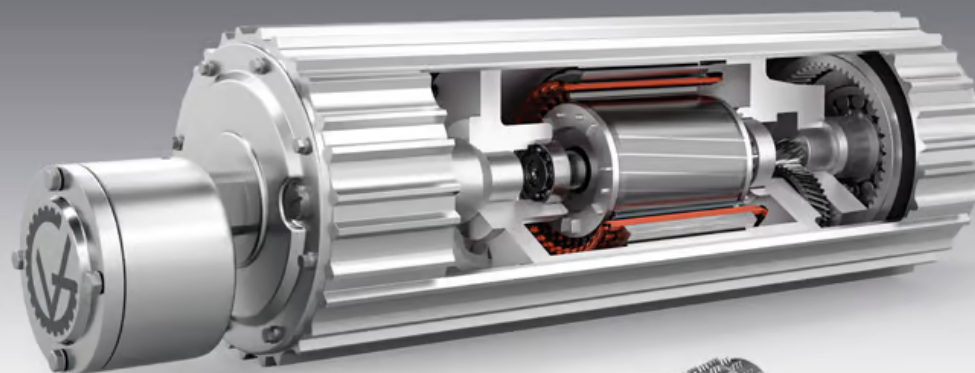


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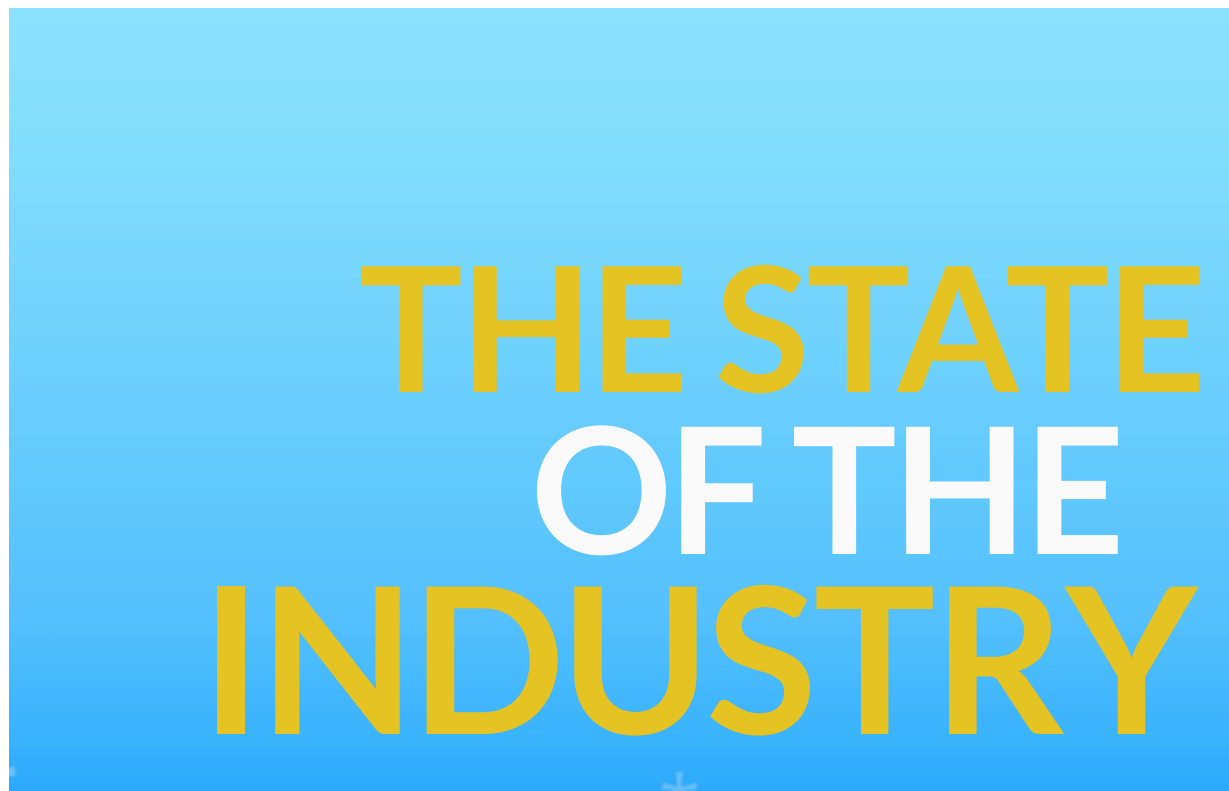
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Cyberbiosecurity and steps meat processors can take to protect their data – We speak with Susan Duncan, associate director of the Virginia Agricultural Experiment Station, director of the Virginia Tech Center for Advanced Innovation in Agriculture, and professor of food science and technology.

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## FEDERAL MANDATES:

# WE WILL SHUT YOU DOWN

BY SHAWN K. STEVENS  
FOOD INDUSTRY COUNSEL LLC

I will never forget the week of January 1, 2021, hearing every person I encountered, whether it was family, friends, neighbors, colleagues, clients, or the clerk at the local grocery store, proclaim in cheerful form, "Thank Goodness 2020 is behind us!" Most would go on to proclaim further, many in an even brighter tone, "I can't wait for 2021!" Neither could I.

And it was, for a few cheerful months, a wonderful beginning to the New Year. Until reports began to trickle in about the mysterious COVID-19 delta variant first detected in India. It was more easily transmissible, the experts cautioned. It could be more virulent, others warned. If we're not careful, the experts lectured, the world and economy we were building back could come crashing down. And their threats eventually proved true. At the same time we began shedding those horrific masks and getting ready to declare our independence from COVID-19 altogether, the federal government began mandating the country back to the place we had just been.

Indeed, the mandates started coming. In early August 2021, FSIS declared that all employees of federally regulated establishments would be required, without exception, to follow the most current CDC guidance (i.e., wear masks) whenever FSIS inspection personnel were present. Notably, this included all establishment personnel who were fully vaccinated against COVID. So, establishments were forced, in many cases begrudgingly, to comply. But, what would happen if they didn't?

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While the early August FSIS Notice was amorphous, at best, with respect to the consequences of failing to wear a mask in the presence of an FSIS inspector, FSIS has now made those consequences clear. In a late-August announcement, FSIS directed all District Managers to withhold inspection service from any establishment whose employees are not consistently following the mask requirements. Thus, if masks are not being worn, FSIS will shut the establishment down.

But meat packers were not the only ones under pressure. Only a few weeks later, in early September, President Biden mandated that all federal employees become vaccinated. The mandate also required any company employing more than 100 employees to force their employees to become vaccinated or undergo weekly testing (paid for by the employer). If employees refused, the company could be fined up to \$14,000 per violation. Thus, in many cases, employees who oppose vaccines are either being let go or deciding, on their own, to stop coming to work. In turn, without sufficient employees, many companies which would have survived the pandemic are now, in fact, shutting down.

As I look at our dismal progress over the last six months, I truly hope the next six months will be better. Meat processors, and meat consumers alike, have been under extreme stress over the last eighteen months, and many are in desperate need for relief. I hope relief arrives, and I hope it arrives quickly. As 2021 continues to churn along like a slow hurricane, I now find my family, friends, neighbors, colleagues, clients, and the clerk at the local grocery store, now proclaiming that they "can't wait for 2022 to come..."

I hope it gets here fast.

# THE STATE OF THE INDUSTRY

COVID-19 CONTINUES TO DISRUPT EXPECTED PATTERNS IN THE MEAT AND POULTRY INDUSTRY.

BY DAN EMERY

Put an asterisk in your record-keeping in 2020 and 2021.

After a stressful 2020, many people have turned to food as a means of comfort, well-being and community. Food as self-medication, healthier options, organics, plant-based meats, and premium products did very well. Consumers have extra money they could not spend at the restaurant. Forty-two percent of Americans said they had made changes to their eating and drinking habits. This included limiting sugars, “clean eating,” losing weight, and following other diets like keto. Thirty-six percent reported cooking more simple foods, trying new recipes (30%) or new cooking techniques (19%).\*

Many people continue working from home, and consumers were forced to learn how to cook. This is something they will not unlearn. During COVID-19, 86% of the meals originated from home. Twenty percent of the population is still working from home, and 43% are working in a hybrid work environment.

Without the luxury of restaurant meals and well-stocked grocery shelves, people browsed their pantries and transform overlooked canned and dry goods into interesting meals. Many familiarized themselves with the ingredients they already had on hand. Perishable foods are up 16% versus 2 years ago, and small appliance sales are up 26% including air fryers (50%), toaster ovens (61%), rice cookers (38%) and electric grills (99%).

This shift will have a long-term effect on the restaurant business, and the home food adventure will expand. Virtual cooking classes, TV cooking classes, and cooking parties will also become more popular once we start getting back together socially.

2021 is an extension of 2020, but we did not have the hoarding event that occurred in 2020. Purchase habits are now returning partially to pre-COVID patterns. Amazon was up 42% in 2020, but it's down slightly in 2021. Because people had extra spending money, they switched to premium items, and indulgence consumption accelerated.

One hundred million people age 16 and over are not in the labor force. This is up 17% over the past decade. Only 56% of working-age women participate in the labor force, and the lower rate of working women will negatively affect restaurant usage. In addition, the U.S. population is aging. The U.S. Census Bureau reported over 54 million people will be 65 years old or over — about 16.5% of the U.S. population. This age group should reach 22% of the population by 2050.\*\*\*



NEW PRODUCTS THAT WERE LUCKY ENOUGH TO GET LAUNCHED AND GAIN DISTRIBUTION JUST PRIOR TO COVID-19 ARE DOING WELL.

## SHOPPING

Eighty-three percent of consumers changed grocery shopping/e-commerce habits during the COVID-19 lockdown. Seeking safer methods of shopping for groceries amid the pandemic, adoption of online ordering, pickup and delivery accelerated. In 2020, 52% of shoppers indicated they bought groceries online; in 2021, that number grew to 64%. Every generation increased in frequency of online grocery shopping, with more than one-fourth (29%) of consumers placing a weekly order. Consumers now are shopping online at 4.3 times the rate they were in 2017, but in-store is still popular, with 95% saying they combine physical and digital grocery shopping. Sixty-one percent of consumers shop for groceries online more now than they did pre-COVID. Reasons include time savings (59%), personal safety (49%), and avoiding impulse purchases (31%). Among respondents, 69.3% “always” made a shopping list, and 20.3% did “sometimes.” A total of 62.7% are only shopping once a week — a significant reduction.

## CONSUMER FOOD SAFETY CONCERNS

Ninety-one percent of the grocery shoppers were concerned about food safety, and merchants should highlight their good track record. Findings revealed that 64.2% of the respondents “always” wash or sanitize their hands after grocery shopping, 42.9% cleaned packaged goods “always,” and 39.6% sometimes. What’s more, 27.8% of shoppers reported “always” changing clothes after shopping, and 41.5% sometimes.

## NEW PRODUCT DEVELOPMENT

Many of the new product development rollouts were delayed. New products that were lucky enough to get launched and gain distribution just prior to COVID-19 are doing well. Retailers have been just trying to put things on the shelf to satisfy consumer demand. Planograms weren't always correct, but they were just keeping the shelves full. Our industry is always developing new products; it will be interesting to see how the backup gets handled.



## HOSPITALITY INDUSTRY

The restaurant industry continues to do a higher percentage of their business out of the drive-thru and via delivery. The restaurant industry, although booming prior to the pandemic, was also overbuilt. According to Fortune magazine, in 2020 more than 110,000 eating and drinking establishments in the United States closed for business—temporarily or permanently.\*\*

Restaurant owners have been very creative, trying new and different strategies and adapting to the new normal. The foodservice industry is resilient— it was 1.1% larger in July 2021 than July 2019, and 31% larger compared to 2020 according to Technomic's TIndex (an index on total foodservice industry reported monthly).

There is a strong desire to return to normal among consumers. Las Vegas was empty, but once restrictions were removed it was at 100% guest capacity two weeks later. Staffing, however, is very difficult; many of those casino workers found other employment.

## MERGERS AND ACQUISITIONS

It has been a busy year in acquisitions. Consolidation amongst all categories will continue.

Sanderson Farms is being purchased for \$4.53 billion in a transaction that will combine Sanderson and Wayne Farms, a subsidiary of Continental Grain Co. Cargill is also a partner in the deal.

Other deals include Hormel Foods' \$3.35 billion acquisition of Planters from Kraft Heinz, Biosev acquisition of Raizen Energia for \$670.1 million, Al Ghurair Foods/Al Rajhi Holding Group's acquisition of Third Milling for \$200 million, Opotiki Packing acquiring Coolstorage by Seeka for \$59 million, and Barilla Holding's acquisition of Pasta Evangelists for \$48.73 million.

## TRANSPORTATION

Transportation continues to be a major challenge. Products or packaging coming in from overseas are backed up at ports around the U.S., availability of truck drivers is very limited, and labor is very tight. Workers who were laid off during COVID found different employment, and finding skilled labor to replace them is very difficult.

## SUMMARY

Spurred by major cost increases from many sources including transportation, ingredients, corrugated, labor and energy, food manufacturers are doing what they can to recover their increased costs. In the food business, prices go up slowly and fall quickly if demand softens. The Asterisks Beyond will change consumption patterns forever. We live in a global economy; things will continue to demand quickly by circumstances beyond our control. Those companies that are future thinking and not just reacting will prosper.

