and monounsaturated animal fats into polyunsaturated fatty acids that are rich in omega-3 fatty acids commonly found in fish oil. Fish oil is expensive and unsustainable – fish are caught to process into fish meal and fish oil that are then fed to other fish. Omega-3 fatty acids are also costly but vital for the aquaculture industry. Companies have shown it is possible to use genetically modified yeast to convert glucose into omega-3 fatty acids, but Blenner theorizes that animal fats are a better starting point than these products because they have the potential to be more efficient. He has



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found that no physical pretreatment, such as emulsification, was needed for growth, efficient hydrolysis, and fatty acid utilization on beef tallow or poultry fat, making the process more efficient. Blenner's team is currently working on developing an optimized pathway for this process and looking toward additional oleochemical products that could be made from rendered fats. Microbial synthesis of omega-3 fatty acids from animal fats can provide a reliable and economic source to either replace fish oil or to enable further expansion of aquaculture.

Both of these projects are excellent examples of out-of-the-box thinking and the innovative ideas that result from having different types of researchers understand the rendering industry and propose diverse projects to FPRF. While it is vital to fund traditional research to maintain use of rendered products in animal feed and pet food, it is equally important to fund innovative projects that could lead to new uses of rendered products. Both of these projects are potentially patentable, which could in turn lead to another funding stream for more innovative FPRF research. **R**

October

American Fats and Oils Association Annual Meeting

October 12-13, Chicago, IL • www.fatsandoils.org

National Renderers Association 83rd Annual Convention

October 17-21, Amelia Island, FL • www.nationalrenderers.org

November

Canadian Bioeconomy Conference

November 28-30, Ottawa, ON, Canada • <http://ricanada.org>

January 2017

Association of American Feed Control Officials 2017 Midyear Meeting

January 16-18, Mobile, AL • www.aafco.org

National Biodiesel Conference and Expo

January 16-19, San Diego, CA • www.biodieselconference.org

International Production and Processing Expo

January 31-February 2, Atlanta, GA • www.ippexpo.com

February

International Rendering Symposium

February 2-3, Atlanta, GA • www.ippexpo.org/edu_prgms/

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Using Bacteriophages to Control *Salmonella*

Dr. Xiuping Jiang, professor in the Clemson University Department of Food, Nutrition, and Packaging Sciences, and PhD student Chao “James” Gong recently completed a pilot plant study to test use of bacteriophages to control *Salmonella* in rendering processing plant environments.

Bacteriophages are tiny viruses that infect only specific bacteria. They are harmless to humans, animals, and plants and cannot be transformed into any form of virus capable of affecting anything other than a bacterium. Ever present in the air and environment around us, it is estimated that more than 10 nonillion bacteriophages exist on Earth.

A bacteriophage is specific for a particular bacterium that carries a matching receptor site. Once a bacteriophage finds a suitable host bacterium, it attaches to the bacterial cell wall and injects its viral genetic codes into the bacterium. The viral genetic codes quickly take over the machinery of the bacterium and force the bacterium to generate multiple copies of the bacteriophage. The bacterial cell dies and bursts open releasing the newly formed bacteriophages. These then seek other bacterial host cells to infect.

As this cycle continues, bacteriophages can create an “epidemic” and quickly destroy populations of target bacteria. Beneficial bacteriophages have been used for many purposes, including as therapeutic agents prior to the advent of antibiotics. More recently they have been used in packaged cold cut meats as a United States Food and Drug Administration (FDA) “generally recognized as safe” additive to control pathogenic bacteria such as *Listeria monocytogenes*.

Jiang and her students have explored the use of bacteriophages as a low-cost and effective method to control *Salmonella* in rendering plant environments. The team first identified possibly sources of *Salmonella* contamination within rendering processing environments. Next they isolated bacteriophages specific to *Salmonella* then used these bacteriophages to reduce *Salmonella* attachment and biofilm formation on surfaces.

