

SEEKING BALANCE IN THE MIDST OF TRADE TURBULENCE



Protecting the cold chain against the impact of global trade fluctuations.

08

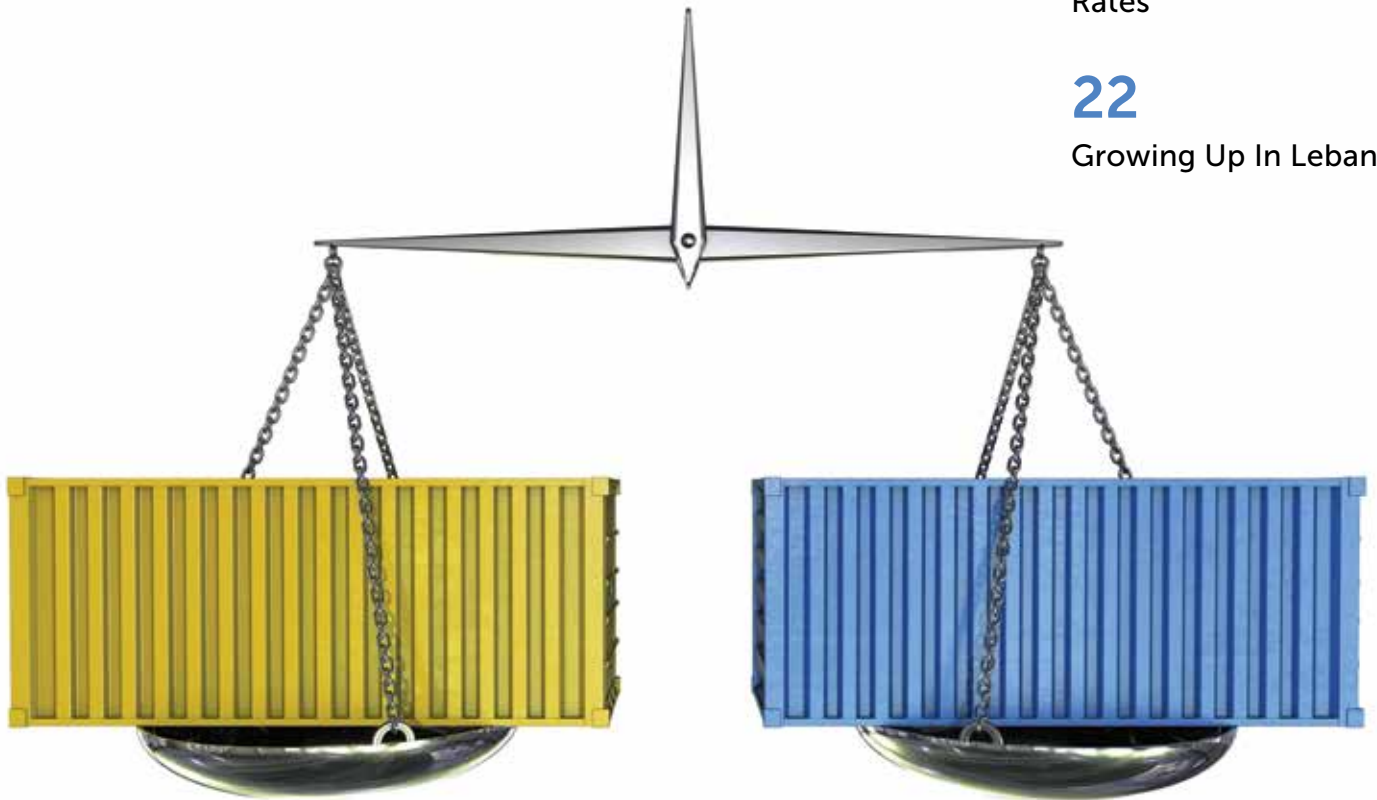
Trade Deals Signal Opportunities for the Cold Chain

18

Innovative Strategies Stabilize Turnover Rates

22

Growing Up In Lebanon



28

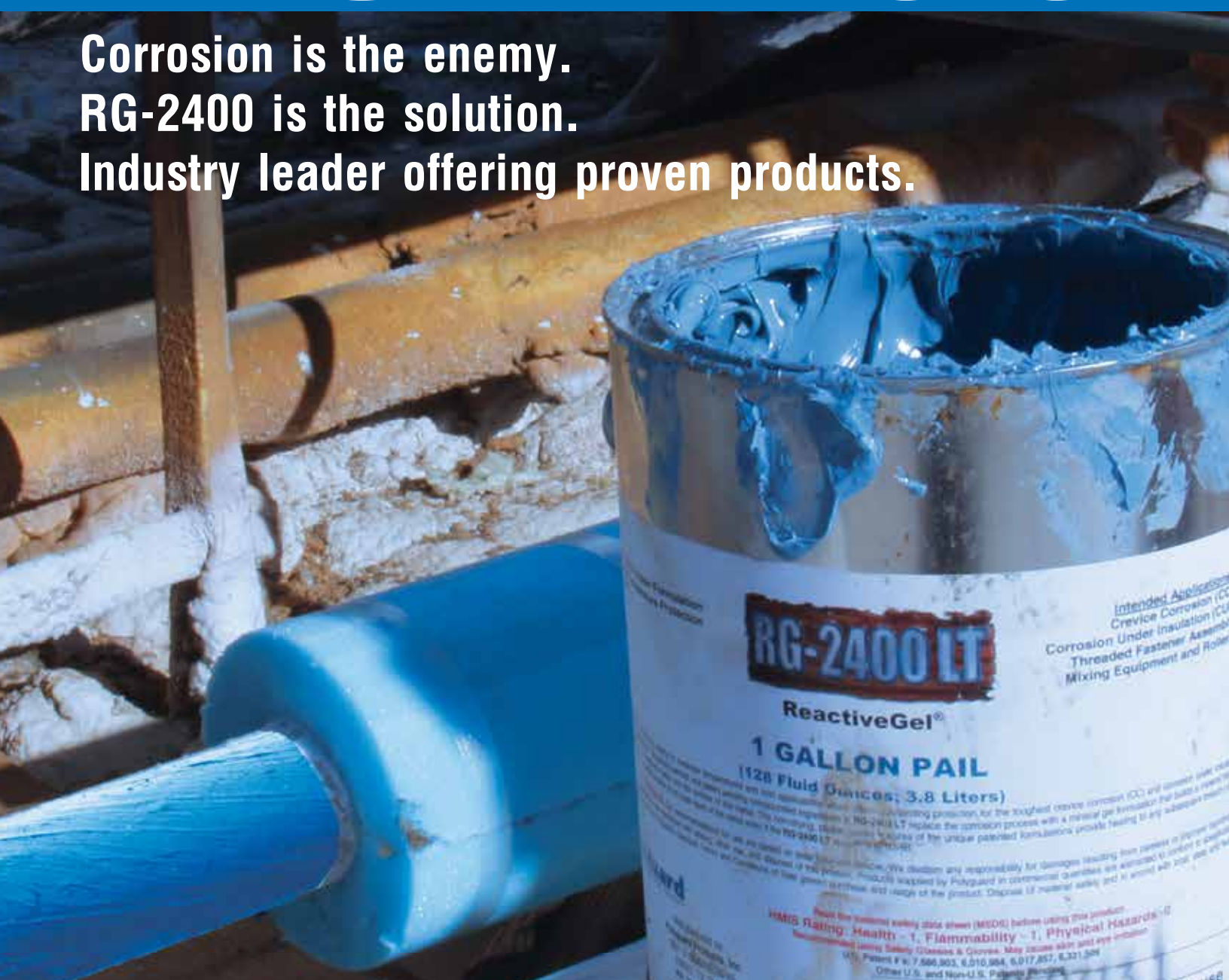
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32

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DEPARTMENTS

- 36 Cold Chain Development
- 38 Cool Solutions
- 40 Industry Calendar
- 41 Cold Chain Innovations
- 42 Association News
- 43 Member News
- 44 New Members

COLUMNS

- 06 Leadoff
- 46 Cool Person



About the Cover

GCCA members companies share experiences and strategies for how to weather the challenges, and prepare for the opportunities, of trade turbulence. See the article on page 12.

FEATURES

08

Trade Deals Signal Opportunities for the Cold Chain

Doors open to increased trade in food and agriculture.
By Lowell Randel

12

Seeking Balance in the Midst of Trade Turbulence

Protecting the cold chain against the impact of global trade fluctuations.
By Alexandra Walsh



18

Innovative Strategies Stabilize Turnover Rates

2020 Benchmark Survey Provides Data and Best Practices for Retention
By Sheryl S. Jackson

22

Growing Up in Lebanon

Expansion includes first ASRS freezer.
By Keith Loria

28

129th IARW-WFLO Convention

Find solutions to business problems and opportunities to grow.
By Cathy Lada

32

Self-Driving Trucks Debut in the Cold Chain

Land O' Lakes butter chills on cross-country pilot.
By Karen E. Thuermer





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New Strategies for a New Decade

AS THE INCOMING CHAIRS OF IARW AND WFLO, WE COULDN'T BE MORE EXCITED AS WE START OUR CHAIRMANSHIP TO LAUNCH THE NEW 2020-2022 IARW-WFLO STRATEGIC PLAN.

The Strategic Plan was crafted using the results of a recent member survey, which reaffirmed that the cold chain is a dynamic and thriving industry. Stakeholders are optimistic about the future, but also recognize that more needs to be done to ensure sustainable growth.

Together with a Strategic Planning Task Force of IARW member company representatives and IARW-WFLO Boards, GCCA staff members built the association's new Strategic Plan. The group established goals aligned to four priority areas: *workforce innovation, market intelligence, industry promotion and global advocacy* as well as created strategies and initiatives to achieve each goal area. The new plan will be presented to members during the State of the Association session conducted at the 129th IARW-WFLO Convention in May – another great reason to attend.

In its continuing effort to meet the needs of the 40 percent of members located outside of North America, last year GCCA opened an office in South Africa, adding to its roster of regional bureaus now in Latin America, Brazil, India and Europe.

The WFLO Institute initiated its first training program in Australia last year, and now operates in four locations in three countries providing more worldwide cold chain training to attract a new set of future leaders. Recent WFLO Institute graduate Lamiaa Mohamed with Congebec, exemplifies that future leader and is our Cool Person featured on page 46.

Since 2002, WFLO has completed more than 111 projects in 67 countries to help build and secure the global cold chain for the future. This vital work will continue in 2020, but only because the program is supported by the many GCCA member company representatives who take time away from their businesses and families to travel across the world to share their knowledge and experience. To see members, boots on the ground, working in an emerging market to help establish a cold chain, look no further than the article on Cambodia's cold chain on page 36.

Finally, we want you to know how excited and honored we are to have the opportunity to serve the IARW/WFLO membership.