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# A 'NEW REALM' FOR DEMAND

## ECONOMIST DAN BASSE SAYS BEEF, CORN PRICES WILL MOVE HIGHER OVER THE NEXT SEVERAL YEARS

BY MIRANDA REIMAN  
ANGUS MEDIA

If strong beef demand is poised to be the highlight of the cattle markets going forward, competition for feed grains will be the lowlight.

Dan Basse, president of AgResource Co., spoke at the Certified Angus Beef (CAB) Feeding Quality Forum in Fort Collins, Colo., in late August. He had one main action point for attendees: "I think your big job in the cattle industry is covering and managing feed costs."

Grain stocks will remain low, both due to supply issues and demand growth ranging from global feed use to domestic fuel.

### THE CHINA FACTOR

African swine fever (ASF) reduced China's hog herd by 40% in 2018.

"The Chinese said, 'We're going to build that hog herd back,' and they have done that," Basse said. "They're the only country in the world that has recovered that quickly in terms of its ability to rebuild meat supplies."

In doing so, they've traded food waste byproducts for Western swine diets, which has quadrupled the amount of feed-grain imports they're buying from the United States. China now buys one out of every four bushels of feed grains in the world.

"That's a big deal," he said. "China will be taking lots and lots of corn for years to come."

U.S. grain farmers anticipated big margins going into 2021 — up to \$300 and \$400 per acre — and yet didn't plant as many corn and soybeans as expected. "We did not see the big acreage gains we were hoping for," Basse said. "There is no more expansion. Urbanization has taken those acres away."

According to USDA, crop acreage planted sits at 317.2 million acres, up from 310.1 million acres last year. Gains came from less productive corn states such as the Dakotas, which have also been hit with drought this growing season.

Other countries have had drastic weather challenges of their own, such as drought in Russia and frost and drought in Brazil.

## RENEWABLE BIODIESEL, NOW BEING PRODUCED FROM SOYBEAN OIL, IS BECOMING A POPULAR CHOICE FOR MAJOR COMPANIES THAT WANT TO REACH CARBON NEUTRALITY.

"World corn trade is still very, very strong. It hasn't changed," Basse noted. "So, when I look at world exporters' stocks-to-use ratios, there's going to be a shortage of corn in the world. This forces all the demand back to the U.S."

If there's a major weather problem in the United States, Argentina or Brazil, he wouldn't be surprised to see corn prices climb to \$8.50 per bushel or higher.

"I don't think corn is going back to anything with a sub-five in front of it for the years to come," Basse said, encouraging feeders to look for opportunities in the market to price grains.

### FOOD VS. FUEL

Part of the pricing scenario comes from competition in the soybean market. Renewable biodiesel, now being produced from soybean oil, is becoming a popular choice for major companies that want to reach carbon neutrality. Airlines will be a major driver, and this is poised to draw more acres out of corn or minor crop production to shift to soybeans.

"This is probably as disruptive to the market, an ag market, as anything I have seen in my 42-year career," Basse said.

This year 87 million acres of soybeans were planted across the United States.

"How many acres are farmers going to have to plant of soybeans to meet this demand of what's called carbon-neutral, renewable diesel?" he asked.

### IN DEMAND

Even if feed prices are a concern, strong beef demand should bolster cattle prices, Basse said.

"There has not been a better demand period that I can see for beef looking backward for the past 10 to 15 years," he said.

U.S. consumers have more disposable income, due in part to federal COVID-19 relief payments. As a result, consumers are eating more beef.

Globally, animal protein consumption is increasing, and the "feeding 9 billion people by 2050" mantra is still an important topic, Basse said.

Increased standards of living in countries like China, India, Vietnam, Thailand and Cambodia will drive food consumption for the next eight to nine years. "This is going to be a bullish factor for the livestock markets and the beef markets going forward," he said.

ASF gave U.S. beef products an "in" to the Chinese market, Basse said. "I don't think China's appetite for beef is going away. I think it's going to get stronger."

Except for the May-June timeframe, 2021 beef exports have been at 10-year highs. That's despite exponentially higher costs (up to \$20,000 per container) to get the refrigerated shipments into the region, Basse said.

"On the cattle side of things, you guys should feel relatively comfortable with the demand profile, not only from our domestic consumer, but also from our friends overseas in southeast Asia," he said.

The current herd liquidation phase, made more dramatic by widespread and prolonged drought in the West, will also prop up cattle prices.

"The long term on cattle looks really quite extraordinary and bullish for the next couple of years," he said. "We are really kind of in a new realm."

*Editor's note: This article was originally written for the Angus Beef Bulletin and is reprinted with permission from Angus Media.*



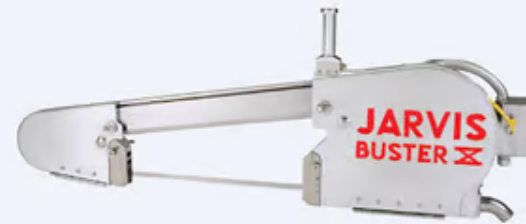
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# BEEF GAINS IN FOODSERVICE AND ONLINE SALES

BY SHAWN DARCY  
SENIOR DIRECTOR OF MARKET RESEARCH, NATIONAL CATTLEMEN'S BEEF ASSOCIATION

During a year when consumers moved toward a more normal state of life, foodservice beef sales recalibrated to higher levels that are more typical of the industry, and online grocery beef purchases grew. Beef quality and consumers' perceptions of beef remained strong and positive this year as they had in 2020.

## BEEF DEMAND

There is no doubt consumers' love for beef persisted through the pandemic, and it continues today. Beef proved to be an important staple in consumer diets through the pandemic; ground beef was a popular product at retail, due to its versatility in various recipes and its ability to be frozen. The price of steak and ground beef has grown since the onset of the pandemic, due to higher demand, lower supplies at times, and economic inflation, but consumers have remained steadfast in their willingness to pay current beef prices. Beef volume demand dipped eight percent from January to June 2021 compared to the same time last year; however demand is four percent higher than it was in 2019, which is referenced as a pre-pandemic baseline<sup>1</sup>. Dollars of beef sold in the first half of 2021 declined by five percent year over year and were 20 percent higher than 2019 levels<sup>1</sup>.

## E-COMMERCE

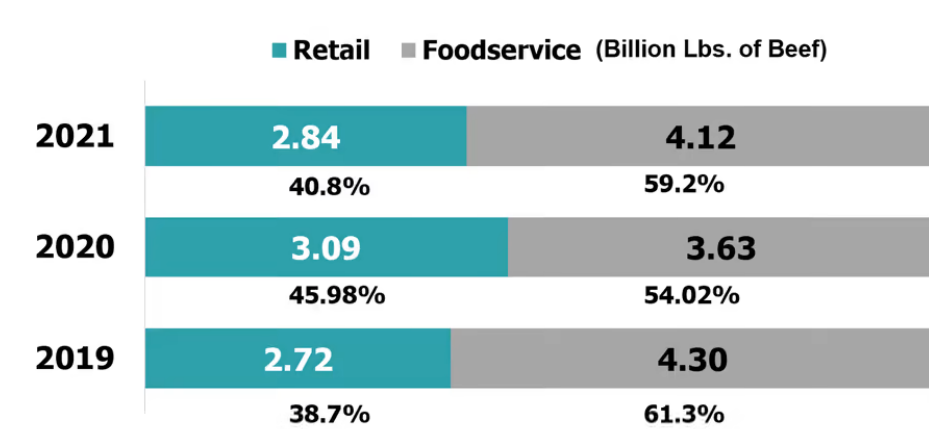
Stay-at-home orders lifted in 2021, yet consumer grocery shopping online and online meal ordering remained strong at 63 and 81 percent respectively through June 2021. Beef purchases through online grocery stores grew by 18 percent year over year, reaching 41 percent<sup>2</sup>. Consumers cite they are cooking 10 percent fewer meals at home than they did last year, however 74 percent in 2021 still represents a large majority<sup>2</sup>.

For foodservice operations, adoption of digital ordering platforms was an important tool during the pandemic. In the fourth quarter of 2019 (right before the start of the pandemic), digital foodservice transactions totaled 907 million occurrences; one year later, in the fourth quarter of 2020, those transactions increased by 245 percent<sup>3</sup>. Digital pickup was the most common type of digital interaction, comprising 60.5 percent of online orders, with digital delivery making up the rest<sup>3</sup>. Consumers and restaurants both adopted this technology by necessity, and it will remain a staple in the industry in the future.

## RETAIL & FOODSERVICE

With the rollout of vaccines, more consumers – a total of 53 percent – report feeling comfortable sitting inside a restaurant<sup>2</sup>. For the first half of 2021, we saw a trend back toward normal 2019 fresh beef volume levels with a 41 percent retail and 59 percent foodservice split<sup>4</sup>. Although foodservice transactions have increased more than 17 percent through the second quarter of 2021, they remain 7 percent behind 2019, a lasting mark of the pandemic. While the foodservice industry continues to slowly recover, COVID variants and uncertainty add risk to the operations of restaurants and venues.

AS MORE RESEARCH AND DATA ON GENETIC SELECTION, FEED AND NUTRITION HAS BECOME AVAILABLE, PRODUCERS HAVE ENHANCED THE QUALITY OF CATTLE THEY RAISE AND PRACTICES THAT ENSURE THOSE ANIMALS RECEIVE THE UTMOST CARE.



## BEEF QUALITY

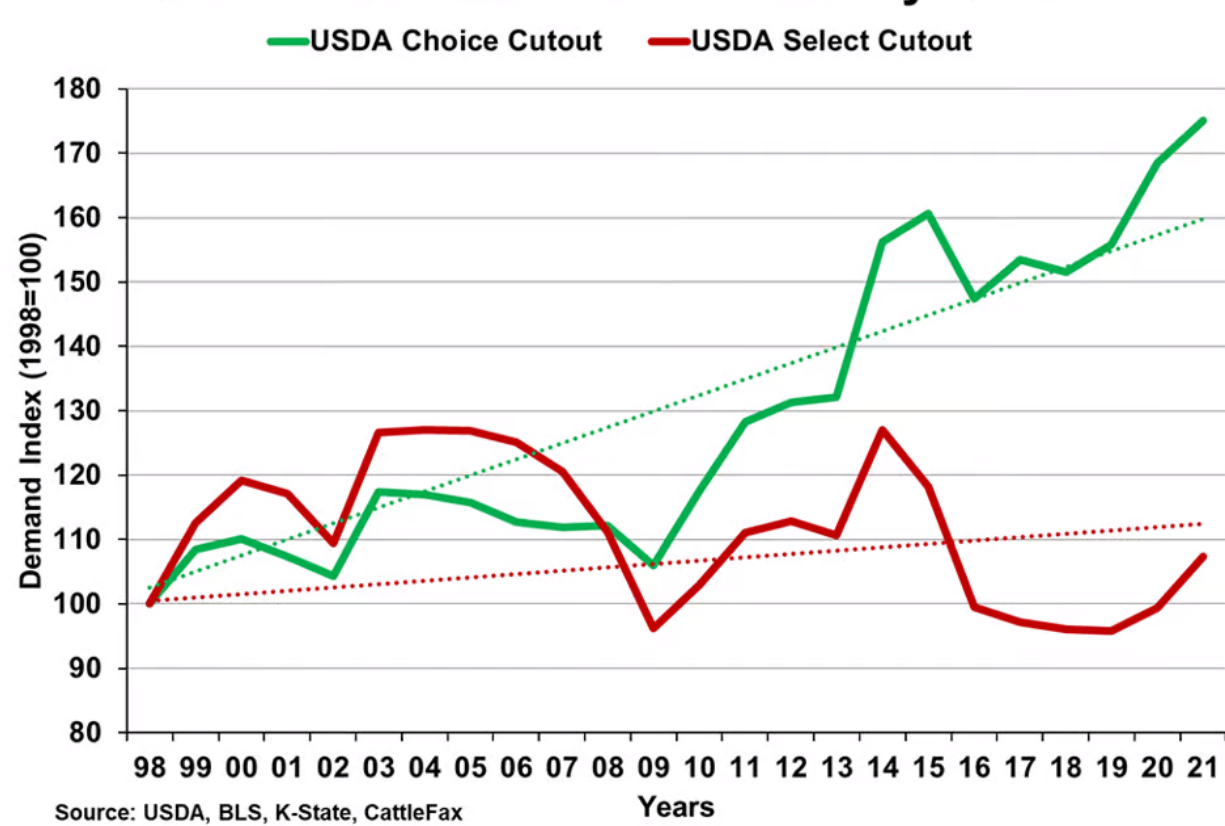
Thanks to the dedication of beef farmers and ranchers, consumers can relish more high-quality beef than ever before, with more than 83 percent of beef grading the highest available USDA quality grades of Prime or Choice<sup>5</sup>. The beef industry has spent decades optimizing factors on the farm and beyond that impact beef's quality and grade and help neutralize climate change. More strategic grazing management practices ensure the farm is protecting open space, serving as wildlife habitat and accelerating grasslands carbon storage in the soil through carbon sequestration.