In the first part of the study, the research team analyzed 108 samples collected from potential sites for *Salmonella*, such as rendering plant raw material receiving areas, crax grinding, and at finished meal load-out. Of the collected samples, 73 percent were positive for *Salmonella*. There were 16 serotypes, with *Salmonella* Typhimurium and *Salmonella* Mbandaka the dominant ones. Additionally, 10 *Salmonella* serotypes were judged to be strong biofilm formers, meaning they have the ability to create a protective environment for themselves on surfaces. As expected, the raw material receiving areas were the primary source of *Salmonella* but the surfaces surrounding crax grinding and the finished meal load-out areas harbored *Salmonella* in biofilms. It was also noted that the same serotypes of *Salmonella* were found in both raw materials and in the finished meal load-out areas suggesting potential cross-contamination had occurred between different areas of the rendering processing environment.

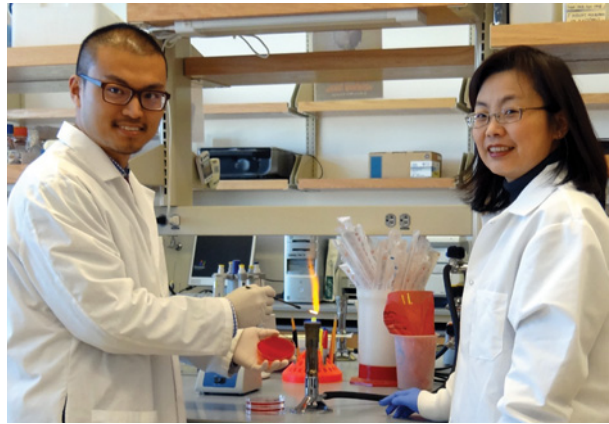


Photo by Rayleen A. Hendrix

Student Chao “James” Gong, left, and Dr. Xiuping Jiang research ways to combat *Salmonella* using bacteriophages.

The team collected samples from within rendering plants and isolated bacteriophages capable of infecting/killing *Salmonella* serotypes found to be present in rendering processing environments. They were successful in isolating 94 bacteriophages against *Salmonella*. From these, they selected the best for destroying the 10 serotypes of biofilm-forming *Salmonella* they had noted in the previous experiment, creating a “cocktail” of multiple types of bacteriophages to develop a potent *Salmonella*-killing product. They studied how to optimize the killing power of the bacteriophages and how to use these as a supplement along with sodium hypochlorite (bleach) for use in boot baths.

Boot baths are designed to reduce cross-contamination from different areas of processing plants. Workers scrub their boots thoroughly on each trip through the boot bath. However, boot baths have several inherent problems. One is that typical boot bath disinfectants can lose effectiveness with time and soil deposition. Two, persuading workers to regularly use boot baths properly is difficult. Many times workers will simply step over or around the bath, completely avoiding contact with the disinfectant solution. Other times, workers often step only one foot into the bath and then keep walking.

After preliminary testing of the *Salmonella*-specific bacteriophage cocktail on different surfaces typical in rendering environments, Jiang and Gong moved their work to rendering plants in an attempt to reduce *Salmonella* contamination on workers’ boots. They put their bacteriophage cocktails in the boot bath and observed that *Salmonella* populations on workers’ boots were reduced by 84.5 percent. They combined their bacteriophage cocktail with diluted sodium hypochlorite and the *Salmonella* populations on boots were reduced by 92.9 percent. This mixture produced an added benefit of extending the effective time of the solution.

Normally when sodium hypochlorite is used in boot baths, it loses its effectiveness to kill bacteria over time due to soil contaminants from the boots binding with it along with

off-gassing of the chlorine. The loss of hypochlorite solution strength also is affected by heat and sunlight. Addition of the bacteriophage cocktail to the solution allowed improved bactericidal activity. Finally, the researchers combined bacteriophage treatment with daily boot scrubbing and noted a 93.2 percent reduction in *Salmonella* populations on workers' boots.

Use of bacteriophages to reduce *Salmonella* biofilms could be beneficial to rendering quality control programs and help prevent cross-contamination. Bacteriophages are effective and non-corrosive. An added benefit is that, upon killing their target bacterium, they multiply and release many copies of themselves seeking out other *Salmonella* bacteria to destroy. This "epidemic" likely will create a protection within a rendering plant to help fight *Salmonella* using an environmentally friendly biological control method. Use of this technology will further improve worker safety and produce high-quality, *Salmonella*-free rendered animal meals.