We both come from small, independent cold storage companies and we are a testament that all IARW-WFLO member voices count. 🌐



RON BUFORD
IARW CHAIR



BRIAN BEAZER
WFLO CHAIR

COLDFACTS

COLD FACTS magazine is published every other month by the **Global Cold Chain Alliance (GCCA)**, an organization that unites partners to be innovative leaders in the temperature-controlled products industry. The GCCA Core Partners are:

The **International Association of Refrigerated Warehouses (IARW)**, which promotes excellence in the global temperature-controlled warehouse and logistics industry.

The **World Food Logistics Organization (WFLO)**, which delivers education and research to the industry and empowers economic development by strengthening the global cold chain.

The **International Refrigerated Transportation Association (IRTA)**, which cultivates, fosters and develops commercial and trade relations between all those engaged in the transportation and logistics of temperature-controlled commodities.

The **Controlled Environment Building Association (CEBA)** represents the design and construction industry specializing in temperature-controlled facilities that prioritize product safety best practices. We are the source for best practices of building and maintaining the thermal envelope.

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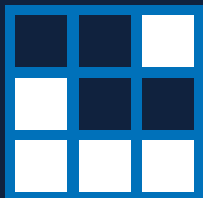
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TRADE DEALS SIGNAL OPPORTUNITIES FOR THE COLD CHAIN

Doors open to increased trade in food and agriculture.

By Lowell Randel

While much of Washington, D.C. was deadlocked in a political battle over the impeachment of Donald Trump, there were signs of progress in a policy area that brings significant opportunities to the cold chain.

Recent advancements in trade deals with major trading partners open the door for increased movement of perishable commodities among the countries of North America and between the United States and China.

USMCA (NAFTA 2.0)

The North American Free Trade Agreement (NAFTA) was largely seen as a success for the food and agriculture industry across all three member countries. The volume of trade increased significantly since the agreement

went into effect. According to the United States Department of Agriculture, Canada and Mexico are the first and second largest export markets for United States food and agricultural products, totaling more than \$39.7 billion in 2018. Mexico and Canada exported over \$48 billion combined in food and agricultural products to the United States in 2018.

However, NAFTA was also subject to significant criticism in the United States from other sectors, and modernizing NAFTA became a

top priority for President Trump. The result of these efforts is the replacement of NAFTA with the new United States, Mexico and Canada Agreement (USMCA).

One of the major stated goals of the USMCA is to bring the regional agreement into the 21st century. The original NAFTA was signed in 1992, and there have been significant developments in technology and trade in the last 25 years. Examples of modernization include a new chapter on digital trade, new policies on agricultural biotechnology and stronger provisions related to intellectual property.

Agriculture is a significant driver of the USMCA country economies and was an important part of the original NAFTA. The new USMCA recognizes the critical role of agriculture in the region and includes provisions to facilitate freer trade in agricultural products.



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Major food and agriculture provisions include:

- Maintain zero tariff rates for agricultural products established under the original NAFTA.
- Increase access of U.S. dairy products into Canada, including new tariff rate quotas.
- Elimination of Milk Classes 6 and 7 in Canada.
- Expanded poultry and egg market access for U.S. products into Canada, including new tariff rate quotas.
- Increased access of Canadian sugar, margarine and peanuts into the United States.
- Establish new standards for agricultural biotechnology.
- Enhance rules for science-based sanitary and phytosanitary measures.
- Prohibiting trade barriers for alcoholic beverages.

According to a report by the International Trade Commission, the combined effect of all USMCA provisions would increase total annual U.S. agricultural and food exports by \$2.2 billion when fully implemented. The largest increases will come from dairy, eggs and poultry, all perishable commodities requiring a strong cold chain. Approval of the USMCA should reduce trade policy uncertainties, facilitate growth in the trade of perishable commodities between the three countries, and lead to opportunities for the cold chain.

U.S. – China “Phase 1” Trade Agreement

In addition to revamping trade in North America, President Trump has made rebalancing the trading relationship with China a priority.

Negotiations with China have been rocky, with tensions escalating on both sides. However, on January 15, 2020, a “Phase 1” agreement was signed that addresses some of the trade policy challenges between the two countries. As a part of the agreement, China has pledged to increase its purchases of U.S. goods, including agricultural commodities. The total commitment in new purchases over the next two years is \$200 billion and will be measured on the baseline of trade volumes in 2017. The increased amounts include at least \$32 billion in additional agricultural products, as well as \$77.7 billion worth of manufactured goods, \$52.4 billion of energy and \$37.9 billion of services.

The 2017 baseline for agricultural exports is \$24 billion. The Phase 1 deal stipulates that China will purchase at least \$12.5 billion additional agricultural products above the 2017 baseline (\$24 billion) in 2020, and at least \$19.5 billion above 2017 levels in 2021. It has been reported that China will try to buy an additional \$5 billion of U.S. agricultural goods over the minimum commitments each year. Given the major impacts of African swine fever on China’s domestic swine production, it is expected that pork will be a significant portion of the increased purchases.

According to the United States Trade Representative (USTR), China has also agreed under Phase 1 to remove over 50 restrictive policies that have hindered exports of American products, including many dependent on the cold chain such as beef, pork, poultry, seafood, dairy, potatoes and blueberries. While the deal does not lift any of the retaliatory tariffs that China placed on U.S. products as a part of the

escalating trade tensions, it will be granting tariff exclusions for the agricultural products bought under the agreement. While significant policy differences remain between the U.S. and China, successful implementation of the Phase 1 deal should lead to more movement of perishable commodities between the two countries.

President Trump talked repeatedly on the campaign trail about the need to reform the North American Free Trade Agreement as well as the importance of rebalancing the trading relationship with China. With the recent ratification of the USMCA and the signing of the “Phase 1” deal with China, these goals are closer to being achieved and the cold chain will play an important role in facilitating the increased trade in food and agriculture. ☞

LOWELL RANDEL is Vice President, Government and Legal Affairs at GCCA.

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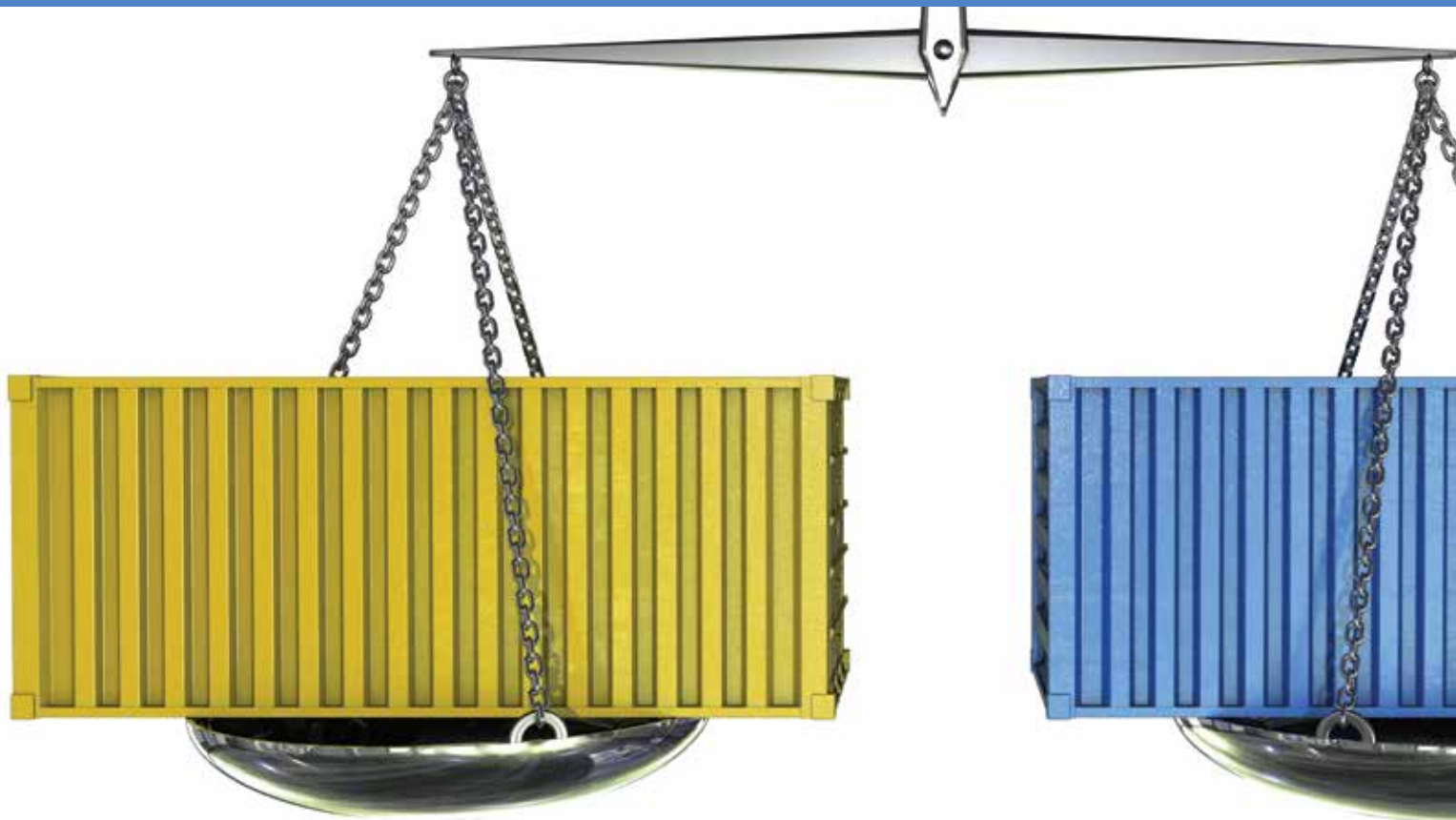
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SEEKING BALANCE IN THE MIDST OF TRADE TURBULENCE

Protecting the cold chain against
the impact of global trade fluctuations.

“Escalating trade conflicts are taking an increasing toll on confidence and investment, adding to policy uncertainty, aggravating risks in financial markets and endangering already weak growth prospects worldwide.” Laurence Boone, Chief Economist, Organization for Economic Co-operation and Development (OECD).



Last spring, the OECD's chief economist pointed her finger at trade tensions and disputes as the primary culprit for derailing global growth and investment and warned the global economy will only see fragile growth over the next two years.

In January 2020, trade tensions eased a little as the world's two largest national economies agreed to the US-China Phase One trade deal and President Trump signed the United States-Mexico-Canada Agreement (USMCA) into law. (See page 8.)

Two years after the United States pulled out of the Trans-Pacific Partnership (TPP), Australia's cold chain operators are generally optimistic about the future of global food trade after becoming a signatory to the new and revised trade agreement, now known as CPTPP or TP11.