As more research and data on genetic selection, feed and nutrition has become available, producers have enhanced the quality of cattle they raise and practices that ensure those animals receive the utmost care. Additionally, beef supply chain partners have innovated product handling techniques such as chilling and aging of beef, which can lead to a higher-quality eating experience. This continued product advancement demonstrates beef farmers and ranchers' ongoing commitment to providing consumers the high-quality product.

## MEAT SUBSTITUTES

Meat substitutes continue to drive headlines, but the swell of publicity has had little impact on demand for meat alternatives. While these products have grown in terms of market share year-over-year, they still enjoy less than one percent of the protein market, with beef substitutes representing less than one percent of beef's market share<sup>4</sup>. The introduction of new products into the market also is waning; new burger-substitute products in the market from August to July of 2020 totaled 50 products, while the same period one year later saw only 22 new products<sup>4</sup>. This could suggest that the market is getting closer to a supply ceiling. Health continues to be the number one reason consumers choose to eat the processed food product<sup>4</sup>.

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## CONSUMERS' PERCEPTIONS

Tracking consumer perceptions in 2021 points to a bright story and great opportunity for beef. NCBA's Consumer Beef Tracker data, funded by the Beef Checkoff, allows for ongoing tracking of consumer perceptions. From 2019 to 2020, we saw an increase in consumption and positive perceptions of beef. Those number remained stable through July 2021, meaning consumers have maintained elevated attitudes and behaviors toward beef consumption. The percentage of consumers claiming to eat beef at least weekly increased from 67 to 71 percent in 2019 to 2020 and has remained stable, with only a slight two percent dip. In addition, the number of people with a positive perception of beef reached 70 percent in 2020 for the first time in measurement history and stayed steady in 2021 at 69 percent. Digging in deeper, positive perceptions of beef production saw an increase from 38 to 45 then 46.5 percent in 2019, 2020 and 2021, respectively.

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# THE STATE OF THE CHICKEN INDUSTRY

When I wrote this column last year, I had certainly hoped the difficult situation brought on to all of us from the COVID-19 pandemic would be long behind us. As we all know, we're not quite there yet.

I have been constantly impressed by and grateful for the toughness and the creativity of our industry when responding to change – both the long-view solutions that are best implemented slowly and the rapid deployments demanded by immediate need. We have shown ingenuity and commitment in the face of change, regardless of the challenge.



BY MIKE BROWN  
PRESIDENT, NATIONAL CHICKEN COUNCIL

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The COVID-19 outbreak reminded us that our food system has long been “critical” and “essential” before those words became part of our daily pandemic vocabulary. Our top priorities during the pandemic have been two-fold: keeping our essential workers safe, and keeping chicken stocked in the meat case. Chicken producers and their industry allies went above and beyond to ensure America’s #1 protein continued flowing to store shelves. In this, it was imperative that a proper balance was struck between ensuring a steady supply of food while maintaining the health and welfare of the people who work tirelessly to produce and deliver that food.

## 2021 CHALLENGES

One of the headwinds to stepped-up pounds was and is the significant decline in hatchability. A combination of stressed breeder hens from the fallout of the highly unusual winter storm in Texas and certain surrounding states is being compounded by the somewhat unexpected performance shortfall with a leading male breeder.

Also adding to the headwinds are higher feed costs that undoubtedly will continue through the 2021/22 crop year and beyond. In-plant labor shortages are being addressed with a boost in wages and benefits coupled with incentives for more employees to get vaccinated against the COVID-19 virus.

Logistics is another hurdle, with transportation, cold storage, and related operations proving to be an on-going management dilemma and a higher cost factor, but this is certainly not unique to the chicken industry.

When the pandemic resulted in most foodservice establishments having to close their doors or severely curtail their business, the chicken plants that serviced these outlets tried to quickly pivot to supplying retail grocery stores. That pivoting effort was difficult and costly, but the industry found ways to make it work.

We’re seeing consumers allocating some of their dollars not spent at restaurants to upscale their grocery food bundle. Value-added chicken has benefited from this type of increased demand. But devoting plant labor to producing further processed products remains a key challenge and trade-off. The priority is to have first-stage processing successfully accomplished.

Despite having to continually overcome these unprecedented obstacles and challenges, chicken producers proved their remarkable resiliency by producing a record quantity in 2021 and are slated to increase output even more in 2022, according to USDA. The accomplishment of positive production is remarkable, especially when viewed against the production disruptions in other food categories, and many other industries in the U.S. and around the world.

As we head into 2022, the question on most chicken companies’ minds is, “What will the eventual and new norm be once the pandemic is viewed in the rear-view mirror?” It’s a difficult issue to address since the industry and country has never experienced this situation. But we have a long history of adapting to difficult situations and meeting changing demand, and the coming year will be no different. There is some modest consensus that the chicken business will return in the near future to some semblance of the pre-pandemic market.

In addition to these challenges, there are also several bright spots and success stories to highlight.

## AS MORE RESEARCH AND DATA ON GENETIC SELECTION, FEED AND NUTRITION HAS BECOME AVAILABLE, PRODUCERS HAVE ENHANCED THE QUALITY OF CATTLE THEY RAISE AND PRACTICES THAT ENSURE THOSE ANIMALS RECEIVE THE UTMOST CARE.

## SUSTAINABILITY

Nowhere has the industry’s commitment to innovate been better revealed than in our sustainability efforts. So, in a time of quick and unquestionable change, 2021 seemed right to celebrate those efforts in a way that gathers an overview of our sustainability progress, stories and commitments.

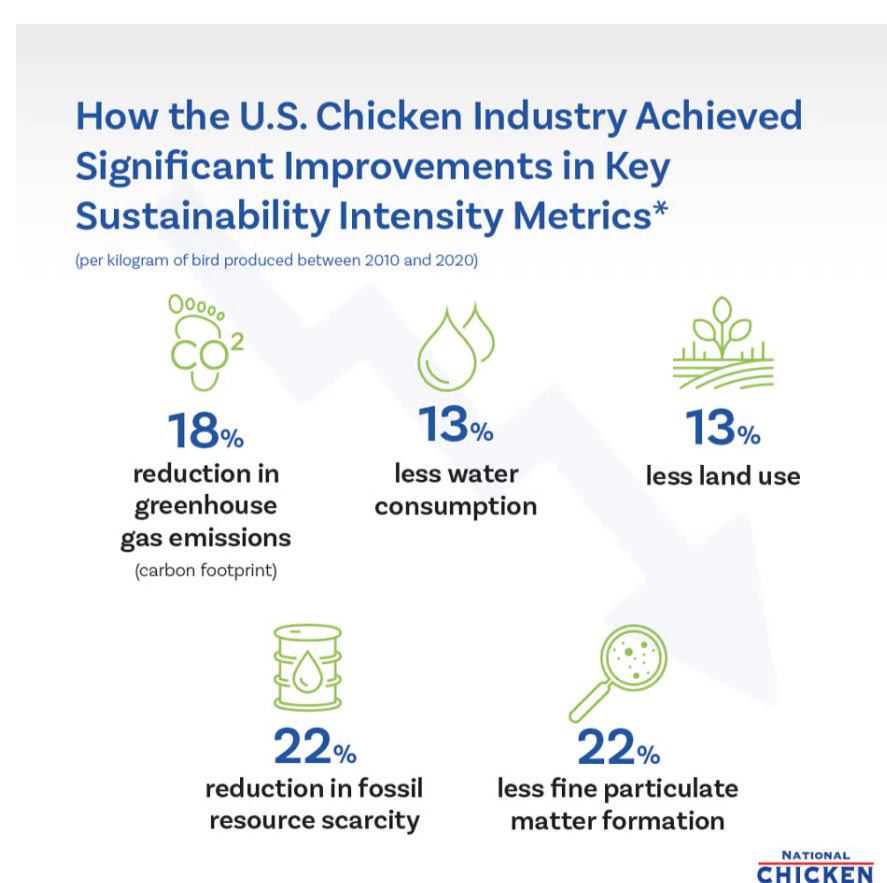
In mid-September, NCC launched our first ever Broiler Sustainability Report. The report provides a comprehensive overview of broiler production and the industry’s collective progress in its environmental, broiler welfare and social impact journey, as well as efforts to build a more sustainable food system. It is truly a remarkable journey and success story that we all can be proud of. The report features new broiler life cycle assessment (LCA) data that reveals the broiler industry achieved significant improvements in key sustainability intensity metrics (environmental footprint per kilogram of bird) between 2010 and 2020, including:

- Land use: down 13%
- Greenhouse gas emissions (carbon footprint): down 18%
- Water consumption: down 13%
- Fossil resources use: down 22%
- Particulate forming emissions: down 22%

There is so much more, including personal stories and profiles covering topics including: air, land and water; broiler health and welfare; employee safety and wellbeing; food and consumer safety; community support; and food security. The full report can be accessed by [clicking here](#).

## CONSUMPTION

One thing that hasn’t waned is consumer demand for chicken, which has been through the roof. The “Chicken Sandwich Wars” have definitely led to an increase in demand for breast meat, while expanding chicken’s role as America’s #1 protein. Restaurants, cafeterias, stadiums and other foodservice outlets opening back up has certainly helped maintain and expand demand, especially for boneless/skinless breasts, tenders and above all... wings.



Wing demand has proven to be “pandemic proof.” If you think about it, restaurants like wing joints and pizza places were built around takeout and delivery, so they didn’t have to change their business model that much during the pandemic. Wings travel well and hold up during delivery conditions. Plus, they aligned with consumer desire for comfort food during the pandemic. As long as people are sitting around watching TV, drinking a beer or catching a game, wings will remain hot. Don’t forget the air fryer revolution, either.

Overall chicken consumption will break another record in 2021, as Americans will eat more than 97lbs per capita. That number is forecasted to jump to 98.3lbs next year, almost as much as beef and pork combined.

# THE STATE OF THE INDUSTRY

# THE STATE OF THE TURKEY INDUSTRY

## TURKEY DATA

Product	Dollar Sales	Dollar Sales	Dollar Share of SubCategory	Dollar Share of SubCategory	Unit Sales	Unit Sales	Price per Unit	Price per Unit
	Current	%Change vs YA	Current	%Change vs YA	Current	%Change vs YA	Current	%Change vs YA
FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$1,706,830,222	-2.7%	100.00	0.00	313,087,569	-5.1%	\$5.45	\$0.13
PRIVATE LABEL-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$354,671,992	-1.4%	20.78	0.29	70,627,718	-2.8%	\$5.02	\$0.07
JENNIE O-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$331,886,890	2.0%	19.44	0.90	48,679,251	-2.5%	\$6.82	\$0.30
JENNIE O ALL NATURAL-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$216,012,424	-2.0%	12.66	0.09	49,231,061	-2.9%	\$4.39	\$0.04
BUTTERBALL EVERYDAY-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$186,050,563	-9.9%	10.90	-0.87	33,637,618	-10.9%	\$5.53	\$0.06
SHADY BROOK FARMS-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$154,017,488	-4.1%	9.02	-0.13	27,235,662	-4.3%	\$5.65	\$0.01
BUTTERBALL-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$113,730,751	27.6%	6.66	1.58	14,755,831	40.8%	\$7.71	-\$0.80
HONEYSUCKLE WHITE-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$82,358,708	-15.8%	4.83	-0.75	17,290,988	-14.4%	\$4.76	-\$0.08
FOSTER FARMS-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$44,392,176	-18.5%	2.60	-0.50	7,711,414	-23.0%	\$5.76	\$0.32
BUTTERBALL FARM TO FAMILY-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$42,632,231	-7.8%	2.50	-0.14	7,724,407	-8.7%	\$5.52	\$0.06
PERDUE-FZ/RFG TURKEY/TURKEY SUBSTITUTE	\$24,889,131	-17.5%	1.46	-0.26	5,641,257	-22.0%	\$4.41	\$0.24

Retail sales data attached for the categories/segments listed & top 10 brands per, latest 52 week period, Total US Multi-Outlet w/ C-Store (Grocery, Drug, Mass Market, Convenience, Military and Select Club & Dollar Retailers).

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**Jarvis' new Model SEC 180-4  
Circular Breaking Saw**

- Applications include pork ribbing, ham marking, shoulder marking and removing contaminated back bones.
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# A 'NEW REALM' FOR DEMAND

## ECONOMIST DAN BASSE SAYS BEEF, CORN PRICES WILL MOVE HIGHER OVER THE NEXT SEVERAL YEARS

BY MIRANDA REIMAN  
ANGUS MEDIA

If strong beef demand is poised to be the highlight of the cattle markets going forward, competition for feed grains will be the lowlight.

Dan Basse, president of AgResource Co., spoke at the Certified Angus Beef (CAB) Feeding Quality Forum in Fort Collins, Colo., in late August. He had one main action point for attendees: "I think your big job in the cattle industry is covering and managing feed costs."

Grain stocks will remain low, both due to supply issues and demand growth ranging from global feed use to domestic fuel.

### THE CHINA FACTOR

African swine fever (ASF) reduced China's hog herd by 40% in 2018.

"The Chinese said, 'We're going to build that hog herd back,' and they have done that," Basse said. "They're the only country in the world that has recovered that quickly in terms of its ability to rebuild meat supplies."