Gong completed his PhD degree in May 2016 and now works for a rendering company in the Midwest. **R**

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Workplace Violence: Active Shooter Response

Editor's note – Mark A. Lies II is an attorney and partner with the Chicago, Illinois, law firm of Seyfarth Shaw LLP. He practices in the areas of employment, occupational, safety, and health, and tort litigation. Legal topics provide general information, not specific legal advice. Individual circumstances may limit or modify this information.

As the pace and emotional pressures of everyday life impact both employees at home and in the workplace, as well as unknown individuals (including terrorists), a distressing and tragic trend is occurring — employees and unknown individuals are unable to control their emotions at work or have ulterior criminal motives and violence erupts toward co-workers, customers, or third parties. The unfortunate statistics show that homicide is the number one cause of death for women in the workplace and the third overall cause for men and women combined. This trend is expected to increase in times of economic uncertainty and social and political unrest. In many cases, these acts of violence occur as employees face the prospect of layoffs and corporate reorganizations in many industries.

No employer wants such incidents to occur. Ironically, however, as employers struggle to avoid these potential legal liabilities through creation and enforcement of employment policies, they are met with a host of federal and state laws that may protect certain employee conduct. More importantly, since an employer has no objective “litmus test” for predicting which employee may become violent under particular triggering circumstances, there is no fool-proof way to effectively eliminate the hazard. Likewise, an employer cannot predict whether unknown individuals may decide to commit random acts of violence because of mental and emotional conditions or for misguided political or religious motivations.

OSHA

Under the Occupational Safety and Health Administration’s (OSHA’s) General Duty Clause, an employer is required to protect its employees against “recognized hazards likely to cause serious injuries or death.” As such, an employer should consider developing a workplace violence prevention and response policy that should, at minimum, include these elements:

- a stated management commitment to protecting employees against the hazards of workplace violence, including both physical acts and verbal threats;
- a statement that the employer has a “zero tolerance” policy toward threats or acts of violence and will take appropriate disciplinary action against employees who engage in such conduct;
- identified means and methods for employees to notify the employer of perceived threats of violent acts in a confidential manner;

Statistics show that homicide is the number one cause of death for women in the workplace and the third overall cause for men and women combined.

- a means to promptly investigate all such threats or violent acts;
- consistent, firm discipline for violations of the policy;
- training for managers and employees to identify signs and symptoms of employee behavior that may predict potential violence (i.e., erratic behavior; employee comments regarding homicide or suicide; provocative communications; disobedience of policies and procedures; presence of alcohol, drugs, or weapons at the worksite; physical evidence of employee abusing alcohol or drugs) and should be reported to the employer;
- a non-retaliation policy for employees who report verbal and physical conduct to the employer who they reasonably believe represents a threat of potential workplace violence;
- a team of qualified individuals (e.g., human resources, risk managers, legal, medical, security) either within the company or readily available third parties who can respond to a potential or actual incident; and
- an employee assistance plan to help workers who may be experiencing mental or emotional stress.

Active Shooter Emergency Response Policy

Unfortunately, despite the fact that many employers have developed workplace violence prevention and response policies, there will be instances where an active shooter, be it an employee or an unknown individual, will come to the premises and attempt to kill employees and other people who may be at the workplace. In anticipation of such an event, the employer should consider developing an active shooter emergency response policy to inform employees of the three courses of action to take — evacuate, hide out, or self-defense — and how to react when law enforcement arrives.

The sample policy on the next two pages sets out recommendations gathered from the Department of Homeland Security, the Federal Bureau of Investigation, other law enforcement agencies, and recognized industry sources. Consider developing such a policy utilizing the one provided and customize it to your worksite. This article and policy template is provided to be of assistance in preventing or minimizing another high-profile workplace tragedy. **R**

Comments on the policy are welcome. Employers seeking assistance developing a policy or conducting training can contact Mark Lies II by e-mailing mlies@seyfarth.com.