Meanwhile, in a post-Brexit world, international companies are looking hard at their supply chains. The prospect of the United Kingdom, the world's fifth largest economy leaving the European Union, its biggest trading partner, is leading food companies to stockpile supplies. This has led to a huge spike in demands for refrigerated and frozen warehouse space, outstripping the country's capacity.

How have cold chain operators been impacted by these recent trade wars and skirmishes, disagreements and alliances? And what strategies do they undertake to mitigate risk, maximize opportunity and remain competitive in the face of global trade fluctuations?

USMCA: Expectation of Growth

In northwestern Mexico, where the cold chain industry is highly dependent on agricultural and aquaculture crops, new projects came to a virtual standstill as post-NAFTA negotiations lingered on.

"The processors were very nervous as they waited for the outcome of the negotiations," acknowledges Rodolfo Salazar, Director of Sonhofrut Mexico. "But now that the trade agreement is signed, already there is new confidence, new projects and an expectation of growth."

Salazar noted his company has just invested in an expansion that will increase its capacity to store fruit before cooling and freezing.

Mauricio Barrera, Director General of Basal in Monterrey, Mexico, says there was some slowdown in imports because of tariffs while USMCA stalled, but in general, this did not impact the cold chain.

"On the other hand, exports were impacted to the extent that Mexican food processors started looking for new markets," Barrera says. "A lot of meat was being exported to Asia."

Barrera says that Mexico signing the USMCA brings certainty and for now, it's an opportunity for long-term projects and contracts with clients.

Looking to the future, Barrera remains cautious. "With new government administrations, you don't always know what to expect, things can change and those changes might be good or bad."

Fernando León Alatorre, Director of Bajo Cero Frigoríficos, Mexico, believes that the best strategy to withstand the impact of trade issues is to operate under international standards, and be efficient and competitive.

"Now that the deal is signed, and fees for international trade are gone, commerce in frozen foods will expand between the three

countries and interaction between producers and consumers of frozen foods in the different countries will also increase," says. "The trade deal will escalate the trust between international companies in the long term."

Nearly three thousand miles away, a Canadian cold chain operator has more on his mind than USMCA.

"It was pretty much business as usual while we were in a holding pattern between the end of NAFTA and USMCA," said Nick Pedneault, President and CEO of Congebec. "From our perspective, nothing really changed in this agreement, outside of dairy."

Under USMCA, Canada agreed to open up its market and allow American farmers to sell more milk, cheese and other dairy products north of the border.

China, on the other hand, has been a whole different kettle of fish for Pedneault ... or container of pork.

China Trade Wars: Pivot for Pork

Nick Pedneault knows how to deal with the ups and downs of trade negotiations – the international borders that are open to your customers one day and shut the next.

You pivot.

That's what he did in 2014, when Russia, one of Canada's biggest export markets for pork, banned all Canadian pork.

"We said let's go to China, and it became our biggest market," explains Pedneault.

But, it wasn't easy as it is extremely difficult to be listed as an approved facility to export to China. "There were 28 locations that could export and we controlled nine of them. Over time, we maneuvered all our customers to locations where they could ship to China," Pedneault says.

Then, in 2019, without warning, China closed its borders to pork products from Canada.

"It was a big problem for everybody – 20 to 30 containers were leaving for China every day and it all came to a stop," Pedneault recalls. "But pork production and processing doesn't stop – the animals had to be processed, frozen and stored somewhere. It put tremendous

pressure on capacity across the country.”

And then the Chinese pork industry was hit with a massive case of swine flu at the end of 2019, the ban was lifted and it was back to business, or so Pedneault thought.

“We were braced for a tsunami of activity, as all our warehouses were full of pork, ready to go,” says Pedneault. “But the ban was in place so long, the dates in inventory didn’t match expectation and we had to do a full inventory turn.”

And there were logistical obstacles. “You can’t suddenly pack and ship hundreds of containers across the country, you have to find them first, and during the trade war, the containers had been reassigned to vessels all over the world.”

Pedneault had expected their customers to release hundreds of orders a day but ended up with a much slower restart than expected. “It was incredibly disappointing for our customers that work so hard to produce the best possible product. This needs to be kept in mind no matter the political situations that we face.”

Quality control is a core best practice in remaining competitive in periods of trade uncertainty, believes Pedneault. “We ship to countries with some of the strictest regulations in the world, and we do that successfully because of the thoroughness of our quality control teams. We will never lose access to a market through our own actions.”

Brexit: A Buffer on Both Ends

The United Kingdom left the European Union (EU) on January 31, 2020, officially ending Brexit, and has now entered an 11-month transition period.

During this period, the United Kingdom effectively remains in the EU’s customs union and single market and continues to obey EU rules.

The U.K. government has indicated that its first priority will be to negotiate a trade deal with the EU.

Since March 2017, Brexit was characterized by deadlock and delay, and advocacy for and rebellion against, leaving the EU. And that was just in Parliament.

Some companies might consider this period a less than auspicious time to establish a footprint in a new market. Others, like Lineage Logistics, pressed on with their international growth strategy.

“Three years ago, in 2017, Lineage entered the European market by acquiring Partner Logistics and their fully automated facilities in continental Europe and the United Kingdom,” says Mike McClendon, President, International Opera-

“Define your long-term view, know your weakest and strongest links, which allows you to respond to the unpredictability, know the risks, focus on capability and continuous improvement, be prepared for re-design, restructure, merge or acquisition, to manage the unpredictability.”

—CHRIS CARTWRIGHT,
Emergent Cold

tions and Executive Vice President, Network Optimization for Lineage Logistics. “Then, in 2018, Lineage acquired the Yearsley Group and their locations across England and Scotland to build on our existing presence in the market.”

McClendon acknowledges the company was well aware of the implications of Brexit before going in.

“We asked ourselves three questions: Do we believe in the United Kingdom and continental Europe as solid independent markets post-Brexit? Do we believe in our industry and its place in these markets? Do we believe in the people and team members that we’re investing in?”

“Our mindset was, if the answer to the three questions is ‘yes,’ we can work through all other issues as a team,” McClendon says. “We were making a declarative statement to the market that we’re here to grow our footprint, to invest in our teams and support our customers – wherever they are, in every part of the globe. In fact, we currently have four large expansions and greenfields underway across Europe.”

McClendon says one of the takeaways from the Brexit experience is safety stock.

“All the retailers, producers and processors had extra supply on hand to service in case of border congestion, disruption in the supply chain or with raw materials coming in or finished product going out – the idea is to buffer both ends of the chain so no space is available.”

McClendon notes that there is much more complexity to mitigating risk from trade instability than just safety stock. He knew the key to success would be understanding the new economics that were likely to come as a result of Brexit.

“You peel the onion back and see how hard companies worked when the United Kingdom came together to produce efficiently, with some stock remaining for domestic consumption and the balance going to the EU,” observes McClendon. “For 10 years, trade with the EU was effective and efficient, and unraveling that will take years to do.”

McClendon says in a post-Brexit United Kingdom, large multinational organizations will have to rethink what they worked so hard to create over the past 10 years.

“The question to ask now is, ‘how do you redefine and rework production environments to optimize production?’” suggests McClendon. “As labor trends continue to get tighter around the world, we believe the answer lies in building, owning and implementing innovative technology to drive automation. At Lineage, we are capitalizing on, and responding to, these global shifts as we seek to transform the global food supply chain to eliminate waste and help the feed the world.”

CPTPP: Bullish on Asia

“A combination of risk and opportunity exists with the recent trade fluctuations,” reflects Chris Cartwright, General Manager Business Development – Asia Pacific with Emergent Cold. “TTP is scrapped however the CPTPP emerges. Brexit unsettles global markets and investors but an opportunity to leverage old traditional trade relationship promotes optimism. Tariffs against U.S. beef in China could be seen as an opportunity, however a flood of U.S. goods on neighboring countries could be problematic.”

Cartwright notes that Australia has a long history and large future invested in global food trade. “Roughly 80 percent of food pro-

duced in Australia is exported and our optimism is driven by taking the long view and proximity to Asia. By 2030, 65 percent of the world's middle-class population will reside in Asia and they will more than double their expenditures on food over the next decade."

Best Practices: Manage the Unpredictable

Cartwright believes that growing opportunities in emerging markets and the progression of multi-trade deals come with the expectation from customers that their cold chain operators are able to manage the multiple tasks and complexities in servicing these regions.

Patrick Hutchinson, Chief Executive Officer of the Australian Meat Industry Council, agrees.

"Our cold logistics partners are a major cog in the wheel of exporting red meat from Australia. This includes our partners maintaining their own market licenses and programs as well as working with them on accessing new market licenses, such as for China. Without our cold logistics partners, our industry would be contracted and less agile to meet the increasing demand of protein worldwide."

In applying best practices to mitigate the risk of unfavorable trade cycles, Cartwright believes there are a number of key strategic items to remember. "Define your long-term view, know your weakest and strongest links, which allows you to respond to the unpredictability, know the risks, focus on capability and continuous improvement, be prepared for re-design, restructure, merge or acquisition, to manage the unpredictability."

Remaining competitive in the face of trade uncertainty is a fine balance according to Stephen Draper, Regional Vice President - Southeast for Americold. "It involves tight control over production and supply levels, distribution, and customer orders, and identifying the optimum safety stock levels."

Draper says once you have some metrics around those indicators, you work with your customer to develop contingencies for different strategies. They include international volume increases, higher demand for domestic-oriented value-adding services, extensive inventory oversight extending beyond simply product in storage and to include product in

transit, and the ability to replenish product to other nodes within a network.

"It's not so much trade issues that are a concern to our food producer and retailer customers as it is other topics such as the current concerns about the swine fever in China, the pending shortage of truck drivers and overall supply chain costs," Draper points out. He says there are regular focus discussions with their customers to ensure long-term strategies are in place to reduce the impact of potential issues.

"There are always going to be trade-related disruptions so you have to truly understand the issues and be very connected with industry and commodity associations, and take a leadership position to support trade," offers McClendon. "We work very closely with the GCCA to understand what's happening overall from the standpoint of trade barriers and tariff and no-tariff barriers."

The Outlook: Tomorrow's Trade Routes

It is impossible to know how long trade alliances or disruptions will hold, but the future for the cold chain along the world's trade routes looks bright.



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Cartwright believes the idea of a one-stop-shop logistics provider covering domestic transport and warehousing, customers' brokerage and shipping, and logistics "in-market" services, is utopia for a customer. "A single provider, with a single customer service team, one invoice, full traceability and accountability for product flow from production in Melbourne, Australia, to a customer store in Hanoi, Vietnam, is highly desirable."

He also sees the development of regional trade hubs supporting global food trade as an exciting opportunity for those looking to invest in the global trade infrastructure.

"China's 'one belt, one road' policy is a good example of what the long-term view of global trade will look like – focused on improving connectivity and cooperation among multiple countries spread across the continents of Asia, Africa and Europe."