In doing so, they've traded food waste byproducts for Western swine diets, which has quadrupled the amount of feed-grain imports they're buying from the United States. China now buys one out of every four bushels of feed grains in the world.

"That's a big deal," he said. "China will be taking lots and lots of corn for years to come."

U.S. grain farmers anticipated big margins going into 2021 — up to \$300 and \$400 per acre — and yet didn't plant as many corn and soybeans as expected. "We did not see the big acreage gains we were hoping for," Basse said. "There is no more expansion. Urbanization has taken those acres away."

According to USDA, crop acreage planted sits at 317.2 million acres, up from 310.1 million acres last year. Gains came from less productive corn states such as the Dakotas, which have also been hit with drought this growing season.

Other countries have had drastic weather challenges of their own, such as drought in Russia and frost and drought in Brazil.

## RENEWABLE BIODIESEL, NOW BEING PRODUCED FROM SOYBEAN OIL, IS BECOMING A POPULAR CHOICE FOR MAJOR COMPANIES THAT WANT TO REACH CARBON NEUTRALITY.

"World corn trade is still very, very strong. It hasn't changed," Basse noted. "So, when I look at world exporters' stocks-to-use ratios, there's going to be a shortage of corn in the world. This forces all the demand back to the U.S."

If there's a major weather problem in the United States, Argentina or Brazil, he wouldn't be surprised to see corn prices climb to \$8.50 per bushel or higher.

"I don't think corn is going back to anything with a sub-five in front of it for the years to come," Basse said, encouraging feeders to look for opportunities in the market to price grains.

### FOOD VS. FUEL

Part of the pricing scenario comes from competition in the soybean market. Renewable biodiesel, now being produced from soybean oil, is becoming a popular choice for major companies that want to reach carbon neutrality. Airlines will be a major driver, and this is poised to draw more acres out of corn or minor crop production to shift to soybeans.

"This is probably as disruptive to the market, an ag market, as anything I have seen in my 42-year career," Basse said.

This year 87 million acres of soybeans were planted across the United States.

"How many acres are farmers going to have to plant of soybeans to meet this demand of what's called carbon-neutral, renewable diesel?" he asked.

### IN DEMAND

Even if feed prices are a concern, strong beef demand should bolster cattle prices, Basse said.

"There has not been a better demand period that I can see for beef looking backward for the past 10 to 15 years," he said.

U.S. consumers have more disposable income, due in part to federal COVID-19 relief payments. As a result, consumers are eating more beef.

Globally, animal protein consumption is increasing, and the "feeding 9 billion people by 2050" mantra is still an important topic, Basse said.

Increased standards of living in countries like China, India, Vietnam, Thailand and Cambodia will drive food consumption for the next eight to nine years. "This is going to be a bullish factor for the livestock markets and the beef markets going forward," he said.

ASF gave U.S. beef products an "in" to the Chinese market, Basse said. "I don't think China's appetite for beef is going away. I think it's going to get stronger."

Except for the May-June timeframe, 2021 beef exports have been at 10-year highs. That's despite exponentially higher costs (up to \$20,000 per container) to get the refrigerated shipments into the region, Basse said.

"On the cattle side of things, you guys should feel relatively comfortable with the demand profile, not only from our domestic consumer, but also from our friends overseas in southeast Asia," he said.

The current herd liquidation phase, made more dramatic by widespread and prolonged drought in the West, will also prop up cattle prices.

"The long term on cattle looks really quite extraordinary and bullish for the next couple of years," he said. "We are really kind of in a new realm."

*Editor's note: This article was originally written for the Angus Beef Bulletin and is reprinted with permission from Angus Media.*



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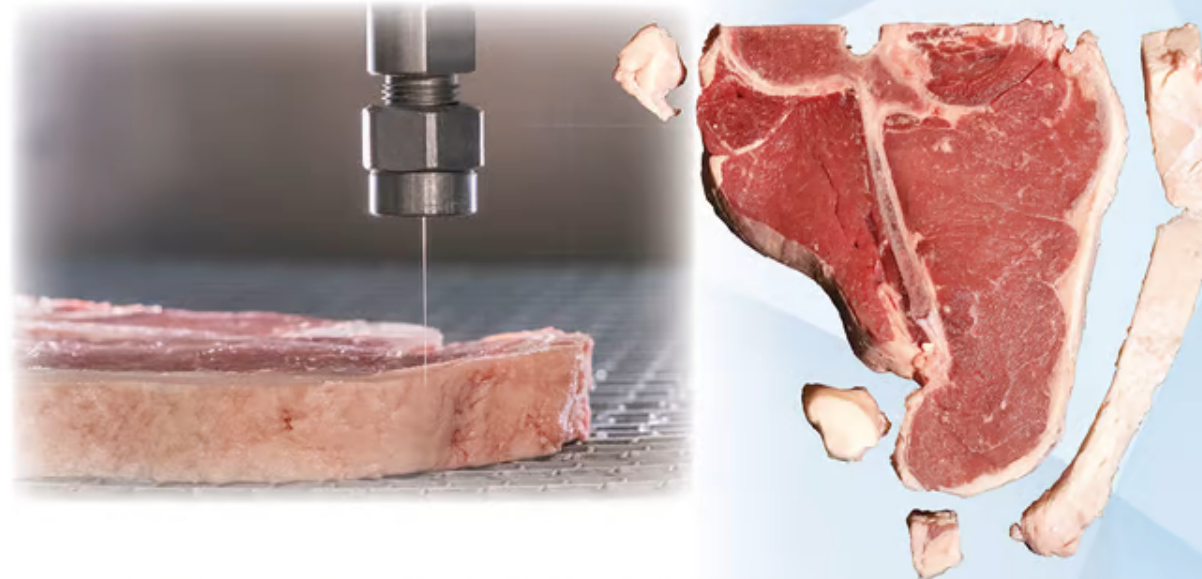
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# RED MEAT GETS A BOOST



## SLICING | PORTIONING | TRIMMING | DATA PROCESSING SCANNING | INSPECTION | SORTING | CONTAMINATION DETECTION | REPORTING & ARCHIVAL

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# STATE OF THE SEAFOOD INDUSTRY 2021

## BUILDING OFF SEAFOOD'S MOMENTUM

BY MEGAN RIDER  
DOMESTIC MARKETING DIRECTOR, ALASKA SEAFOOD MARKETING INSTITUTE (ASMI)

The pandemic has proven to be an interesting time for the seafood industry. After a year of rapid category growth at retail and looking ahead as consumers slowly head back into restaurants where seafood is historically king, we believe sales will continue to climb as Alaska seafood can meet consumers' needs and exceed their expectations.

The Alaska Seafood Marketing Institute (ASMI) recently conducted research via Datassential to uncover seafood consumption trends in the wake of the pandemic. The Datassential study found nearly half (49 percent) of all consumers are trying to increase their consumption of seafood (compared to just 36 percent who are looking to increase their consumption of chicken, 23 percent beef, 17 percent pork, and 23 percent veggie burgers), primarily because of seafood's health attributes and taste. Furthermore, 35 percent of consumers are cooking more seafood at home, with most planning to continue. The motivating factors for choosing seafood over other proteins include: more fresh options (88 percent), all-natural options (86 percent), easy recipe ideas (85 percent), healthy recipe ideas (85 percent), product of the USA (83 percent), wild-caught (82 percent) and health benefits (73 percent). In addition, the Alaska name is a strong purchase driver, with customers choosing wild Alaska king crab, wild Alaska pollock and wild Alaska salmon over other options.

One of the most surprising facts from the Datassential research was that more than a quarter of consumers purchased seafood at retail for the first time ever during the pandemic. Meat shortages, increased emphasis on cooking at home, and a desire for new culinary options may have prompted more consumers to try seafood in 2020. This opens up an incredible opportunity for us in the seafood industry to continue to encourage seafood consumption and provide simple and inspiring ways to enjoy it as we approach the end of 2021. While we expect consumers to continue to cook at home, we also anticipate a resurgence in the foodservice channels as restaurants re-open and more people dine out. Datassential research discovered that seafood is the second-most missed item by consumers from restaurants during lockdown.

## AFTER THE STRESS OF THE PANDEMIC AND OVERALL LIFE MOMENTS, CONSUMERS WANT TO EAT BETTER, AND CONSUMING SEAFOOD SUPPORTS THIS LIFESTYLE.

While this past year and a half has caused unprecedented changes in seafood consumption, we do believe that some of the shifts are here to stay, as the pandemic has permanently impacted the way people relate to their food, the way they shop, and the way they want to experience food at restaurants. We expect consumers to continue caring about:

- **Where their food comes from** – A brand's value, safety and purpose now matter more to consumers and impacts the way and why they buy. When it comes to seafood, consumers want to know the origin and how it was harvested. Purchasers can feel confident when choosing seafood from Alaska, as it is wild and sustainably caught.
- **The health benefits of their food** – The pandemic has made consumers recognize the importance of overall well-being, and they'll continue to seek out functional foods like seafood. After the stress of the pandemic and overall life moments, consumers want to eat better, and consuming seafood supports this lifestyle. Alaska seafood is a natural source of protein, vitamins and nutrients that satisfy the belly and body, reduce inflammation and decrease the risk of stroke, heart disease, Alzheimer's and dementia. It's no wonder the USDA recommends that people eat seafood twice a week. Plus, as we approach peak cold and flu season and consumers continue to look for immune supporting foods, they can choose wild seafood for high Vitamin D and Omega 3 content.
- **Ease of preparation** – Packaged and canned food sales are up at grocery stores and mass retailers, including frozen seafood, which experienced a 36% sales lift last year. The demand is driven by the increase in cooking at home, and while most people plan to continue, they are experiencing fatigue in the kitchen. The need for convenient, yet healthy and delicious recipes and ingredients, is greater than ever. The industry can support customers' needs by offering simple meal solutions, recipes, preparation tips and other culinary inspiration.

ASMI is utilizing the seafood consumption trends and insights to support the Alaska seafood, retail and foodservice industries. Through targeted e-commerce partnerships, easy and social-friendly recipe ideas, retailer promotions, foodservice innovation and offerings, and collaborating with chefs and experts, our focus is on retaining and connecting these new and experimenting seafood consumers to Alaska seafood to convert them to lifelong customers. For more information and recipe ideas visit [www.alaskaseafood.org](http://www.alaskaseafood.org).





# CONSUMERS DISCOVER LAMB DURING PANDEMIC

BY MIRANDA WORTMAN  
EXECUTIVE DIRECTOR, AMERICAN LAMB BOARD

When the pandemic shut down restaurants, the lamb industry was concerned about the many lamb racks on hand which traditionally went to the foodservice market. The lamb industry soon discovered, however, that consumers were excited to buy these premium lamb cuts as well as economical cuts of lamb at the retail market.

Consumers seeking more authentic and adventurous protein options purchased lamb for at-home meal preparation like never before.

While all meat sales grew in 2020 as more meals were consumed at home, lamb sales grew at a larger percentage than total meat sales overall, according to a lamb retail sales report developed from Information Resources Inc. (IRI) data that was analyzed by Midan Marketing and commissioned by the American Lamb Board.

Prior to (and at the start of) the COVID-19 pandemic, dollar sales of lamb and the meat department as a whole generally moved in lockstep. Beginning in the third quarter of 2020, however, lamb began to outpace the overall meat department. During the third and fourth quarters of 2020, dollar sales of lamb showed markedly larger percent increases from the same time period last year than dollar sales of meat overall.

The disparity in percent increase between lamb and the overall meat department continued through January 2021 and began to expand beginning in March 2021 with lamb seeing a 5.2% increase while meat overall saw a 22.5% decrease.

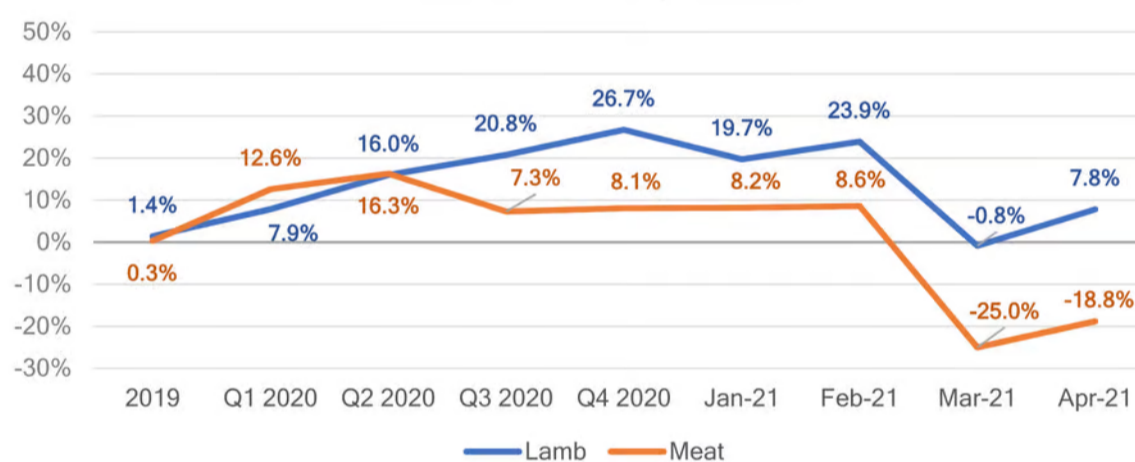
As with dollar sales, the percent change in volume sales of lamb has historically been comparable to the percent change in volume sales of meat overall. In the wake of the COVID-19 pandemic, volume sales as well as dollar sales of lamb began to grow at higher percentages than meat overall.