Active Shooter Emergency Response Policy

Purpose: This policy is intended to provide guidance in the event an individual is actively shooting persons at the workplace and to comply with applicable regulations of the Occupational Safety and Health Administration (OSHA).

Policy: It is the policy of the company to provide an active shooter emergency response plan to alert employees that a shooter appears to be actively engaged in killing or attempting to kill people at the workplace.

Definitions: For purposes of this policy, an “active shooter” is defined as a person or persons who appear to be actively engaged in killing or attempting to kill people at the company’s premises. In most cases, active shooters use a firearm(s) and display no pattern or method for selection of their victims. In some cases active shooters use other weapons and/or improvised explosive devices to cause harm to additional victims and to act as an impediment to police and emergency responders. These improvised explosive devices may detonate immediately, have delayed detonation fuses, or detonate on contact.

Procedures:

1. The first employee to identify an active shooter situation should, as soon as possible, call the company emergency number (_____) and announce a prearranged code (e.g., “active shooter”) with the location of the incident, a physical description of the person(s) with the weapon, and type of weapon, if known.
2. The emergency operator upon notification will provide a public announcement “Code _____ [and the location]” on the public address system.
3. The emergency operator or any employee who is at a location distant from the active shooter, such as in a different area or floor, will call 911 emergency.
4. The phone call to 911 (from the area where the caller is safely concealed) should provide the following information to police:
 - a. Description of suspect(s) and possible location
 - b. Number and types of weapons
 - c. Suspect’s direction of travel
 - d. Location and condition of any victims

Potential responses: In response to an active shooter event, there will be three potential courses of action: evacuate, hide out, or self-defense. The following guidelines identify these courses of action.

Evacuate: If there is an accessible escape path, attempt to evacuate the premises following these recommendations:

- Have an escape route and plan in mind.
- Evacuate regardless of whether others agree to follow.
- Leave belongings behind.
- Help others escape if possible.
- Prevent individuals from entering an area where the active shooter might be.

- Keep hands visible.
- Follow the instructions of police officers.
- Do not attempt to move wounded people.
- Call 911 when safe.

Hide out: If evacuation is not possible, find a place to hide where the active shooter is less likely to find you, with these recommendations:

- The hiding place should
 - be inconspicuous;
 - be out of the active shooter’s view;
 - provide physical protection if shots are fired in your direction (e.g., going into a bathroom and locking the door, staying as low to the floor as possible, and remaining quiet and motionless); and
 - not trap you or restrict options for movement.
- To prevent an active shooter from entering the hiding place
 - lock the door and/or
 - blockade the door with heavy furniture.
- If the active shooter is nearby
 - lock the door;
 - silence cell phones and/or pagers;
 - turn off any source of noise (i.e., televisions, radios);
 - hide behind large items (i.e., cabinets, desks); and
 - remain quiet and motionless.

Self-defense: If it is not possible to evacuate or hide, then consider self-defense with these recommendations:

- Remain calm.
- Dial 911 if possible to alert police to the active shooter’s location.
- If you cannot speak, leave the line open and allow the 911 dispatcher to listen.
- Take action against the active shooter and, only if you believe your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter by
 - acting as aggressively as possible against him/her;
 - throwing items and improvising weapons;
 - yelling; and/or
 - committing yourself to defensive physical actions.

Law enforcement response: When police arrive to respond to the emergency, follow these recommendations:

1. Comply with police instructions. The first responding officers will be focused on stopping the active shooter and creating a safe environment for medical assistance to be brought in to aid the injured.
2. When police arrive at your location:
 - a. Remain calm and follow officers’ instructions.
 - b. Put down any items in your hands (i.e., bags, jackets).