It's evident from these shared experiences and views that temperature-controlled warehousing and logistics providers can feel the brunt of trade uncertainties. They also understand the challenges, prepare for the opportunities, and if need be, pivot to new markets.

Globalization is transforming trade and companies in the cold chain are not about recapturing the past, but rather, looking toward the future.

The mix of countries, industries and workers that stand to gain in the next era is changing. But one thing is certain, every country in the world will continue to be dependent, to a greater or lesser extent, on trade to fulfill its overall food needs. ☞

ALEXANDRA WALSH is a Senior Publishing Consultant with Association Vision and Editor-In-Chief of COLD FACTS.

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INNOVATIVE STRATEGIES STABILIZE TURNOVER RATES

*2020 Benchmark Survey provides data
and best practices for retention.*

By Sheryl S. Jackson

The headlines proclaiming low unemployment rates are a positive for people in the workforce, but they also mean that it is more difficult to replace employees who leave. The cold storage industry's focus on strategies to reduce turnover is working, according to the 2020 IARW North American Warehouse Employee Turnover Survey.

A survey of 195 facilities produced an overall average turnover rate of 32.6 percent, a slight decrease from the 32.8 percent rate reported in the 2019 survey.

"Although the industry average turnover remained about the same, we did see a decrease in almost all regions with a significant decrease in the West-Mountain," says Jason Troendle, who is in the new position of Director of Market Intelligence and Research for the Global Cold Chain Alliance. "The variation around the country was also much smaller in the 2020 study, indicating less difference in retention across regions."

The survey was conducted at the start of 2020 to capture the 12-month trailing turnover rate, which was essentially all of 2019. "In the future we hope to keep this schedule for consistency in yearly reporting," Troendle says. "For larger

companies, we will continue to offer a spreadsheet option to make data collection as easy as possible."

While quantitative survey data provides an overall picture of the state of retention throughout the industry, examples of successful retention strategies by some companies can provide practical, innovative approaches that work.

1. Make sure job candidate understands the job.

No matter how clearly a job description outlines the work required, there are always new employees who show up and work one or two days before quitting.

"This is not easy work – it's hard and it's cold – so I decided to change the way I interviewed potential employees to make sure they understand the work environment," says Hollie Kerr, Human Resource

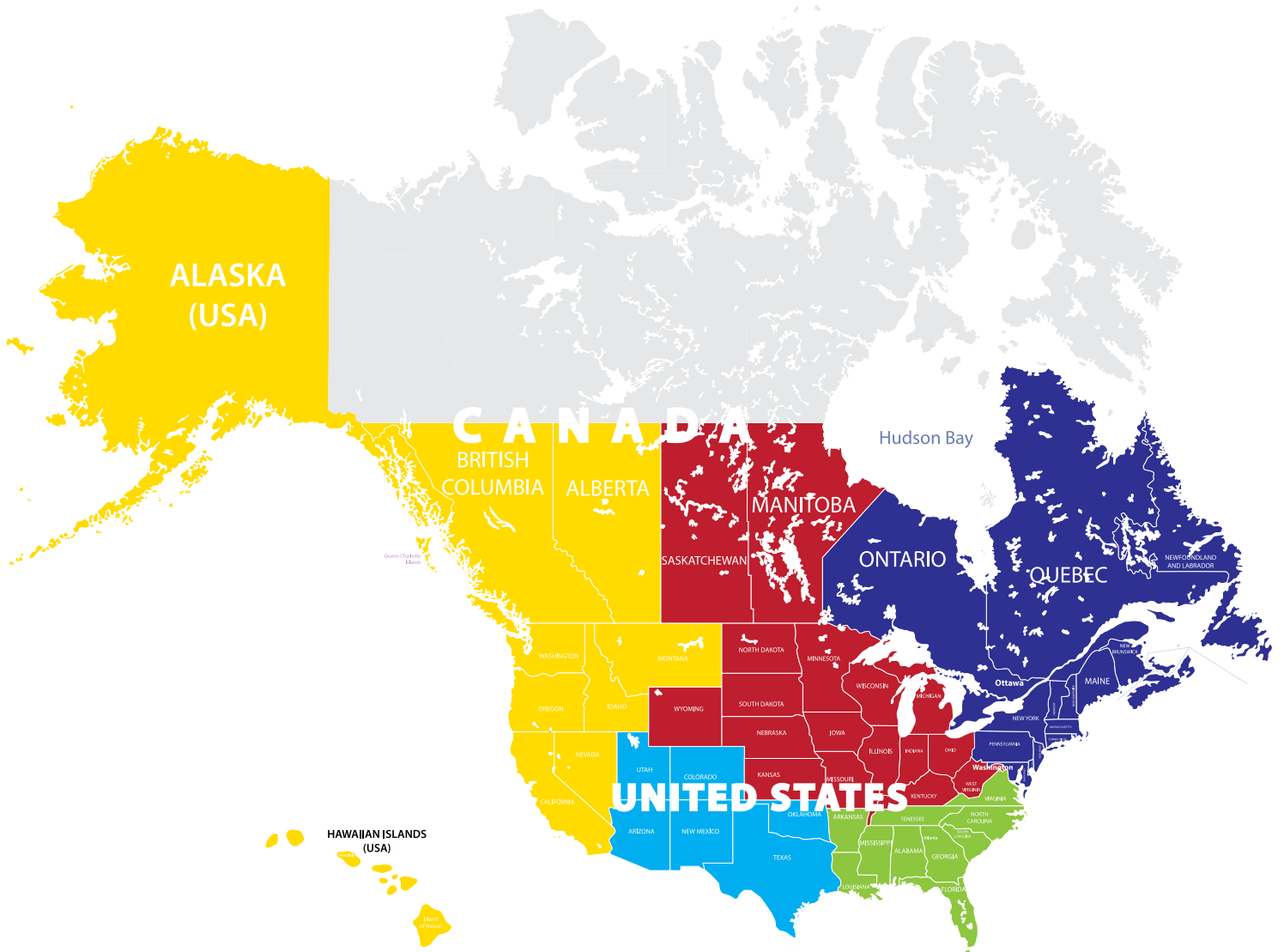
About the Survey and Report Author:

The 2020 IARW North American Warehouse Employee Turnover Survey was created under guidance from a team of GCCA members and staff from the Market Intelligence and Research Committee.

Data was analyzed and the final report was written by Jason Troendle, the Director of Market Intelligence and Research at the Global Cold Chain Alliance. He has a Master of Science in Applied Economics & Management with a focus in Food and Agriculture from Cornell University. Troendle provides oversight for GCCA surveys in conjunction with a committee of members on the design, deployment, and authoring of final reports. Key flagship reports of the association include the Productivity & Benchmarking Report, Cold Chain Index, and Global Capacity Report, among many others.

A copy of the full survey report can be found at the Human Resource & Talent Development hub on the GCCA website [www.gcca.org/resources/industry-topics/human-resource-talent-development] under the heading "Retention and Employee Engagement."

In addition to the turnover survey report, the Human Resource & Talent Development hub also includes resources with other ideas on how to enhance recruitment, retention and employee engagement to reduce turnover rates.



2019		Average Turnover Rate Trailing 12 months	
● Northeast	22.7%		4.7%
● Southeast	36.1%		-9.2%
● Heartland	38%		-10.3%
● West-Mountain	38%		-30.3%
● Pacific	28.9%		-7.3%

Manager at Ontario Refrigerated Services. “I no longer interview people in our corporate offices, instead the interview takes place at the warehouse and the supervisor or assistant supervisor joins us.”

Following a discussion of the job, the three of them tour the warehouse, and the candidate sees exactly where the job is located and what tasks are required. “I have had candidates call me after the interview to thank me and tell me that they’ve decided the job is not right

for them,” she says. “This saves everyone a lot of time and has eliminated the constant hiring of people who only stay a day or two.”

2. Keep new employees on the job past the 90-day mark.

Reaching the magical 90-day retention point often means retaining the employee long term, points out Ashley Albers, Human Resource Manager for Nor-Am Cold Storage. With an onboarding process that includes meeting

with an HR representative and other new employees for the first half of the first day on the job, then being introduced to the supervisor, Albers and her team make sure that the employee feels welcomed.

A tour of the warehouse shows new employees things like how to operate the warming tray in the break room and where to go to get equipment and check in for work each day. “These are things that people are hesitant to ask about when they are new but

give them more confidence when they show up to work the next day,” Albers adds.

Another change to Nor-Am’s policy for the first 90 days addressed pay increases. Rather than giving a new employee a pay increase at the 90-day mark, smaller increases are given at the 30-, 60- and 90-day point.

The new policy has a positive effect on retention for two reasons, says Albers. “Three months seems like a long time to wait for a pay increase, but 30 days is not so far away that a new employee can see the benefit of sticking with the job,” she says.

At each 30-day point, supervisors conduct a mini-evaluation and counsel employees if there are opportunities to improve – much more effective than a lengthy 90-day review, Albers adds. While the pay increase amount over three months is the same as it was for the one 90-day increase, the results have been impressive at the warehouse at which the pilot program was implemented. “The warehouse had experienced a 12 to 15 percent monthly turnover rate that has now dropped to 5 percent,” she says. “The difference was taking steps to make new employees feel like they are part of the team from the first day, check in with them often to see how things are going, and recognize their efforts with pay increases throughout the first 90 days.”

3. Create a social, family-oriented culture.

Florida Freezer has an impressive list of benefits for employees including educational opportunities, career pathways, full range of insurance benefits and flexible schedules. The family-owned company is always looking for ways to strengthen the family-oriented culture with social outings, movie nights and holiday parties.

“This past year, we surprised our team with a tour of the Red Sox Spring Training Facility in Fort Myers, Florida, as well as a recent Florida Everglades Hockey Game at Hertz Arena,” says Laura Fay, Vice President. “We also conducted a waterway clean up in Pine Island Sound while paddling in kayaks to promote community service as well as team-building.”

4. Ask employees for feedback on how to improve.

Operating a warehouse 24 hours a day, seven days a week is tough on employees, but it is even harder when employees leave or are routinely absent on some days.

“Our traditional shift schedule had employees working four 10-hour days one week and three 12-hour days the next,” says Kerr. “This is a brutal schedule that was hard on employees and their families.” After receiving feedback from employees, Kerr and the leadership team presented employees with three shift schedule options and asked them to vote.

Now, Ontario employees work one of two shifts: 10-hour shifts on Monday, Tuesday, Wednesday and Thursday with three consecutive days off or 12-hour shifts on Friday, Saturday and Sunday with four consecutive days off.

“The vote was unanimous,” says Kerr. “We allowed employees to submit their requests for the shift they wanted by listing several choices in order of preference, then we assigned people based on seniority.”