In the third and fourth quarters of 2020, volume sales of lamb showed much larger percent increases than dollar sales of meat – often by double or triple.

This disparity in volume sales percent increase between lamb and the overall meat department continued through the early months of 2021 and appears likely to continue through much of this year.

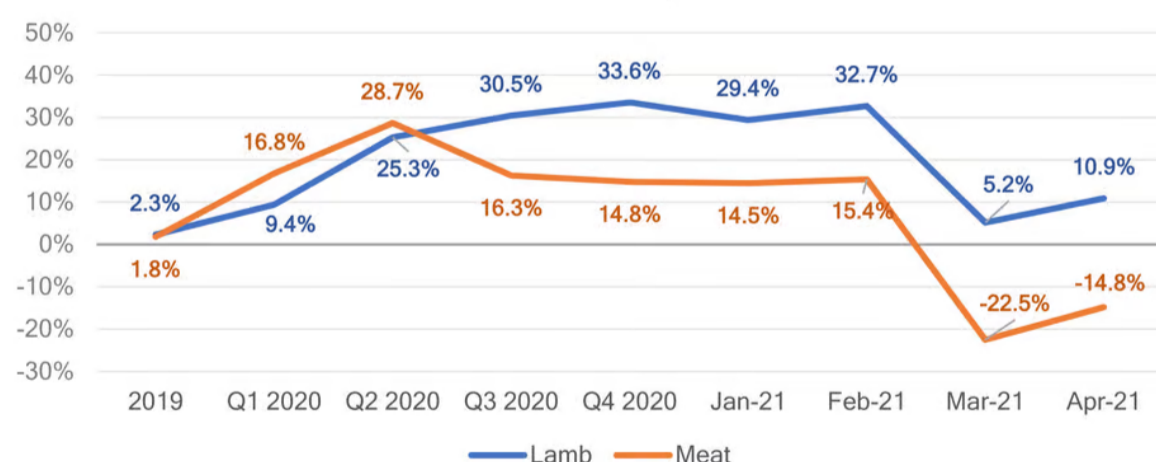
In 2020, the lamb industry experienced an increase of 24.7% in dollar sales and a 17.7% increase in pound sales as compared with 2019.

Lbs. Growth vs. Comparable Time Year Ago: Lamb vs Meat Department



## CONSUMERS GAINED KITCHEN CONFIDENCE DURING COVID, AND THEIR WILLINGNESS TO TRY LAMB AND NEW LAMB RECIPES INCREASED.

\$ Growth vs. Comparable Time Year Ago: Lamb vs Meat Department



Sales of lamb racks exploded during 2020, with retail dollar sales increases of 47.6% and 52.8% in volume as compared with 2019. During this same time period, ground lamb also showed significant increases – up 26% in dollar sales and up 23.7% in pound sales as compared with 2019.

Most importantly, lamb sales in 2021 continue to show growth even as restaurants are reopening.

Consumers gained kitchen confidence during COVID, and their willingness to try lamb and new lamb recipes increased. The American Lamb Board will continue to focus on educating new lamb consumers by sharing simple recipes, information about nutritional benefits, ease of preparation, versatility of cuts and cooking techniques as well as information about how American lamb is raised.

While lamb sales to restaurants were greatly affected by the pandemic, demand is returning and the lamb market is tight on supply. While lamb has often been seen as a fine-dining protein, restaurant demand is shifting to include lamb menu items in fast casual, midscale and casual dining restaurants.

The American Lamb Board and Taziki's Mediterranean Café are working together to introduce a new Taziki's Lamb Burger, two patties of savory, seasoned ground lamb, topped with grilled peppers and onions, feta cheese and tzatziki sauce served on a grilled Kaiser bun.

Taziki's Mediterranean Café began testing this new lamb addition to their menu on July 12 in select markets.

According to Taziki's Mediterranean Café, lamb is one of their most popular protein options, and now their customers who are fans of lamb gyros or family feasts can experience American lamb in a new way.

The American Lamb Board will sponsor a consumer research study as well as a menu study to better understand the shifts in lamb use during the pandemic.

What we know for sure is that consumers discovered lamb during the pandemic and are ready for more.



# VEAL STAYS STRONG

## DESPITE CONTINUED INDUSTRY CHALLENGES

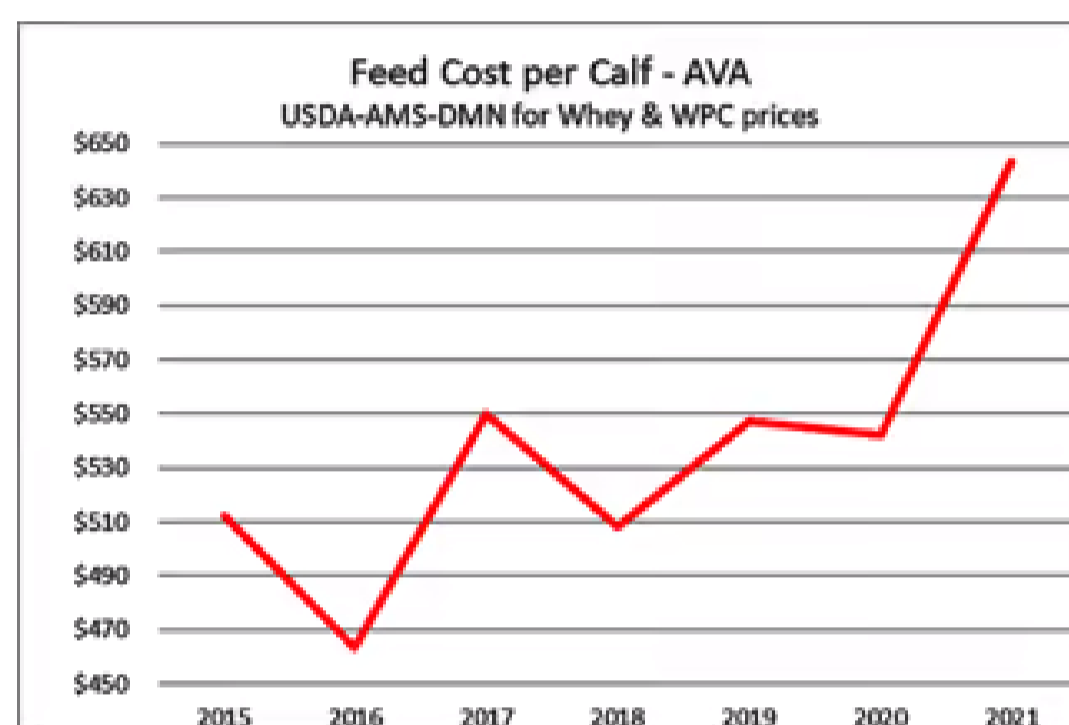


BY DALE BAKKE  
AMERICAN VEAL ASSOCIATION, PRESIDENT

To say the past 12 to 18 months have been a challenge is an understatement. The food industry continues to determine the new normal during a never-ending pandemic as shortages of labor, supplies and transportation plague the trade. But the veal industry is resilient and remains solid during these most challenging times.

### CONTINUED TIGHT MARKET

Challenges faced by the veal industry have been widespread and not isolated to just one faction. Producers have cut back on production, as demand from foodservice has dropped and calf prices have increased. Summer calf harvest was down about 30 percent year-on-year driven by reduced foodservice usage that has been met through freezer inventories from 2020. Increased demand in Asia for whey proteins along with a growing popularity among the health-conscious worldwide has been driving price increases for whey products, which impacts the cost of the feed formula for veal calves.



The chart above illustrates the average feed cost based on a fixed formula over the past seven years using data from USDA's Agricultural Marketing Services (AMS) Dairy Market News (DMS), based on whey and whey protein concentrate weekly prices. The cost of the veal formula feed prices has been challenged by large increases in dairy ingredient prices and a near doubling in the cost of fat that is not reflected in the chart below. The 2021 prices are through week 37 of the year.

As the pandemic continues, so do challenges with labor, whether you're a producer, food processor or feed plant operator. Current employees are asked to work overtime to cover short-staffed shifts while employers are struggling to implement protocols around vaccine mandates. This of course interrupts productivity and adds cost to the bottom line.

### PEOPLE ARE DISCOVERING VEAL AT HOME

Consumers are returning to restaurants, albeit at a slow pace. Meanwhile they are continuing to cook at home and taking on more complicated dishes than they did in 2020. This has been a great opportunity for veal, as consumers are focusing on quality over quantity when compared to 2020, according to the 2021 Power of Meat study. This in turn is driving demand of specialty proteins like veal at retail outlets. While retail SKU counts have decreased in the three major proteins of chicken, pork and beef, we've seen veal and other exotic protein SKU counts increase by 88 percent, per the 2021 National Meat Case Study.

Additionally, veal is being offered as an alternative to the big three proteins for special events whether it is at retail or foodservice establishments, as evidenced by consumer surveys. The younger generations have increased their purchases of meat protein during COVID and are experimenting with alternative meat proteins like veal.

### HELPING TO INFLUENCE CONSUMERS

To help continue the trend of learning more about veal, American Veal Association (AVA) members hosted a social influencer tour in April. The tour was funded by the Beef Checkoff to help consumers and other farmers learn more about the veal industry. Three online influencers participated in the in-person tour and have since then posted information about their experience online.

"I wasn't sure how much of what I had heard about veal production was fact and how much was fiction," said Carrie Mess of Dairy Carrie ([view article](#)). "So, I was thankful to be invited along on this tour so that I could see with my own eyes how veal calves are raised and yes, slaughtered. This tour was a full experience. They hid absolutely nothing from our group, and we had full access to see everything."

The online social media content has directly reached more than 68,000 people, and nearly 700 people have engaged in the content with comments and shares. One example includes an agriculture teacher in Florida who wrote, "... I had very limited knowledge about veal - although the question comes up every year from a student. Thank you so much for teaching me!"

The reaction from these bloggers is not unlike what others have said about how veal is raised today. Once they visit farms and see for themselves, they are eager to share the information. As Carrie said, "I can tell you for sure that after touring veal farms, a veal processing plant and even a feed mill that makes feed for veal calves my eyes have been opened."

### CONTINUED PRESSURE FROM POTENTIAL STATE MANDATES

The American Veal Association understands and appreciates consumer interest in how their food is produced. The health and well-being of veal calves is foundational to how we farm. We welcome that interest and are committed to transparency. Scrutiny of the veal industry continues as states look to California's Proposition 12 (also known as Prop 12) that was implemented in January 2021. However, we ask that states considering similar requirements talk with someone from the AVA board and consider the following:

- Food safety and animal well-being are not just words on paper in our [Statement of Principles](#). These values are represented in our practices each day as we care for and raise veal calves.
- The care and handling, nutrition, and housing are all done to ensure calves remain healthy, grow and thrive. That has been, and will continue to be, a priority for AVA members.
- In developing proposed rules to implement California Proposition 12, the California Department of Food & Agriculture (CDFA) said in its [Initial Statement of Reasons](#), "Minimum space requirements for veal calves and breeding sows outlined in Health and Safety Code (HSC) are not drawn from specific industry standards or published scientific research prescribing 43 square feet for veal calves and 24 square feet for breeding pigs." (CDFA Initial Statement of Reasons p. 146-147.)
- CDFA also said, "Animal confinement space allowances prescribed in the Act (cage-free for egg-laying hens, 43 square feet for veal calves and 24 square feet for breeding pigs) are not based in specific peer-reviewed published scientific literature or accepted as standards within the scientific community to reduce human foodborne illness, promote worker safety, the environment, or other human or safety concerns."

### WEATHERING THE STORM

The veal industry continues to meet the obstacles thrown our way head-on by continuing to be as efficient as possible and working together as a team. Like any business, when costs increase, we have been working to lower other areas of expense. Increased efficiency on truck routes or procedures in the plant help gain valuable time needed to make it through a challenging time.

OCTOBER 27, 2021 @ 2 PM EDT



# STATE OF THE INDUSTRY

## FEATURED SPEAKER



**JARROD SUTTON**  
Chief Strategy Officer  
National Pork Board

*The National Provisioner* will present its State of the Industry Report in the October eMagazine, featuring expert commentary from across the industry. As a companion piece, we will speak with industry leaders as they further discuss the issues, challenges and opportunities that are most prevalent in the meat & poultry industry.

Attendees will come away with a better understanding of the issues facing the meat industry, from regulatory developments to consumer trends.



# STATE OF

# JOINING FORCES FOR GREATER IMPACT

BY CANDACE BERGESCH  
DIRECTOR OF COMMUNICATION, U.S. ROUNDTABLE FOR SUSTAINABLE POULTRY & EGGS (US-RSPE)

In today's climate, sustainability is no longer considered a solo endeavor. It requires new levels of collaboration for fast, measurable impact. Driven by consumer demand and a global need for improvement, the meat supply chains have carried momentum in sustainable efforts over the last decade. Sustainability is no longer synonymous with just environmental issues – these efforts must also focus on our people and our animals. As we enter a new era, companies need to take note on how to stay relevant to consumers.