Continued on page 38

China to Lift Ban on US Beef

Following a 13-year ban, an announcement in late September from the Chinese government indicates they will begin accepting United States (US) beef from animals under 30 months of age. The next step is for US Department of Agriculture officials to work with China's Administration of Quality Supervision, Inspection, and Quarantine to approve the certificates and protocols for exports. **R**



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Law Continued from page 37

- c. Immediately raise your hands and spread your fingers.
 - d. Keep your hands visible at all times.
 - e. Avoid making quick movements toward officers such as attempting to hold on to them for safety.
 - f. Avoid pointing, screaming, and/or yelling.
 - g. Do not stop to ask officers for help or direction when evacuating, just proceed in the direction from which officers are entering the area or to an area to which they direct you.
 - h. Notify company representatives that you have evacuated the premises.
3. When police arrive, the following information should be available:
 - a. Number of shooters.
 - b. Number of individual victims and any hostages.
 - c. The type of problem causing the situation.
 - d. Type and number of weapons potentially in the shooter's possession.
 - e. All necessary company representatives still in the area as part of the company's emergency management response.
 - f. Identity and description of participants if possible.
 - g. Keys to all involved areas as well as floor plans.
 - h. Locations and phone numbers in the affected area.

Post-incident action: When police have determined the active shooter emergency is under control, the emergency operator will provide a public announcement that the emergency is over by using a prearranged code (e.g., "all clear").

Police investigation: After police have secured the premises, the company will arrange to have designated management representatives participate in the law enforcement investigation of the incident, including identifying witnesses and providing requested documents.

Medical assistance: The company will designate management representatives who will work with emergency responders to provide medical assistance to injured employees, including ensuring that all required medical benefit and insurance documentation is provided.

Notification of relatives: The company will designate management representatives to notify relatives of any injured employees in a timely fashion.

OSHA: In the event there is a fatality or one or more employees are hospitalized for treatment, OSHA must be notified. If there is a fatality, OSHA must be notified within eight hours. In the event of a hospitalization of one or more employees for treatment, OSHA must be notified within 24 hours. In addition, if the fatality or injury is work-related, the company may have to record the incident on its OSHA 300 Log within seven calendar days.

Media: The company will designate management representatives who will respond to any media requests for information. Such representatives will carefully consider the nature of any such requests to avoid disclosing information about any person that is confidential and protected by federal and state privacy, keeping in mind medical information laws and regulations, and avoid interfering with any ongoing police or internal company investigation.

Coordination:

This policy has been coordinated with the _____ Police Department.

References:

US Department of Homeland Security Active Shooter-How to Respond, October 2008
US Federal Bureau of Investigation Active Shooter Planning and Response in a Healthcare Setting, April 2015

Hormel Foods Changes Leadership

Jeffrey M. Ettinger will retire as chief executive officer (CEO) of Hormel Foods Corporation on October 30, 2016, but will continue to serve as Hormel Foods' chairman of the board. The company's board of directors elected James P. Snee to be the company's next CEO, effective October 31, 2016.

Snee becomes president and CEO of Hormel Foods after serving as president and chief operating officer since October 2015. In that role, he led the company's business segments and global operations, including grocery products, refrigerated foods, specialty foods, and Jennie-O Turkey Store. Snee joined Hormel Foods in 1989 in the foodservice division and served in various positions before being named vice president of Hormel Foods and senior vice president of Hormel Foods International Corporation at the end of fiscal year 2011. Snee advanced to group vice president of Hormel Foods and president of Hormel Foods International Corporation in October 2012.

Ettinger served as chairman of the board, president, and CEO from November 2006 until October 2015, when Snee was appointed president. Ettinger joined Hormel Foods in 1989 and has served in a variety of roles, including senior attorney, product manager for Hormel chili products, and treasurer. He currently serves on the boards of The Toro Company, Ecolab Inc., North American Meat Institute, Grocery Manufacturers Association, The Hormel Foundation, The Hormel Institute, and the Minnesota Business Partnership.

In 2016, Ettinger was named as one of the 30 World's Best CEOs by Barron's and in 2012 was named Responsible CEO of the Year by *Corporate Responsibility* magazine. In addition, Ettinger is the founding chair of the company's diversity and inclusion council, which aims to meet the growing needs of its diverse workforce and consumer base.

Smith Nominated Entrepreneur of the Year

Over the years, Ernst & Young (EY) has recognized more than 9,200 United States business leaders with the EY Entrepreneur of the Year award. This year, during its 30th anniversary celebration, J.J. Smith, president of Valley Proteins Inc., was nominated for this prestigious award by EY for the mid-Atlantic region.