Not everyone got their first choice, but no employees left after the change, and it might actually act as a recruitment tool, she says. “We implemented the new schedule in November, and I had a few young men contact me after Christmas about working here because they heard about the schedule.”

SHERYL S. JACKSON is a freelance writer based in Alpharetta, Georgia, who specializes in industry issues and trends.

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GROWING UP IN LEBANON

Expansion includes first ASRS freezer for UCSC.

By Keith Loria

In 2017, the City Council in Lebanon, Indiana, approved two tax abatements to facilitate a \$29 million expansion of the United States Cold Storage (USCS) warehouse and distribution center in the town. The 120-year-old company knew just what design/build contractor to turn to get the job done – United Insulated Structures Corp. (UISC), based in Berkeley, Illinois.

“We were engaged by United States Cold Storage to do an expansion at their existing facility in Lebanon, as I had built their original facility there 10 years ago,” says Richard Maleczka, Senior Vice President and Partner for United Insulated Structures Corp. “The expansion would extend the facility to 350,000 square feet and 40,000 pallet positions.”

The goal of United States Cold Storage was to have its first fully automated freezer as part of the Phase II expansion. The job required

UISC to design, engineer and construct both a new 43,000-square-foot conventional freezer addition with a 40-foot clear height, and a new 80-foot tall, 57,000-square-foot ASRS freezer.

“We worked side by side with the automation contractor to ensure a seamless integration of the automation systems with no conflicts and everything built according to the owner’s requirements,” Maleczka says.

The expansion includes a 3.5 million-cubic-foot freezer with an automated storage and

retrieval system, as well as a 1.7 million-cubic-foot freezer for conventional storage. Additionally, the project called for 10,000 square feet of +40° Fahrenheit truck dock, 16,000 total pallet positions and 100,000 square feet of trailer parking.

Breaking in Winter

The project broke ground in January 2018, setting in motion the first challenge for UISC.

“It’s hard to break ground on any project in the Midwest when there’s snow on the ground. On top of that we had to perform soil improvements with lime stabilization before we could start the foundations,” Maleczka notes. “With an 80-foot tall structure, we encountered other challenging weather conditions from the consistent high winds. We felt as if we were building in Windy-ana instead of Indiana.”

Another challenge from the outset was the expansion work was being done while USCS

(Left) United States Cold Storage's \$29 million warehouse and distribution center expansion in Lebanon, Indiana, was designed and built by United Insulated Structures Corp. (Photo courtesy of UISC.)

remained in operation. UISC had to ensure no aspect of the project got in the way of the facility's smooth operation.

"We coordinated daily with our client to ensure we didn't impede their existing operation; they couldn't be affected by our work," Maleczka says. "This resulted in separate construction entrances for workers and deliveries, including dedicated material laydown areas so as not to disrupt our client."

Working at Height

Because of the building's height, Maleczka explains it caused some challenges related to the refrigeration piping accessibility to install the piping. There were also challenges in overcoming the effects of gravity on the pumping requirements of the liquid CO₂.

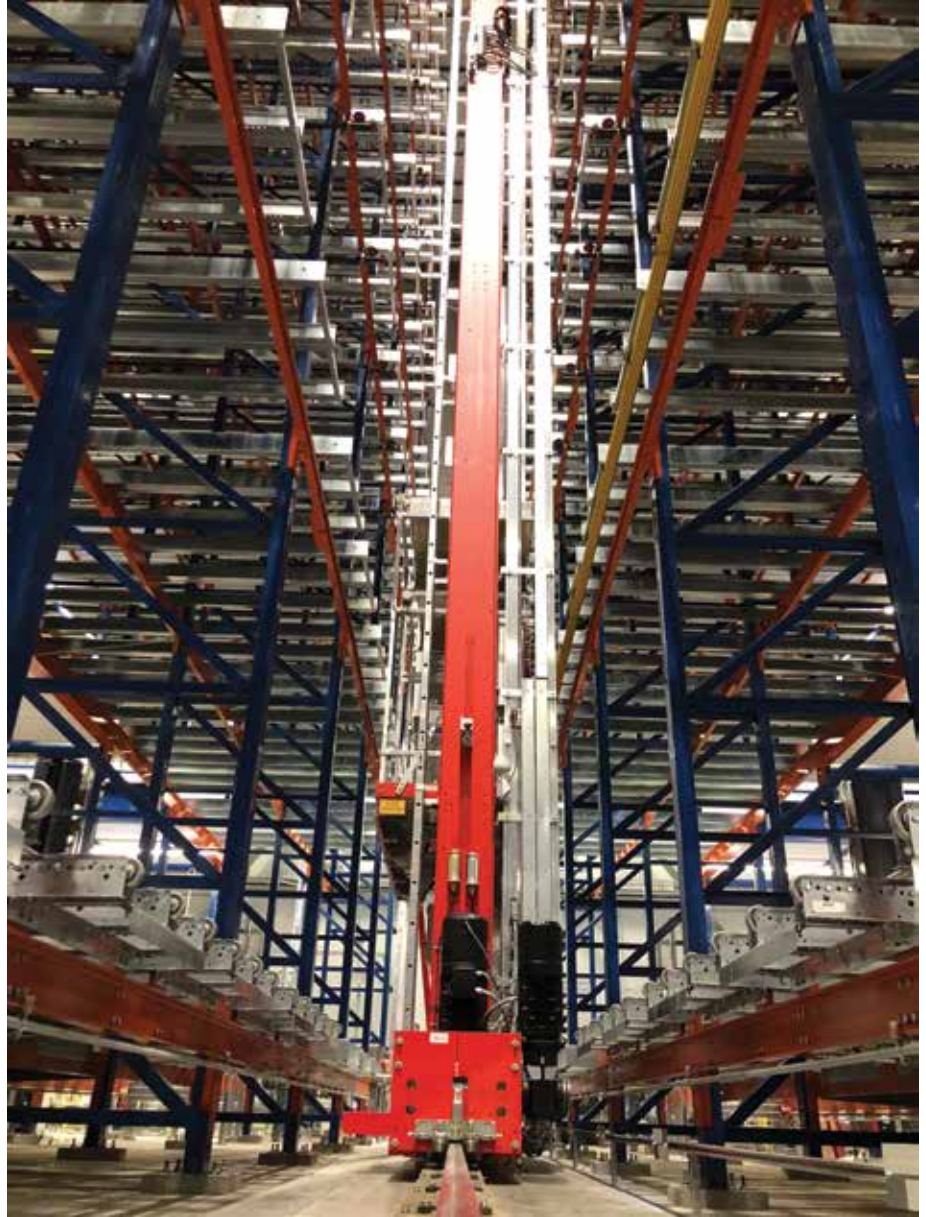
"For that reason, the piping was installed from the upper roof down to the lower rather than from the lower roof to the upper roof," he says. "The risers were fabricated on the upper roof and then swung into place."

Additionally, new CO₂ pumps were installed with higher discharge pressure to overcome the effects of gravity. However, this also raised the feed pressures to the existing evaporators, creating another challenge as the complete liquid feed system to the evaporators had to be rebalanced for proper flow.

"We also wanted to control how fast the pressure would build in the liquid line in order to not liquid hammer the piping," Maleczka says. "This is accomplished by installing VFDs and using them to ramp the pump speed at a controlled rate."

Another challenge resulting from a new 80-foot tall structure, adjacent to an existing 40-foot facility, was the large snow load imposed on the existing roof.

"United States Cold Storage originally asked that we go inside the existing freezer building and reinforce the bar joists. This would have created loss of business for the company and countless



The expansion includes a 3.5 million-cubic-foot freezer with an automated storage and retrieval system. (Photo courtesy of UISC.)

challenges in construction," Maleczka says. "UISC presented an alternate snow load solution with a new shed roof on top of the existing structure. This allowed United States Cold Storage to stay in operation and ultimately saved them money."

For the rack anchor bolt installation, UISC needed to design and construct the concrete wearing slab with no saw cut control joints in the floor due to the automated racking system. To accomplish this, a heavily reinforced slab was utilized, though this created other challenges as none of the thousands of racking anchor bolts could hit the rebar upon installation.

"We created and developed drawings, down to the fraction of an inch, that located the rebar in the slab and overlaid the automator's anchoring plan and our plan to make sure there were no conflicts," Maleczka says. "We had tens of thousands of bolts installed, and not one conflict. We pulled off what we originally thought was impossible and we are very proud of the outcome."

Innovative Work

Maleczka notes the automation part of the project includes innovative design features such as multi-deep rack storage, which minimizes the cube required for storage.

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There is a pinwheel design on both inbound and outbound conveyance, which allows for efficient pallet handling in the loading and unloading processes. (Photo courtesy of UISC.)

Dynamic pick tunnels, replenished by ASRS cranes, allow more SKUs to be picked within the system. There is a pinwheel design on both inbound and outbound conveyance, which allows for efficient pallet handling in the loading and unloading processes.

Fire protection is also a big concern in automated freezers because of the height and the design requirements of numerous levels of in-rack sprinklers per NFPA guidelines.

“No one likes in-rack sprinklers because they can get hit and then you have water

in your freezer, which is a big problem,” Maleczka points out. “We sat down with the fire marshal and other local authorities and presented them an alternate equal design, which was ultimately approved. We were able to reduce the number of levels of in-rack sprinklers, which saved the client money and from an operational standpoint, was a complete homerun.”

Energy Savings

Maleczka notes numerous energy savings elements were part of the design, fulfilling United States Cold Storage’s desire to become more sustainable.

For example, variable frequency demand (VFD) is used with the evaporator fans to reduce electrical demand during non-peak times as well as reduce heat load from the motors and fans to the refrigerated space. Fan cycling is also used to turn evaporators off when not needed.

“The lighting system was 83 percent more efficient than what was allowed by the energy code, which resulted in large kilo-watt demand reduction and energy cost savings,” Maleczka says. “Overall, United States Cold Storage expects to save 30 percent on energy cost for the new space.”

UISC completed the project ahead of schedule and under budget.

The project was the first runner-up in the CEBA Built by the Best Competition for 2019. 🌀

KEITH LORIA is an award-winning journalist who has been writing for major newspapers and magazines for close to 20 years, on topics as diverse as sports, business and technology.

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2020 CEBA Built by the Best applications are due July 13.

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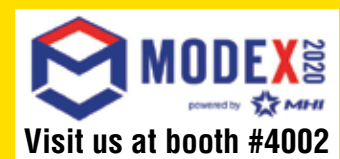
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129TH IARW-WFLO CONVENTION

Find solutions to business problems and opportunities to grow.

By Cathy Lada

The 129th IARW-WFLO Convention will be held at the Hyatt Regency Coconut Point Resort and Spa in Bonita Springs, Florida, May 5-8, 2020.

The Convention is the world's leading event focused on bringing together senior-level executives of temperature-controlled warehousing and logistics companies and industry suppliers. If you're looking for solutions to business challenges and for opportunities to grow and enhance your operations, this is the event to attend.