## WHERE TO START

Customers are seeking transparency from brands throughout the supply chains to make informed purchase decisions and evaluate the full impact of a product. There are several ways to gather the information needed and find efficiencies, but customers aren't aware of how big of an ask this is to the meat industry. They just want it done.

The structure of the livestock and poultry sector makes full supply chain coordination challenging. Proactive efforts must be precompetitive, antitrust actions should be implemented and new relationships have to be built. Companies can forge these paths to see the benefits or plug into existing efforts. With this shift in consumer demand predicted, several opportunities are available, such as with the U.S. Roundtable for Sustainable Poultry & Eggs.

Leaders and experts across dozens of chicken, turkey and egg companies saw the need for precompetitive, independent leadership and support to manage rapidly changing scope of sustainability work and founded US-RSPE. The objective of this organization is to reveal and fulfill opportunities for collaboration and support companies to be able to work together toward shared goals. It specifically forges paths between producers, allied industries, NGOs and other stakeholders directly or indirectly connected to poultry sustainability to include more diverse viewpoints. Building or joining these types of important partnerships result in positive outcomes for the planet, its people and the livestock and poultry as well.

## EFFICIENCY BOOSTS RESULTS

This effort complements other collaborative investments such as the SMART Broiler project that includes collaboration with Foundation for Food and Agriculture Research, McDonald's Corporation and others to innovate to improve poultry welfare. Grants are being offered to provide better tools and understanding that can be applied to the full supply chain.

Results can also be captured collaboratively as demonstrated by the recent update of the chicken LCA by the National Chicken Council and ongoing work to update the egg LCA by the American Egg Board. There are also training programs resources that all poultry companies can use such as those developed by the U.S. Poultry & Egg Association.

Simply put: By collaborating where possible and keeping open communication, more work can get done. That has been demonstrated regardless of whether it involves associations, companies or other entities.

NCC found that the U.S. chicken industry has produced 21% more chicken by weight in the last 10 years all while using 13% less land, emitting 18% less GHGs and consuming 13% less water.


This level of progress wasn't made by one farm or even one facet of the chicken supply chain. Refinements have been made holistically to facilities, diets, genetics, transportation and a multitude of areas that make produced chicken sandwiches more sustainable than ever.

While this is a case study in poultry, these same principles can be applied to any sustainability collaboration in other product segments, species and across species. The meat industry can continue to find success in its evolution and growth in sustainability with more commitment to collaboration.


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“ONE OF THE CHALLENGES THAT GAINED EMPHASIS FROM THE PANDEMIC-ASSOCIATED DEPOPULATIONS WAS THE DIFFICULTY IN EFFECTIVELY EUTHANIZING AND STUNNING LARGE PIGS, LIKE BREEDING SOWS AND BOARS, WITH CAPTIVE BOLT TOOLS.”



## TAKEAWAYS FOR SUCCESS IN COLLABORATION

For successful opportunities in sustainability collaboration:

- Collaboration from end to end of the supply chain can remove barriers and unlock opportunity for faster, higher-impact work. Individual organization or company investments in sustainability are essential and amplified by connecting that work with their entire supply chain.
- Precompetitive collaboration on innovation and projects provides the biggest return. Collaboration in a competitive sector like meat can be challenging, but it yields the best results for the planet, its people and, in this case, the livestock and poultry.
- Explore current active collaborative projects and initiatives to plug in right away. US-RSPE provides the roadmap for where and how the most effective continuous improvements can be made, which might originate at any step of the supply chain. Several other species efforts have emerged and continue to support improvements in those supply chains as well.

# THE STATE OF ANIMAL AGRICULTURE

## ACTIVIST GROUPS CONTINUE TO TARGET ANIMAL-WELFARE PRACTICES

BY EMILY SOLIS  
COMMUNICATIONS SPECIALIST, ANIMAL AGRICULTURE ALLIANCE

Animal welfare has remained a key issue for the Animal Agriculture Alliance since its founding in 1987 because of frequent efforts by animal-rights organizations to spread myths and misinformation about this important topic. Those involved in the animal agriculture community know firsthand that animal care is the No. 1 priority of farm families. By contrast, the No. 1 priority of animal-rights activist organizations is to eliminate animal protein from our diets. These organizations often work to harm the reputation of America's farm families by misleading and misinforming consumers. Their goal is to make eating meat unaffordable as well as socially unacceptable while raising funds to further their cause.

It's important to note the very real difference between "animal welfare" and "animal rights." The American Veterinary Medical Association says animal welfare refers to "how an animal is coping with the conditions in which it lives." An animal is considered to be in a good state of welfare if – as indicated by scientific evidence – "it is healthy, comfortable, well nourished, safe, able to express innate behavior, and if it is not suffering from unpleasant states such as pain, fear and distress. On the other hand, animal rights is the concept of treating animals as equal to humans. Tracy Reiman with People for the Ethical Treatment of Animals (PETA) put it very plainly, stating, "We are opposed to any exploitation of animals. Not just bigger cages, no cages. Not just less domination but no dominating. Not just making sure they are anesthetized before being killed for a shoe or a steak but not being killed for either."

Animal-welfare issues presented to the media, legislators and food brands are often touted as being supported by the general public, but the reality is the "issues" are almost solely pushed by animal-rights organizations hoping to persuade consumers to feel the same as they do. Because of the extremism of most animal rights views and concerns, most consumers do not share the same views. Nonetheless, we must stay vigilant to the issues activists push to safeguard the future of the animal agriculture community and remind consumers we share the same interest in animal welfare.

**ANIMAL-WELFARE ISSUES PRESENTED TO THE MEDIA, LEGISLATORS AND FOOD BRANDS ARE OFTEN TOUTED AS BEING SUPPORTED BY THE GENERAL PUBLIC, BUT THE REALITY IS THE "ISSUES" ARE ALMOST SOLELY PUSHED BY ANIMAL-RIGHTS ORGANIZATIONS HOPING TO PERSUADE CONSUMERS TO FEEL THE SAME AS THEY DO.**

Animal housing systems have been a huge target for animal rights groups over the past year. Delcianna Winders with the Center for Animal Law Studies at Lewis and Clark Law School, a partner of the Animal Legal Defense Fund, recently said, "In the United States, animals are intensively raised in tight confinement, barely able to move, let alone engage in their most basic behaviors like nesting, digging, grazing and so on." The use of cages for egg-laying hens and gestation stalls for farrowing pigs have specifically been battled by activist groups, even though science and research consistently point to their benefits (and even preference from the animals). Several states have introduced – and in some cases passed – legislation requiring the elimination of these production methods.

Food brands are also being targeted, as activist groups such as Compassion in World Farming push for them to adopt the Better Chicken Commitment (BCC) for broiler-chicken supply chains. The primary requirement of the BCC is adherence to animal welfare standards put in place by Global Animal Partnership (GAP), a highly activist-influenced organization. GAP standards are also subject to change, so they may evolve in the future beyond what companies thought they were committed to. Several animal-rights organizations are working collaboratively to pressure food brand contacts into committing to these standards.

Looking to the future, an increasing focus of activist organizations is aquaculture, or farm-raised fish. The release of Netflix documentary "Seaspiracy" brought seafood and the way it's raised into the spotlight over the past year, and activists have run with it. Mary Finelli of Fish Feel stated at a recent activist conference, "Tragically, fishes comprise by far the largest category of functionally exploited vertebrate animals. They're subjected to some of the worst abuse and they receive the least public concern or legal protection." The Alliance anticipates continued targeting of aquaculture and the seafood community in general by activist organizations. This may include an increase in attempts to obtain undercover video footage from aquaculture facilities that can be twisted to fit their narratives and strengthen future campaigns. All farms and facilities are encouraged to brush up on security protocols to protect themselves from possible activist attacks.

While the animal agriculture community continues to find ways to improve the lives of the animals it cares for, animal-rights activists will not stop until their end goal of taking animal products off our tables is reached. It's imperative that we keep animal welfare top of mind and practice science-based husbandry practices so we can confidently share with consumers that we're raising our animals in the best way possible while working to dispel misinformation shared by activist groups.

# THE STATE OF ANIMAL WELFARE



## RECOVERING FROM A CHALLENGING YEAR

BY KURT VOGEL

During the escalation of the COVID-19 pandemic in the summer of 2020, the entire live-animal supply chain was disrupted as slaughter establishments dealt with internal virus outbreaks and resulting reductions in slaughter capacity. The reduction in capacity caused a backlog of livestock that were ready for slaughter and the difficult decision to depopulate when animals couldn't be placed on maintenance diets and retained until capacity returned. The effects were the most burdensome for producers of high-turnover species, such as pigs, where each phase of production was operating near full capacity, and it didn't take much time for a backup to overwhelm upstream capacity. At that time, some slaughter facilities that could not maintain full operation became depopulation and carcass disposal sites, because there wasn't a good way to safely operate the entire slaughter and fabrication process. It was a very difficult time for the entire livestock production sector and a reminder of how the efficiencies in our production systems leave precious little room for bottlenecks.

One of the challenges that gained emphasis from the pandemic-associated depopulations was the difficulty in effectively euthanizing and stunning large pigs, like breeding sows and boars, with captive bolt tools. A few research studies have been published recently that have focused on alternative captive bolt locations for those large animals in a temporal position along the side of the head and behind the ear. More refinement in captive bolt tools and placement guidance are needed before either of those positions can be used as reliably as the typical front-of-the-head location, but they seem to have potential for future use.

“**ONE OF THE CHALLENGES THAT GAINED EMPHASIS FROM THE PANDEMIC-ASSOCIATED DEPOPULATIONS WAS THE DIFFICULTY IN EFFECTIVELY EUTHANIZING AND STUNNING LARGE PIGS, LIKE BREEDING SOWS AND BOARS, WITH CAPTIVE BOLT TOOLS.**”

### SUMMARY OF ENFORCEMENT ACTIONS

In the annual analysis of the USDA's Food Safety and Inspection Service's (FSIS) Humane Handling Enforcement Actions, the Animal Welfare Lab at the University of Wisconsin – River Falls recorded nearly 88% (87/99) of enforcement actions as stunning-related from 2020. Out of those 87 enforcement actions, approximately 83% (72/87) were associated with gunshot and captive bolt applications. The primary reason for mechanical stunning enforcement actions couldn't be discerned reliably, because slightly more than half of stunning-related enforcement action letters did not provide a clear description of the causative factors behind the incidents they reported. For a more detailed analysis of the 2020 enforcement actions, [click here](#).

The take-home message from the 2020 humane handling enforcement action analysis is to continue to pay attention to captive bolt and firearm stunning in all areas that affect the outcome. That means we need to continue to focus on training, monitoring and tool refinement.

*Kurt Vogel is an Associate Professor in the Animal and Food Science Department at the University of Wisconsin – River Falls. He is also the President of Vogel Livestock Solutions, a food animal welfare consulting company. If you have any questions or comments, email [kurt.vogel@uwrfl.edu](mailto:kurt.vogel@uwrfl.edu) or phone (715) 425-4704.*

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# THE STATE OF PACKAGING

## CONVENIENCE AND SUSTAINABILITY REMAIN DRIVING FORCES FOR CONSUMERS

BY HALLIE FORCINIO



For consumers of meat, poultry and seafood products, convenience still sells, and concerns about sustainability remain strong. Processors are addressing these needs while paying close attention to quality, line efficiency and labor requirements, which increasingly are being addressed by automation.

### CONVENIENCE RULES WORLDWIDE

Winners in recent packaging competitions show the interest in convenience continues unabated. In the annual Flexible Packaging Achievement Awards competition sponsored by the Flexible Packaging Association (FPA), Crunch Pak's Toy Story Lunch Kitz received the Highest Achievement award, a Gold – Technical Innovation. The 4-ounce snack tray with individual compartments contains sliced apples, an artisan cracker, string cheese and Italian salami. The foods are fresh and healthy, including the salami, which is without nitrates, nitrites or artificial ingredients.

The zeal for convenience is not limited to North America. The Youfoodz Meal Kit, an Australian winner of a WorldStar from the World Packaging Organisation, holds ingredients for an easy-to-cook meal. When ready to use, releasing a notch in the handle opens the briefcase-style carton, which refolds into a tent card that displays easy-to-follow cooking instructions. This package also scores sustainability points because its two-piece construction represents a 30 percent source reduction compared to a single-piece carry case design of the same size.

A WorldStar winner from Japan, Ajinomoto's "Steam Me" microwave pressure-cooking pouch, is designed to cook raw meat in the microwave. A port releases steam generated during cooking to ensure the pouch doesn't fail. This design also scores sustainability points because it doesn't need primary or secondary cartons. The retail-ready distribution case opens with one-touch and is ready to be stocked on store shelves.

## SUSTAINABILITY TAKES MANY FORMS – SOURCE REDUCTION, RECYCLED CONTENT, ADOPTION OF RECYCLABLE MATERIALS AND REPLACEMENT OF NON-RENEWABLE MATERIALS WITH RENEWABLE.