The award was created to recognize pioneers of business that come from all walks of life, creating and leading companies reflecting their origins and spirits. Finalists were separated into categories that included government services, family business, health, technology, products and services, social responsibility, and emerging industries. Each nominee was evaluated on a balanced scorecard that included demonstration of business excellence and extraordinary success in such areas as innovation, financial performance, risk, and personal commitment to their businesses and communities.

Smith was one of three nominated to represent the family business category. The other nominees included Bill Marriott of Marriott International Inc. and Julian Setian of SOS International LLC. Although Marriott won the award, Smith was honored and humbled that he was even considered and nominated for an award that has been received by such entrepreneurs as Michael Dell of Dell Inc., Richard Schulze of Best Buy Co. Inc., and Jack and Andy Taylor of Enterprise Rent-a-Car.

For three generations, Valley Proteins has been a leader in providing rendering and recycling services, producing sustainable high-protein, high-energy feed ingredients that nourish the global food supply.



J.J. Smith

Foster Farms Names New CEO

Foster Farms in Livingston, California, has appointed Laura Flanagan president and chief executive officer (CEO), concluding a 22-month search to replace Ron Foster, grandson of company founders Max and Verda Foster, who has led the company since 2003. Foster announced in October 2014 that he would step down as president and CEO but remain as board member and owner.

Flanagan, 48, most recently served as president of ConAgra Foods Snacks Division and previously was president of the company's Convenient Meals Division from 2008 to 2011. She also directed initiatives to promote diversity, develop internal talent, and build skills and capabilities through ConAgra. Before joining ConAgra, Flanagan was vice president and chief marketing officer of Tropicana Shelf Stable Juices at PepsiCo, and held brand-management positions at General Mills and PepsiCo from 1996 to 2005. Earlier, she was a manufacturing engineer at Saturn Corporation. She earned her master of business administration from Stanford Graduate School of Business in 1996. Flanagan currently serves on the board of directors at Core-Mark International.

Under Ron Foster's leadership, Foster Farms grew by 70 percent and became the nation's first major poultry producer to be certified by the American Humane Association. The company was selected as the 2016 Processor of the Year by *The National Provisioner* for industry-leading achievements in food safety, water conservation, and product diversity. While Foster led the company, it raised the National Thanksgiving Turkey for the White House on two occasions, became the number one brand of frozen cooked chicken in the western United States, and emerged as the largest producer of organic and antibiotic-free fresh chicken on the West Coast.



Laura Flanagan

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Statement of Ownership, Management, and Circulation (Requester Publications Only)

Publication Title: Render - The International Magazine of Rendering
 Publication Number: 0090-8932 Filing Date: September 30, 2016
 Issue Frequency: Bi-monthly Number of Issues Published Annually: 6
 Annual Subscription Price: Free to Qualified
 Complete Mailing Address of Known Office of Publication: 1621 Glen Drive, Placerville CA 95667
 Contact Person: Tina Caparella Telephone: (530) 306-6792
 Complete Mailing Address of Headquarters or General Business Office of Publisher: 1621 Glen Drive, Placerville CA 95667
 Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor:
 Publisher – Tina Caparella, 1621 Glen Drive, Placerville CA 95667
 Editor – Same as above Managing Editor – Same as above
 Owner: National Renderers Association, 500 Montgomery St Ste 310, Alexandria, VA 22314
 Issue Date for Circulation Data Below: August 2016

	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
Total Number of Copies:	3,533	3,450
Outside County Paid/Requested Mail		
Subscriptions stated on PS Form 3541	2,715	2,780
Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid or Requested Distribution Outside USPS:	549	547
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Mail Classes Through the USPS:	45	50
Total Paid and/or Requested Circulation:	3,309	3,377
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Total Nonrequested Distribution:	165	0
Total Distribution:	3,474	3,377
Copies not Distributed:	59	73
Total	3,533	3,450
Percent Paid and/or Requested Circulation	100%	100%

Publication of Statement of Ownership for a Requester Publication is required and will be printed in the October 2016 issue of this publication.

I certify that all information furnished on this form is true and complete: Tina Caparella, Editor/Publisher, September 30, 2016
 PS Form 3526-R, July 2014

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