Schedule Changes of Note

Convention participants will notice a big change in the 2020 event schedule. The Con-

vention begins on a Tuesday with association governance meetings including the WFLO and IARW executive committees and board of directors. Convention programming and spouse programming begins on Wednesday and runs through Friday evening. For more details, see the event schedule at www.gcca.org/convention.

Another change made this year is to build in some additional time in the schedule without educational or networking programming to allow attendees to conduct business and one-on-one business meetings while on-site.

Education

The association's Programs Committee has helped ensure that Convention programming focuses on the trends, innovations, and business challenges most impacting your company and the cold chain industry.

Four keynote presentations focus on business trends to inform warehouse CEOs and owners regarding pressing issues that will impact their businesses. Past speakers have included economists, futurists, and other business experts.

Dustin Garis, Former "Chief Troublemaker" at Procter & Gamble, is a world-renowned brand innovator with an innovative approach to brand-building, customer experience and change leadership throughout his career at The Coca-Cola Company, Procter & Gamble, and other high-profile organizations. Garis



Speaker Dustin Garis

now helps other organizations accelerate their innovation capabilities and company culture. He shares lessons from the world's most innovative brands (Google, Zappos, Southwest Airlines, Airbnb, etc.), best practices in change leadership, as well as insight into the Millennial-led social movement LifeProfit, which is now fueling an experiential brand revolution across multinationals and entrepreneurial startups.

The "Cool Innovators" sessions are designed to provide case studies from warehouse operators regarding new and innovative approaches to temperature-controlled logistics.

GCCA staff will also present the informative and engaging State of the Association address to attendees. The focus of the session will be on the new IARW-WFLO Strategic Plan for 2020-2022 and the various activities around the four goal areas of Workforce Innovation, Market Intelligence, Industry Promotion and Global Advocacy.

Schedule

Tuesday, May 5, 2020

10:30 a.m. – 11:30 a.m.
 11:30 a.m. – 12:30 p.m.
 12:00 p.m. – 5:30 p.m.
 1:00 p.m. – 3:00 p.m.
 3:30 p.m. – 5:30 p.m.
 6:30 p.m. – 9:00 p.m.

WFLO Executive Committee Meeting (by invitation)
 IARW Executive Committee Meeting (by invitation)
 Registration
 IARW Board of Directors Meeting (by invitation)
 WFLO Board of Governors Meeting (by invitation)
 IARW-WFLO Joint Board Reception & Dinner (by invitation)

Wednesday, May 6, 2020

8:00 a.m. – 5:30 p.m.
 8:45 a.m. – 2:30 p.m.
 9:00 a.m. – 11:00 a.m.
 11:00 a.m. – 11:45 a.m.
 11:45 a.m. – 1:30 p.m.
 1:30 p.m. – 2:00 p.m.
 2:00 p.m. – 3:30 p.m.
 3:30 p.m. – 5:00 p.m.
 5:30 p.m. – 6:00 p.m.
 6:00 p.m. – 7:00 p.m.

Registration
 Spouse/Guest Activity - *coming soon!*
 IARW-WFLO Join Board Meeting - State of the Association
 Refreshment Break in the Supplier Showcase
 Opening General Session & Luncheon
 Refreshment Break in the Supplier Showcase
 Peer to Peer Executive Roundtables
 One-on-One Business Meetings
 First Time and New Member Reception
 Opening Night Reception

Thursday, May 7, 2020

7:30 a.m. – 12:00 p.m.
 7:45 a.m. – 8:30 a.m.
 8:30 a.m. – 10:00 a.m.
 8:45 a.m. – 11:00 a.m.
 10:30 a.m. – 11:10 a.m.
 10:30 a.m. – 11:10 a.m. &
 11:20 a.m. – 12:00 p.m.
 12:30 p.m. – 6:00 p.m.
 7:00 p.m. – 10:00 p.m.

Registration
 Breakfast in the Supplier Showcase
 General Session
 Spouse Guest Activity - *coming soon!*
 Refreshment Break in the Supplier Showcase
 Cool Innovators
 IARW-WFLO Golf Classic
 Frazier Party

Friday, May 8, 2020

8:00 a.m. – 2:30 p.m.
 8:00 a.m. – 8:30 a.m.
 8:30 a.m. – 10:30 a.m.
 10:30 a.m. – 11:00 a.m.
 11:00 a.m. – 11:40 a.m. &
 11:50 a.m. – 12:30 p.m.
 12:30 p.m. – 2:30 p.m.
 2:30 p.m. – 5:00 p.m.

Registration
 Morning Coffee in the Supplier Showcase
 General Session
 Refreshment Break in the Supplier Showcase
 Cool Innovators
 Closing General Session
 Pool Party



Peer-to-Peer Networking

Several exclusive executive round tables for warehouse owners, warehouse CEOs, other warehouse executives and warehouse suppliers will ensure you connect with peers who share similar pain points. You'll be able to ask questions, share lessons learned and best practices, and solve problems in these small groups. Additionally, industry round tables will connect diverse attendees around topics of interest to share ideas and lessons learned.

Social Activities and Spouse Events

In addition, participants will have several social activities to choose from to catch up with colleagues and meet new ones, from refreshment breaks in the Supplier Showcase to receptions, dinners, golf and sport fishing. This year's Convention also features activities for members' spouses, making this event even more family-friendly.

Recognition of Future Leaders

The Don Schlimme Future Leader Award, presented at the Convention, recognizes outstanding young professionals in the North American cold storage industry. The winner must have worked in the industry for at least three years and have demonstrated excellence in their work and potential to excel further. The winner will compete with other regional winners for the GCCA NextGen Award, presented at the Cold Chain Conference & Expo in September 2020.

Supplier Showcase

The Supplier Showcase provides an exclusive opportunity for 10 companies who are looking for a sponsorship that provides a physical location at the event where they can host customers and prospective clients.

Located in the networking foyer next to registration and outside of the general session room, the Supplier Showcase is featured at the heart of the event. All coffee and refreshment breaks will take place in the Showcase, providing ample time for sponsors to engage with attendees as they enjoy a cup of coffee while discussing business needs. Sponsors may also utilize their space in the Supplier Showcase throughout the event for one-on-one meetings.

Register Today

Learn more and register online at gcca.org/convention. We recommend you register early and secure your hotel room before the room block sells out. ☎

CATHY LADA is Director of Marketing and Communications at GCCA.

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SELF-DRIVING TRUCKS DEBUT IN THE COLD CHAIN

Land O' Lakes butter chills on cross-country pilot.

By Karen E. Thuermer

There's a lot of talk – and some hype – about autonomous vehicles (AV) and their use in the trucking industry. The most frequent topic is the ramifications AVs – self-driving or driverless trucks – will have on an industry facing big shortages of truck drivers.

Driverless trucks would help change that dynamic quickly.

AI Possibilities

Artificial intelligence, or AI, is at the heart of the development of self-driving trucks.

Companies such as Alphabet's Waymo, TuSimple, Starsky Robotics, Kodiak, Ike,

Embark and Plus.ai have been working to develop this technology. An indication of the keen interest in AI for driverless trucks, is how well funded these companies are. For example, TuSimple, a self-driving truck startup that splits operations between the United States and China, raised an additional \$120 million from investors to fund R&D and continue

expanding its fleet of AI-enabled 18-wheelers.

A report produced by McKinsey & Company entitled, "Distraction or Disruption? Autonomous Trucks Gain Ground in US Logistics," surmises that 65 percent of the nation's consumable goods are trucked to market. "With full autonomy, operating costs would decline by about 45 percent, saving the U.S. for-hire trucking industry between \$85 billion and \$125 billion," the report states.

Companies have already started using fully autonomous trucks to make beer deliveries and forming alliances to jointly operate autonomous trucks.

Companies in the cold chain are also considering AV use.

Plus.ai's autonomous truck helps Land O' Lakes meet its cold chain needs.
(Photo courtesy of Plus.ai.)

AV Cross-Country

Land O' Lakes, Inc., the 98-year-old, \$15 billion agribusiness and food company, is testing autonomous trucks for large butter deliveries.

"We view this technology – at least in the near future – as making the driving experience better and safer," remarks Jason Wicklund, Logistics Manager Milk, Land O' Lakes, Inc. "Our goal is not to see drivers be replaced, but to have technology that attracts new drivers and helps retain them by providing a better and safer experience."

In December 2019, a SAE-Level-4 (see sidebar on AV levels) autonomous truck equipped with self-driving trucking technology by Plus.ai completed a coast-to-coast commercial freight run hauling refrigerated freight for Land O' Lakes. The 2,800-mile, hub-to-hub trip from Tulare, California, to Quakertown, Pennsylvania, was completed in less than three days. The trip was the first Level 4 U.S. cross-country commercial pilot hauling a fully loaded refrigerated trailer of perishable cargo.

The truck was equipped with Plus.ai's advanced autonomous driving system, which utilizes multimodal sensor fusion, deep learning visual algorithms and simultaneous location and mapping (SLAM) technologies.

The truck was driven primarily in autonomous mode across country on Interstate 15 and Interstate 70, passing through varied terrains and weather conditions. A safety driver was onboard at all times to monitor and assume control if needed, and a safety engineer was present to monitor system operations.

"Our reasoning behind the AV run was to help test out the technology and see where we could be part of leveraging the newer functionality with running a butter load," Wicklund explains. "The test was during our highest demand period through a unique northern route where AV had not run before."

Land O' Lakes is not looking at autonomous technology as a way to replace drivers. "We see it as a way to augment or improve the driver experience," Wicklund emphasizes.

The company also sees other potential advantages such as making trucks (semis) safer, reducing driver fatigue and reducing transit time in certain markets.

Some Complexities of AV Truck Use

- Backing the truck into the dock to load/unload material, given that this is one of the more difficult tasks for drivers.
- The need to be present during the entire haul.
- Boredom monitoring the self-driving controls if a driver must be present during the long haul.
- Driver job satisfaction and retention.
- Loads that are demurred or rejected.
- Unclean trailer that does not meet FSMA-STF requirements.
- Cases where a temperature excursion occurs – who is responsible for decisions and disposition of the payload?
- Wait times – who from the carrier company will coordinate/facilitate shipments?
- Border crossings – a human is required to handle paperwork, answer questions.

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Plus.ai truck using AV technology driving through icy conditions on its cross-country trip. (Photo courtesy of Plus.ai.)



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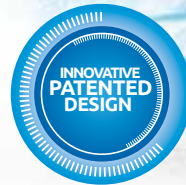
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An advanced driver assistance system (ADAS) on the vehicle can itself actually control both steering and braking/accelerating simultaneously under some circumstances. The human driver must continue to pay full attention (“monitor the driving environment”) at all times and perform the rest of the driving task.