### CONSUMERS FAVOR SUSTAINABLE PACKAGING

Sustainability takes many forms – source reduction, recycled content, adoption of recyclable materials and replacement of non-renewable materials with renewable. Source-reduced packaging reduces the amount of material used through a redesign or conversion from a rigid format to a flexible one. One source-reduction option being explored is trayless ground meat packaging, which replaces traditional ground meat packaging with a flow-wrapped, all-film design. Eliminating the tray also reduces packaging costs.

Another source-reduced package, a reclosable zipper pack for Smithfield Prime Fresh Delicatessen sliced lunchmeat, resembles packaging used at the deli counter and evokes freshness. The Silver Award winner in FPA's competition was recognized for expanding the use of flexible packaging and features a surface-printed, high-barrier, coextruded dual forming web instead of the typical laminated film. Benefits include improved shelf life, less product waste and a source reduction of 31 percent compared with the tub/lid format often specified for lunchmeat.

Recycled-content packaging also is receiving attention. A proprietary vacuum skin package for Impossible Burger, from Impossible Foods, consists of a clear recycled polyethylene terephthalate (PET) tray with easy-open PE film. It was recognized by the Institute of Packaging Professionals with an AmeriStar in the Food (Refrigerated) category.



Impossible Foods chose recycled-content packaging for its Impossible Burger product.



Longhini Sausage Co. rolls its newest metal detector from line to line to create an integrated quality-control system.

Switching from non-recyclable to recyclable films is another sustainability tactic. Recyclable films are already available in Europe. One WorldStar winner in the Packaging and Components category – a thermoformable, monomaterial film – has been adopted in Austria by Hütthaler for meat and sausage products sold in Hofer supermarkets. It not only runs well on packaging equipment but also offers excellent barrier properties and the potential for extended shelf life.

WorldStar winners also show a shift away from plastic packaging to renewable materials at all levels of the supply chain. A number of cold-chain shippers have converted from expanded polystyrene (EPS) to all-paper-based materials. The designs typically combine easy-opening, product protection and a consumer-pleasing unboxing experience.

The Lobster Protector, a winner of a WorldStar in the Food category, is 100% plastic-free, flat-packed and made of materials that are either recyclable, compostable or biodegradable. Price-competitive against expanded polystyrene (EPS), the shipper, which is marketed in Australia and New Zealand, offers superior thermal performance, maintains product temperatures within the required 7 C–12 C range for 36 or more hours, minimizes carbon dioxide buildup and controls humidity levels and moisture during transit. Lobsters, which are shipped live, reportedly arrive at their destination in a healthier state. Lower mortality rates and less moisture loss maximize commercial value.

No- or reduced-plastic structures also have been developed for primary packaging. Another WorldStar winner replaces traditional foam and crystallized PET trays with a recyclable paperboard structure. Compatible with modified atmosphere and vacuum skin packaging, the trays offer a continuous sealing flange and easily separated film liner. The resulting package, used by Liffey Meats for dry-aged Angus steaks sold in Ireland, cuts plastic consumption up to 90 percent and offers the potential for up to 28 days of shelf life. An associated machine erects, lines, fills and seals the paperboard tray from a precut, flat paperboard blank.

What is your favorite reclosable/resealable package for meat, poultry or seafood products?



### AUTOMATING QUALITY CONTROL

With product quality always a top-of-mind concern, many firms are automating inspection. Longhini Sausage Co., a maker of Italian sausages and other specialty meat products, for example, has installed two metal detectors. "We decided to automate inspection back in 2015 after seeing other companies experience metal contamination issues that were completely preventable," recalls David Kemp, CEO of Longhini.

"Our application is difficult for most metal detectors," explains Rich Longhini, president of the maker of specialty meat products. "Meat products have natural variations in temperature and moisture, plus our wide range of case sizes presents a variation in product density. Products with variable characteristics are hard to accurately inspect. To overcome these challenges, we had to find an unusually advanced metal detector."

The first unit, purchased 2015, is a semi-automated, standalone system on wheels that inspects cased products offline. To increase throughput, a second unit on wheels was purchased in 2019, but this one is moved from line to line to fully automate inspection. The inline system inspects thermoformed packages ranging from six ounces to one pound and tray packs weighing between five and 10 pounds. The offline system now exclusively inspects cases weighing from five to 40 pounds, filled with either bulk sausages or tray packs not already inspected on the inline system.

The machines use multi-simultaneous frequencies to create a reference point and therefore can better differentiate between the presence of metal vs. natural product variations than a traditional single-frequency system. This heightened sensitivity virtually eliminates false rejects.

"One of our favorite features is the product clustering capability, which allows us to run many similar products under the exact same setting," Longhini says. "We can almost always lump new products together under existing product settings. We also like the auto-setup routine. With it, our operators can easily add totally new products or recalibrate in less than five minutes. We test them a few times a day, which is why we know they're consistently sensitive across our different products and packages."

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### BOOSTING LINE EFFICIENCY

For several years now, many plants have been automating packaging operations to increase efficiency and reduce labor requirements. The pandemic has accelerated that trend. "Automation is high on the agenda in many sectors, following the ravaging of workforces by the virus, and the subsequent need to enforce social distancing in the workplace," according to Coming through COVID-19, a white paper published in June 2021 by PMMI, the Association for Packaging and Processing Technologies.

Nearly one-third (31 percent) of respondents said they are currently using and will continue to use automation machinery as a substitute for approximately qualified manpower, and 30% reported they have plans to introduce automation for that reason in 2021. One respondent noted, "COVID-19 has driven a tremendous urgency to automate repetitive-motion tasks across manufacturing. Skilled labor will continue to be required but [the] availability of repetitive-motion labor will continue to be challenging and automation will be required to address the risk."

Some of the tools the acquisition of automation include the Industrial Internet of Things (IIoT) and integration of more machines with data acquisition capabilities. Other drivers include the expansion of robotics in secondary packaging and palletizing, remote access and the availability of artificial intelligence and predictive analysis for maintenance, according to another white paper from PMMI, Automation timeline: The drive toward 4.0 connectivity in packaging and processing.

Remote support is a particularly hot topic. Coming through COVID-19 has been given a boost by the pandemic, and its time benefits mean it is here to stay," explains the CPG through COVID-19 paper. In short, CPG companies want higher levels of support, diagnostics, service and training (with interactive simulations) delivered remotely. In fact, 48 percent of the CPG companies surveyed are currently using remote access and plan to continue using it and 15 percent plan to implement it in 2021. Another 7 percent have adopted the technology for use during the pandemic.

To help companies maximize benefits from the remote access, OMAC - The Organization for Machine Automation and Control, published a free, vendor-neutral guide, the Practical Guide for Remote Access to Plant Equipment. The product of a workgroup representing manufacturers, machine builders, system integrators and technology providers, it defines best practices for remote access. A successor workgroup has begun preparing an addendum focused solely on cybersecurity and areas of remote access that require a protection.

"While defensive technologies will evolve and improve over time, this workgroup will review the mechanisms used today for remote access and identify areas for improvements," says OMAC board member Spencer Cramer, CEO of ei3, a provider of secure remote access technology and leader of the workgroup. Discussion centers on remote connection methods such as direct VPN, converged network, cell modem access. The addendum, external managed secure network and technician access, as well as configurations to provide protection from cyberattacks. The document is scheduled to be published in January 2022.





# THE STATE OF FOOD SAFETY 2021: GOOD HELP IS (VERY) HARD TO FIND.

BY ANDREW LORENZ  
WE R FOOD SAFETY!

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Every year at this time, I pore over the CDC reports on foodborne outbreaks, FDA and FSIS recalls, death certificates from the CDC database and more, looking for trends to see where we have been over the last 12 months and try to get a glimmer of where we are headed.

Believe it or not, this has been a ho-hum kind of year. Recalls, foodborne outbreaks, deaths are all pretty much “normal.” As has been true for the last 10 years, we have done an amazing job of producing safe wholesome product!

I dug a little deeper this year, speaking to a wider variety of food safety professionals to try and get a better idea of the challenges they face. The answer was universally the same: lack of qualified, motivated people.

As an industry, we traditionally have struggled to get enough people to join our teams, but I have never seen it like this. Short staffing in all positions, in large and small plants, is the issue that everyone faces.

Major producers have decided to shutter shifts, because they can't staff them. Smaller operators are turning down lucrative contracts, because they can't staff to meet what they are already making, let alone taking on additional work. New plants are delaying start-up, because they can't get enough people to staff the lines. Factor in the cost of an employee now and the training it takes before they become productive, and we have a concerning situation.

We all know what happens when you can't train effectively; people make mistakes, and those mistakes get magnified because the people downstream are also new and aren't sure of themselves. Now add to it the fact that the food safety & quality technician on the floor hasn't had a day off in 21 days, and we have a real issue.

So far, we haven't had many of these mistakes get out into commerce, yet we are tanking a lot more product. When I look at the overall destruction report, it is up by almost 9% from 2019! That is a lot of product going to landfills instead of going to feed people. We see the amount of product destroyed for “contamination” that was caused by someone dumping plastic liners into the grinder, torn cardboard, boxes not sealed properly and product contamination from the warehouse, etc. going up. This is all human error related.

The number of exasperated owners and managers that I have spoken to is staggering. Uniformly they are proud of their core team and how they have held up and performed. However, they are seeing cracks due to the long-term increased workloads.

Human Resource teams are working like mad to recruit at all levels, but the pool of candidates just isn't there, be it for line workers, maintenance or food safety technicians. The pressure on raising salaries and benefits is being felt at all levels in the industry, driving costs up.

I sat through a meeting with a senior management team, and the FS&Q director pointed out to the production manager that the failure rate was going up in a key production line. The elephant in the room was that people on that production line were burned out. I don't know that I have had a FS&Q director suggest that a production team needed downtime and help brainstorm ways of making it happen before.

“SHORT TERM, THE SOLUTIONS ARE STRAIGHTFORWARD. AUTOMATE WHAT YOU CAN, FOCUS ON CREATING SYSTEMS THAT ARE DESIGNED TO CATCH ERRORS TYPICALLY MADE BY INEXPERIENCED OR UNDERSTAFFED TEAMS, AND TAKE CARE OF YOUR LEADERS.”

Short term, the solutions are straightforward. Automate what you can, focus on creating systems that are designed to catch errors typically made by inexperienced or understaffed teams, and take care of your leaders.

Long term we must invest in intelligent automation. In a very small operation, just adding an automated bacon slicer can have a huge impact.

We have a client that we were able to help automate, reducing the need for 17 employees. The total cost to implement was approximately \$700,000. The raw ROI easily covered the cost, but the real winners were those 17 employees who were moved to more productive positions within the company.

Using auto probes to take temperatures, self-cleaning belts, auto boxing machines, auto palletizing machines, etc. should be on everyone's “look at” list, and when the time is right, make the purchase and implement.

I recently attended a meeting with Senator Tammy Baldwin at a production facility. She is helping push to make funds available to modernize the meat and poultry industry. There are others in Washington who also understand that, to feed the U.S. safely, we must modernize our systems. This is not a Democrat or Republican issue, it's a U.S. issue. We must modernize if we are going to be able to smooth out the supply chain. I urge everyone to be in contact with your representatives in Washington and let your voice be heard.

For us to move forward as an industry and meet the demands that we face we must modernize. The days of cheap labor are over.



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## AUTOMATED SYSTEMS ARE REPLACING HUMANS TO DEBONE AND CUT CHICKENS.

BY MEGAN PELLEGRINI  
CONTRIBUTING WRITER

Humans are still the most effective machines at wielding knives in poultry plants.

As it turns out, it's not easy to create a robot that can duplicate humans' cutting and slicing motions in a real plant. But automated lines are becoming a close second.

"We did a limited trial in a plant last summer (2020) of our prototype robotic front-half shoulder deboning system. Unfortunately, it is not yet ready for commercial launch," says Ai-Ping Hu, PhD, principal research engineer, Georgia Tech Research Institute (GTRI), based in Atlanta.

GTRI has been refining a robot that uses advanced imaging technology and a robotic cutting arm to debone chickens and other poultry.

"More automated lines are being used today, not what we think of as robots," says Brian Kiepper, Ph.D., an associate professor at University of Georgia, based in Athens, Ga. "Automated lines are where people are being replaced by an automated process."

**AUTOMATED SYSTEMS CAN SEPARATE AND CUT WINGS, SLICE OUT DARK MEAT AND DEBONE BREAST MEAT, USUALLY AT SPEEDS OF 7,500 BPH, IN A SINGLE LINE.**

### FILLING LABOR SHORTAGES

Why? The short labor supply. "The No. 1 reason is that demand for labor has gone up," says Harshavardhan Thippareddi, Ph.D., John Bekkers Professor of Poultry Science, University of Georgia. "During COVID-19, people got sick, there weren't vaccines at first and the person-to-person risk was greater in a processing plant. But even before that, labor-supply shortages were leading to interest in automation."

COVID-19 highlighted the labor shortage but also opened the door to new processes. "In the U.S., labor costs are significant," says Kiepper. "So, the industry has always looked at how to decrease labor costs vs. increasing yield."

Automated systems can separate and cut wings, slice out dark meat and debone breast meat, usually at speeds of 7,500 bph, in a single line. New systems can process a larger weight range today, too.

Each bird is different, so with a mechanized system you may lose a little meat on the frame during deboning, Thippareddi says.