Level 3

An Automated Driving System (ADS) on the vehicle can itself perform all aspects of the driving task under some circumstances. In those circumstances, the human driver must be ready to take back control at any time when the ADS requests the human driver to do so. In all other circumstances, the human driver performs the driving task.

Level 4

An Automated Driving System (ADS) on the vehicle can itself perform all driving tasks and monitor the driving environment – essentially, do all the driving – in certain circumstances. The human need not pay attention in those circumstances.

Level 5

An Automated Driving System (ADS) on the vehicle can do all the driving in all circumstances. The human occupants are just passengers and need never be involved in driving.

Source: NHTSA/Society of Automotive Engineers

“We see this as an opportunity to attract more potential drivers who may have not gone into truck driving as a career, and therefore increase potential capacity,” he added.

Year-Round Option

Wicklund points out that technology improvements on autonomous vehicles over the past two years have transitioned the use of driverless trucks from a seasonal option in some parts of the country to a year-around option for most of the country.

For now, Land O’ Lakes is not considering a completely driverless option. “We are looking at how it works with a driver/operator in place,” Wicklund says. “The reduction in fatigue and increased safety features provide capacity certainty and a decrease in accidents and damages to freight from shifting due to reaction time in high traffic situations.”

Safety First

Just as with any new technology, however, there are things that must be worked out and opportunities to improve safety via automation.

“At Land O’ Lakes we value safety before anything else as this is a key to our culture,” explains Wicklund. “As AV continues to be tested and expanded, we are always looking at the safest way to deliver our freight.”

There are concerns, however, regarding the use of autonomous trucks.

“In addition to safety, our biggest concern is availability of equipment to allow for scale,” said Wicklund. “The load we ran with Plus.ai, and the strides that have been made with AV technology advancements, has eliminated most concerns around reliability.”

Always a Driver

Despite technological advancements, Wicklund surmises there will still be a need for drivers to help guide the self-driving interface.

“There might be a different type of driver than we have today,” he says. “At some point the technology may allow for part of a route to go driverless, but I don’t think that is in the near future. Plus, it could be another 10 years before regulations would even allow it.”

One scenario where a driver is needed, even when using driverless technology, is during load wait times and coordinating and facilitating shipments.

Regarding border crossings, Wicklund says this is a main reason for why a driver is needed, even when employing technology that reduces the need for the driver to interact.

“You re-imagine what a driver is in this setting,” he said. “With driverless technology, a driver is more like a rail conductor or an airline pilot, where they are part of operating and driving the equipment while allowing technology to reduce the burdensome portion of driving on freeways and highways.”

But for now, and the immediate future, Wicklund emphasizes additional safety support as well as managing diversions (load changes in route), filling the truck with gas, checking on navigation and making sure the truck is operating correctly.

“I don’t think a driver would get bored, and my hope is that this would create a better driving experience as it would be less taxing,” he remarks.

In the meantime, Lake O’ Lakes is looking at the AV as a two-fold change to reshaping the cold commercial supply chain.

“First, hopefully it will attract new drivers by making the job safer and less stressful,” Wicklund says. “Second, it should reshape regulatory conditions around labor and allow drivers/operators to run more hours and miles, which reduces the lost capacity due to hours of service.”

KAREN E. THUERMER is a freelance writer based in Alexandria, Virginia, who specializes in economic and logistics issues.

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ASSESSING COLD IN CAMBODIA

This column features news about key projects of the World Food Logistics Organization (WFLO), a GCCA Core Partner, and its work with members, aid organizations, and international development partners to help emerging economies and lower-income countries meet the challenges that arise when growing a safe and efficient global cold chain.

GCCA conducted a cold chain assessment in Cambodia in early December 2019.

Led by Jason Troendle, GCCA's Director of Market Intelligence and Research, the team included Manuel Kabana Director of Friopuerto Investment, SLU and IARW board member; Tim Nguyen, Regional Vice President of ESI Group USA and CEBA board member; long-time WFLO partner Kent Sisson and Emmanuel Arcilla, a transport specialist based in the Philippines and a member of the Cold Chain Association of the Philippines (CCAP).

This was the first part of a three-country project funded by the U.S. Department of Agriculture. It will inform GCCA's strategic engagement in Southeast Asia. In 2020, GCCA will complete assessments in Thailand and Vietnam.

"On first impression, third party logistics services have not developed in Cambodia," observed Troendle. "Where the cold chain exists, it is primarily through private warehousing and private small reefer trucks."

Troendle notes that interviews with stakeholders revealed excitement about the industry and the potential for an expanded cold chain within Cambodia. "Based on the current infrastructure of the market, we were a bit surprised by the presence of home delivery services for refrigerated food," Troendle says. "This service signals a change in consumer preference from traditional wet markets to retail."

Pressure to continue to develop a cold chain



Nguyen checks out the dairy chiller where milk is stored after processing.

without broken links is being driven by consumer demand for both safe and high-quality temperature-controlled products.

According to Troendle, one of the challenges that faces the industry is that most of the stakeholders are smaller players who don't yet have the capital or market data they need to make informed decisions about investing further in the cold chain, which would in turn greatly improve capability and capacity.

GCCA's ongoing work in this area will help solve that knowledge deficit. 🌐

Snapshot of Cambodia

Located in Southeastern Asia, bordering the Gulf of Thailand, between Thailand, Vietnam, and Laos.

- Population of over 15 million.
- Strong economic growth over the last decade.
- GDP averaged 8 percent growth per year 2000 – 2010 and 7 percent since 2011.
- Per capita income remains low compared to most neighboring countries.
- More than 50 percent of the population is less than 25 years old.
- Rice, fish, timber, garments and rubber are major exports.
- Extensive inland waterways were important historically in international trade.
- Rail system is being revitalized and will interlink with major industrial and logistics centers in Bangkok, Thailand, and Ho Chi Minh City, Vietnam.
- Main highways have been upgraded to international standards and most main roads are now paved.
- Cambodia has two major ports, Phnom Penh and Sihanoukville, and five minor ones – Phnom Penn is the only river port capable of receiving 8,000-ton ships during the wet season and 5,000-ton ships during the dry season.



From left to right, Emmanuel Arcilla; Jason Troendle, GCCA; Manuel Kabana, Friopuerto Investment; Kent Sisson; and Tim Nguyen, ESI Group USA, in front of the Moo Moo dairy in Cambodia.



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SCIENTIFIC ANSWERS TO COLD CHAIN CHALLENGES

This column highlights a cold chain question and answer submitted through the GCCA Inquiry Service to the team of experts on the WFLO Scientific Advisory Council (SAC).

To get instant advice from a private, online community of over 4,000 cold chain professionals, simply post your inquiry in the GCCA Online Community. All GCCA Members and their employees can access the GCCA Online Community at community.gcca.org/home. There are active forums for Construction & Engineering, Government Affairs, and Third Party Logistics.

If you are not a GCCA member, or are unsure how to post in the GCCA Online Community, contact the GCCA Inquiry Service at www.gcca.org/inquiry. GCCA Members can also browse the full archive of inquiries and responses in the GCCA Inquiry Service Archive. Access to previous inquiries is restricted to members of GCCA core partner organizations.

Q: We are storing offal (or variety meats) and HACCP programs require that meat products be reduced in temperature to 40 (F) Fahrenheit or below within 24 hours of slaughter. Our customers ask us to take those products down to 0F within 120 hours of slaughter (five days). We generally have these products at 30F or below within 24 hours.

My question is, what should be the maximum amount of elapsed time between 30F and 14F to avoid spoilage of the products? Since we frequently freeze beef liver, we are concerned that anaerobic contaminants in the deep center of the product can continue to multiply during the time between "freezing" at 30F and 14F when minimal Aw is reached. Asked another way, if it took 144 hours, 168 hours or 192 hours to transition between 30F and 14F, would we be putting food safety at risk and/or potentially impacting the product quality?

A: Ensure that the center of the product also reached 30F within 24 hours. Pathogenic bacteria do not grow below a temperature of +30F, thus any product temperatures below +30F will not support growth of pathogenic bacteria, even the anaerobic ones inside the tissue. As you are aware, freezing works by binding up the available moisture in meat making the moisture unavailable for bacteria to grow and increase in numbers. Slower freezing produces larger crystals. Large ice crystals tend to rupture the muscle tissues and allow water and nutrients to drip out when the product is defrosted.

If it takes 144 hours, 168 hours or 192 hours to transition between 30F and 14F, food safety will not be an issue, but you may lose some quality in the product. The product will not spoil during this time period, but remember, enzymatic and biochemical activity, albeit slowed down, are still functioning. In addition, as you transition the product between 14F and 0F, all bacteria growth may be stopped, but the enzymes are still functioning and potentially affecting the overall quality of the product. As you are aware, the recommended storage temperature

for meat products is 0F.

The loss of other quality attributes will be a function of cooling rate. We can predict cooling/freezing rates as long as we know several parameters about the product, the container and the configuration of the container in the cold environment.

Answer provided by WFLO Scientific Advisory Council members: Dr. Michael Jahncke, Virginia Seafood Agricultural Research & Extension Center and Dr. Dennis Heldman, Ohio State University. ☺



Brazil's cold chain entrepreneurs and professionals looking for opportunities and solutions to develop their business will gather June 25.

Don't miss out – register today
gcca.org/brazil-2020

SAC MEMBER SPOTLIGHT



DR. BRIAN FUGATE
Department Chair
University of Arkansas

Brian Fugate (PhD University of Tennessee) is the Chair of the Department of Supply Chain Management and Oren Harris Endowed Chair in Transportation at the University of Arkansas Sam M. Walton College of Business.

He is MIT Fulbright Senior Research Scholar, Co-Editor-in-Chief of the Journal of Supply Chain Management, and co-author of The Blockchain Toolkit: A Supply Chain Manager's Guide to Understanding and Implementing Blockchain and Operations and Supply Chain Management: Enhancing Competitiveness and Customer Value.

Prior to his Ph.D., Fugate worked in worldwide transportation and logistics, supplier development, and industrial engineering in the airline, consumer packaged goods and automotive industries, and has since worked with over 60 companies to advance towards world-class demand and supply chain management.

Fugate has received multiple awards for innovations in teaching and learning, including AACSB's Innovations That Inspire Award. His most recent publications highlight that Fugate's research focuses on advancing the scholarship and practice of strategic, global integration of demand and supply and sustainability across the food supply chain. Fugate has been published in more than 50 publications including the Journal of Business Logistics, Journal of Supply Chain Management,

Academy of Management Journal, Journal of Operations Management, Decision Sciences, International Journal of Physical Distribution and Logistics Management, International Logistics Management,

International Journal of Production Economics, International Journal of Production Management and Journal of Marketing Relationships.



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Joseph Slavin
Jos. Slavin & Associates, Expertise:
Fish Products

Dr. W. F. (Will) Stoecker
University of Illinois, Expertise:
Refrigeration Engineering

2020-2021 CALENDAR

MARCH 18-20, 2020
**23rd GCCA European Cold Chain
Conference**
Rotterdam, Netherlands

MAY 5-8, 2020
129th IARW-WFLO Convention
Bonita Springs, Florida, United States

JUNE 25, 2020
**GCCA Brazil/ABIAP Cold Chain
Symposium**
Sao Paulo, Brazil

JULY 13-15, 2020
WFLO Latin America Institute
Mexico City, Mexico

JULY 27-29, 2020
GCCA Cold Chain Policy Forum
Washington, D.C., United States

SEPTEMBER 28-30, 2020
Global Cold Chain Expo
Dallas, Texas, United States

OCTOBER 19-21, 2020
WFLO Institute Australia
Melbourne, Australia

NOVEMBER 10-12, 2020
40th CEBA Conference & Expo
Rancho Mirage, California, United States

NOVEMBER 18-19, 2020
**GCCA Latin America Cold Chain
Conference**
Bogota, Colombia

JANUARY 10-13, 2021
57th WFLO Institute West
Tempe, Arizona, United States

JANUARY 31-FEBRUARY 3, 2021
57th WFLO Institute East
Atlanta, Georgia, United States

APRIL 11-14, 2021
130th IARW-WFLO Convention
Austin, Texas, United States

*For more details go to
www.gcca.org/events

COLD CHAIN INNOVATIONS

MULTI-TENANT CENTRAL REFRIGERATION ENERGY ALLOCATION

Managing a multi-tenant cold storage facility can be a complex business model. No two tenants operate their business in the same way, so how do you go about accurately allocating the refrigeration system's energy usage, besides dividing usage by square footage? That's the question VaCom, a leading industrial refrigeration controls company focused on delivering innovative, energy-savings solutions to the food and beverage and refrigerated warehouse markets, sought to solve.

VaCom took their experience serving more than 600 facilities, delivered more than \$90 million in energy incentives, resulting in more than 150 MWh of power reduction, and developed their VaCom Energy Dashboard software. The software, which allows for the accurate, live collection of data from a multi-tenant cold storage warehouse's central refrigeration system, has been successfully working for five years. Combining the Dashboard with VaCom's refrigeration equipment analysis and facility energy modelling allows the accurate monthly allocation of the central refrigeration system's

energy usage by tenant. The service can be expanded to include other central or distributed utilities as well. VaCom then aggregates all the tenants' utilities and provides individual tenant statements, accurately and fairly dividing the energy usage by tenant.

VaCom found their solution provides considerable benefits to customers that own multi-tenant buildings. The accurate allocation of the energy usage provides a differentiating amenity, which is very attractive to tenant operators. The program can incentivize tenant improvements because benefits are captured, not shared. Accurately dividing costs helps avoid disputes over refrigeration energy usage. It can also enable further delivery of utility incentives and energy efficiency projects.

If interested in a demonstration of VaCom's Energy Dashboard and more information on how it's used to offer multi-tenant central refrigeration energy allocation as a service to building owners and property managers, contact Art Mathews at amathews@vacomtech.com. www.VaComTech.com

Cold Chain Innovations, a column brought to you by Tippmann Innovation, features the latest technologies, cutting-edge solutions, and innovative practices that the cold chain industry has to offer. Featured in each issue of COLD FACTS Magazine, the Cold Chain Innovations section gives readers thought-provoking ways to optimize their supply chain and improve operational efficiencies. The information presented in the Cold Chain Innovation section is sourced from GCCA members. To feature your news, press releases or submit your idea for a future Cold Innovation article, contact James Rogers at jrogers@gcca.org or call 703.373.4300.

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ASSOCIATION NEWS

NEWS ABOUT GCCA CORE PARTNERS

Volunteers are at the heart of the **GCCA's** work. Through the contribution of time and expertise, hundreds of volunteers allow the association to provide essential information and resources to ensure members have the tools they need to achieve success. We are seeking members to serve on volunteer committees. Connect with industry leaders, give back to the cold chain community and gain experience as a GCCA volunteer. Visit gccca.org/volunteer for more details or to sign up.



Need temperature-controlled warehouse industry data to benchmark and improve your operations? **IARW** members who participate in the 2020 North American Productivity & Benchmarking Survey will receive aggregate data at no charge if they respond to the survey on or before April 30, 2020. Visit benchmark.gcca.org/ to get started.

WFLO Institute West took place in Tempe, Arizona, January 12-15, 2020. Over 250 attendees learned about all aspects of warehouse operations and logistics from industry experts, suppliers and peers. WFLO Institute scholarships were awarded to David Stier, Operations Supervisor, Interstate Warehousing and Michael Newman, Warehouse Manager, Summit Cold Storage, Inc. Recipients are selected based on their performance, leadership skills and dedication to the industry. The scholarship program is sponsored by RefrigiWear, Dalkia Energy Solutions and Alta Refrigeration.



IRTA's "Refrigerated Transportation Best Practices Guide," is free to all. Cold carriers can even apply for the Certified Cold Carrier designation to give food shippers an added layer of confidence that their shipper is doing its utmost

to ensure the safety and sanitation of food shipments. Visit gccca.org/certifiedcoldcarrier to download the guide as well as learn more about the certification program.



CEBA's 2020 conference will be held November 10-12, 2020, at the Westin Mission Hills Golf Resort & Spa, Rancho Mirage, California. Join more than 200 of your peers to experience educational programming focused on Built By the Best Award case studies, keynote presentations by industry thought leaders and exceptional networking opportunities. Plus, exhibitors will showcase valuable products and services for the design, maintenance and modernization of cold storage warehouses, food processing facilities, clean rooms, pharmaceutical facilities and foodservice and retail distribution centers. 📍



129th IARW-WFLO Convention
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MEMBER NEWS

NEWS FROM MEMBERS OF GCCA CORE PARTNERS



AMERICOLD now has 133 facilities certified in GCCA's Energy Excellence program. Seventy-three of those facilities are certified Gold; the remainder are certified Silver. See gcca.org/energyexcellence for a complete list of all company facilities or program information.



Kevin Franz, AIA, LEED AP BD+C, CSI, CDT, of **METL-SPAN** earned certification as an accredited Building Enclosure

Commissioning Process Provider and Commissioning Authority+Building Enclosure with the designation of BECxP and CxA+BE from the College of Engineering at the University of Wisconsin.



Member company **COMFRIO - INTELIGÊNCIA EM SOLUÇÕES LOGÍSTICAS**, whose shareholders are Acqua Capital and **AGRO MERCHANTS GROUP**, announces the acquisition of **BESTWAY AGRO** in Brazil.



WFLO, in conjunction with US AID-funded Feed the Future Food Security and Agribusiness Support, hosted the Egypt Cold Chain Exhibition January 22 - 23, 2020. In addition to GCCA's Senior Director of Business Development, James Rogers, numerous GCCA members participated including **MAYEKAWA, JOHNSON CONTROLS, DGRID, HEPWORTH, METAFLEX, AMANA CONTRACTING & STEEL BUILDINGS CO. LLC** and **SOLARX**. ☺

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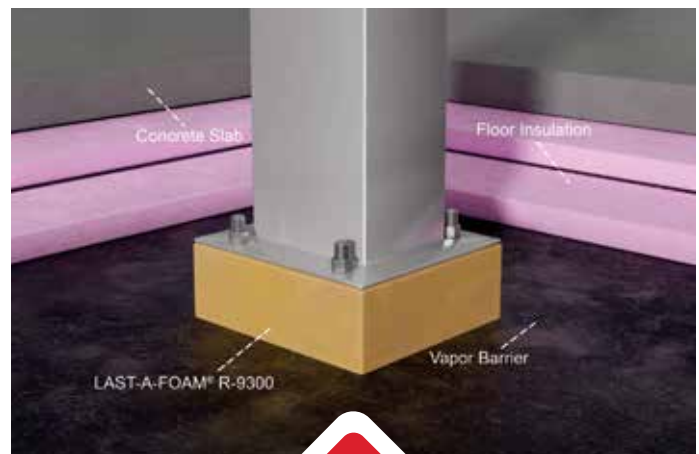
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Vector Logistics

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Velocity Cold Storage

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LiftMaster

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Mac Rak Inc.

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COOL PEOPLE

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LAMIAA MOHAMED

Director, Transportation and Logistics
Congebee Inc.

CF: How did your professional journey bring you to transportation and logistics?

LM: I started my relationship with logistics by importing and exporting earth-moving machinery overseas. When I immigrated to Canada in 2009, I began as a customer service and dispatch in Wheels International. I loved working in the fast-paced environment that the logistics industry offered me. I felt challenged and saw myself able to build a career with these responsibilities. I was promoted to Account Manager and then proceeded to climb the proverbial ladder in the following seven years.

I became a Manager for Dedicated Operations specializing in moving dry and refrigerated food across North America. During this period, I led my team towards winning Carrier of the Year for Ingredion, one of the major U.S. food providers.

When the opportunity to work with Congebee Inc became available, I was looking for new ways to grow and branch out in my career, so it was serendipitous to take on this new role. Congebee has over 45 years worth of experience in cold storage and had just started their transportation division. Getting onboard this new development in the company allowed

"Bringing different voices to the table is really important to me and creating a culture of diversity and acceptance is work that I am determined to continue building upon, as I thrive in my career."

me to shape how we were going to approach this stage with dedication and innovation.

Through the last three years, I aimed to build a strong team of experts that know the industry inside and out. They also have the incredible advantage of understanding cold storage and transportation. With this great team, we exceeded all expectations and grew exponentially.

CF: You are a recent WFLO Institute graduate, can you describe that experience?

LM: Honestly, it was amazing. It opened my eyes to how everyone in the industry shared the same problems. This industry is filled with wonderfully experienced people who share the same goals. Despite the competition between us, we are still striving towards serving our society to the best of our abilities.

CF: How do you think more women can be attracted to a career in the cold chain industry?

LM: We can ensure women are taken seriously and their abilities are not underestimated by their male counterparts. We can do this by offering women the resources to put

their best effort into their occupation. Initiatives like flexible hours and in-house daycare allow women to not feel restricted by the intense work environment and feel they can become validated in both their careers and their regular lives.

CF: What do you think will be the next big thing in cold chain transportation and logistics?

LM: The next big thing in cold storage is automation that fills in the gaps within human error. New technology is on the horizon and it will allow us to streamline our processes in ways that ensure things get done the first time, the right way. It will also fill the apparent gaps in that labor market.

CF: What is your biggest accomplishment in your field?

LM: My biggest accomplishment is that my career has allowed me to represent in higher positions in this industry. Bringing different voices to the table is really important to me and creating a culture of diversity and acceptance is work that I am determined to continue building upon, as I thrive in my career. ☺



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