In fact, early automated systems just couldn't compete with manual systems' yield numbers, Kiepper says.

"But we're getting closer now," says Kiepper. "If plants put in automated systems, the potential yield loss still makes business sense" in the current labor market.

"The question for the industry is whether the loss in yield is comparable to labor supply issues," Thippareddi says. "Day-to-day labor changes also lead to a loss in yield – time is a fixed cost as well."

Another advantage of automation is eliminating repetitive tasks that can injure employees, says Kiepper.

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### INVESTING IN TECHNOLOGY

Fewer employees may be needed to operate automatic lines, but they need to be more tech savvy and comfortable with computer controls, Kiepper says.

"Automatic systems don't need breaks or a day off, but they do need people to maintain their programming. Overall, they work well," he adds.

Intelligent solutions or smart data can sort and grade birds in real time for the most efficient cuts.

Some operators may be hesitant to invest in the initial capital investment required. "Even an ounce of meat left on a bird can make a difference per frame over a week," Kiepper says.

Processors are always looking for ways to increase line speeds, even up to double or more than the current rate. Future automated systems are expected to speed up cut-up lines, improve camera imaging or X-ray techniques and further develop smart communication amongst machines to accomplish this goal.

"Improvements and efficiencies in yield will push processors to automated systems," says Thippareddi. "COVID has accelerated the transition for most processors, I think, to go toward automated systems."

# A HIGH-TECH SOLUTION FOR

## SAUSAGE PROCESSING PROBLEMS

TECHNOLOGIES THAT CUT PRODUCERS' OPERATING EXPENSES WHILE ENHANCING PRODUCT QUALITY ARE INCREASINGLY ATTRACTIVE.

BY RICHARD MITCHELL  
CONTRIBUTING WRITER

Sausage processors face a bunch of operational issues.

Rising raw material prices, a shortage of qualified workers and food safety threats make it increasingly challenging to produce cost-effective higher-quality products. In response, more processors are turning to cutting-edge technologies to better monitor and enhance operations.

"To maintain profits with the current inflation, there is the need to either increase the price of a product, identify cost savings by using least-cost formulations or adopt technologies to replace labor or increase throughput or quality," says Jeff Sindelar, professor and extension meat specialist in animal sciences at the College of Agricultural and Life Sciences, University of Wisconsin, in Madison.

A shortage of highly skilled employees has caused some processors to replace as many workers as possible with automation, which can include using robotics to split carcasses, remove hides and transfer products from conveyors, Sindelar says.

The greater availability of operational data from the myriad processing technologies, meanwhile, enables processors to better gauge whether the equipment is operating optimally and more easily pinpoint device inefficiencies. "It's a big opportunity that not all processors are following," Sindelar says.

Using auditing firms, consultants or academics to review plant operations will help reveal shortcomings and possible solutions, he says. Enabling some employees to focus solely on process improvements or efficiencies also helps. "Auditing doesn't have to be a two- or five-day affair," Sindelar says. "It can just be a couple of hours to walk through the plant and understand the big parts of the process and the products at a higher level."

### AUTOMATION IS THEIR ANSWER

Among the growing base of processors seeking high-tech enhancements is San Antonio-based sausage producer Kiolbassa Smoked Meats, which recently added new stuffing and linking equipment to create a more consistent sausage with a tender bite and firmer mouth feel, says Michael Kiolbassa, chief executive officer.

The operator is also considering incorporating additional technologies.

"We launched a Lean Six Sigma process and are looking at eliminating waste in every step of the process," Kiolbassa says. Lean Six Sigma is a team-focused process improvement methodology designed to help companies improve performance by eliminating waste and defects in their operations.

In addition, Kiolbassa Smoked Meats is focusing on overall equipment effectiveness (OEE), he says, which identifies the percentage of manufacturing time that is truly productive. By enhancing plant efficiencies to compensate for its higher operating expenses, the processor is trying to minimize the price increases it passes on to customers, Kiolbassa says.

Other recent improvements include the addition of a new processing line in 2019, which Kiolbassa says is the company's most efficient unit, and the elimination of slower-moving SKUs. Kiolbassa Smoked Meats reduced its SKU count about 35 percent over the past four years and now offers about 80 SKUs that include varieties of beef smoked sausage, Polish smoked sausage, jalapeno beef smoked sausage, chorizo Mexican-style sausage and breakfast links, he says.

"We are constantly looking at innovation and creating new products because that is what the market demands," Kiolbassa says. "You have to constantly cull the SKUs that aren't performing to create production space to make new products." Newer offerings include all-organic beef sausage – which is the processor's fastest growing product line – chicken sausage and the breakfast sausage line, which features regular and maple varieties.

### BETTER TASTE THROUGH TECHNOLOGY

While he says the company's emphasis on customization makes it more difficult to automate processes, Kiolbassa Smoked Meats still is considering adopting new robotics and palletizers. These technologies can help reduce labor costs, which Kiolbassa says are higher than many other processors because of the handcrafted nature of its products.

"We are looking at technology to enhance product quality as well as efficiency," he says. "But because we pride ourselves on handcrafting, it inhibits some of the automation that other companies may be able to take advantage of."

“WHILE IT IS CRUCIAL FOR PROCESSORS TO FOCUS ON PRODUCT QUALITY, OPERATIONAL EFFICIENCIES AND MERCHANDISING, OTHER ELEMENTS SUCH AS MAINTAINING HIGH FOOD SAFETY STANDARDS ARE CRITICAL AS WELL

Kiolbassa Smoked Meats, which has about 350 employees and operates two manufacturing facilities in San Antonio, produces about 22 million pounds of sausage a year in smaller 150-pound batches. "We are stubborn about changing the elements that make the product better," Kiolbassa says. "The marketing and sales guys are responsible for the first sale and the production guys for everything after that because the quality, eating experience and customer experience drive" continuing demand, he says.

While it is crucial for processors to focus on product quality, operational efficiencies and merchandising, other elements such as maintaining high food safety standards are critical as well, Sindelar says. Sausage developers face the challenge of protecting products from such bacteria as *Salmonella*, *E. coli* O157:H7, *Yersinia* and *Listeria*. It's also important to combat the complacency that can occur among workers after long periods with no incidents.

"Food safety issues will always be about how they are handled," Sindelar says. "Listeria is always there, and you can never lose sight thinking about it. You have to continue taking steps to control it."

While many processors also are looking at alternative raw materials because of price issues, it is automation that will drive plant improvements, he says. "Advancements in the industry are resulting more from technologies, controls, monitoring and collecting data and less so on new equipment innovation, although that exists and is still important," Sindelar says. "The technology piece is huge today."

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## CHALLENGES DRIVING CHANGE



### RETURN ON INVESTMENT

ROI justification remains top of mind.



### LABOR

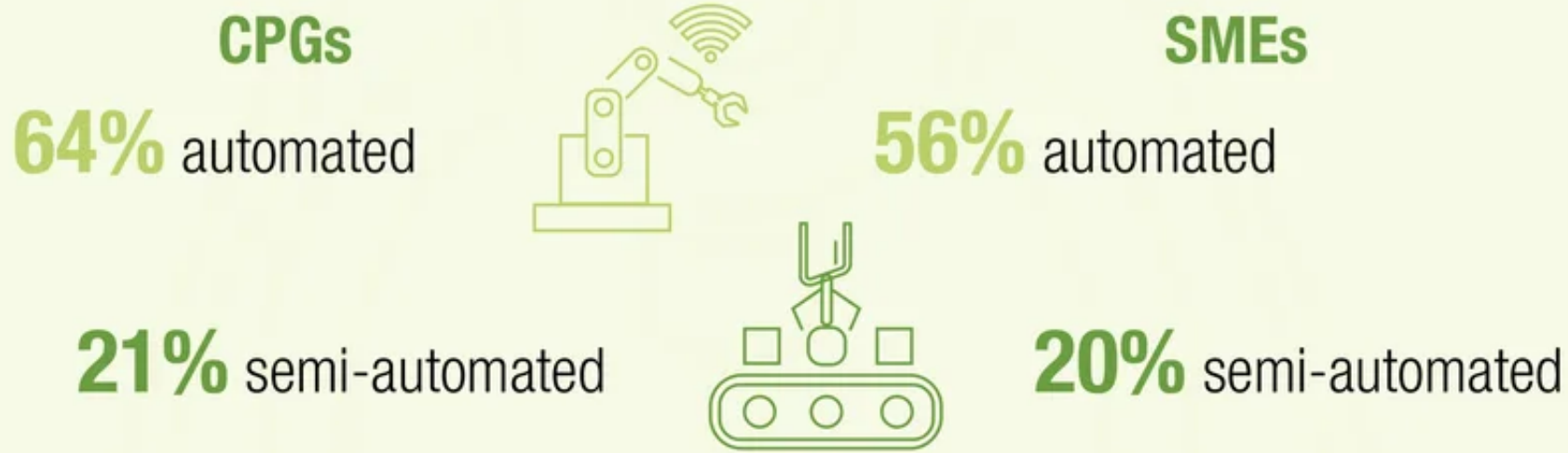
Manufacturers reported not being able to find and/or retain the needed labor.



### RESOURCES

Lack of internal knowledge, skill, and expertise required to determine automation needs.

## CURRENT AUTOMATION LEVELS



## UTILIZATION OF OEE

**1 in 4** leading CPGs and SMEs currently utilize OEE across most lines.

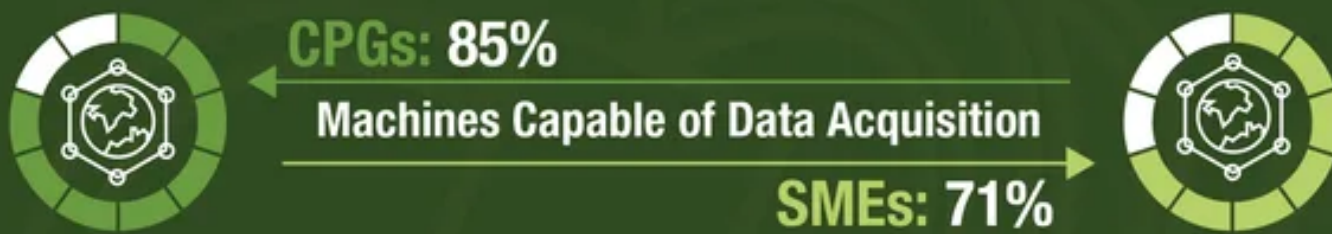


**Over 2 in 5** companies interviewed predict increasing OEE calculations in the next several years.

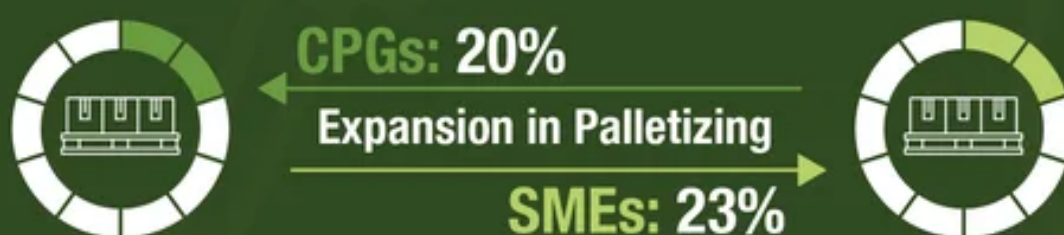
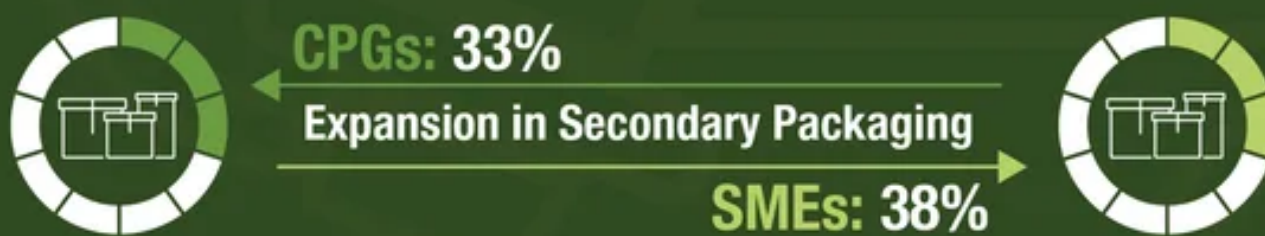
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WITHIN 10 YEARS, EXCEPT ROBOTICS

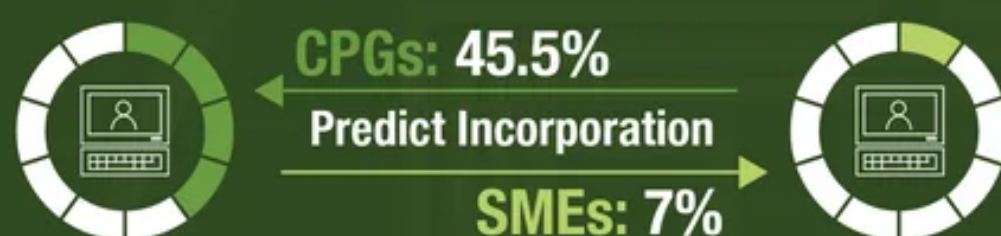
### IIoT AND INTEGRATION



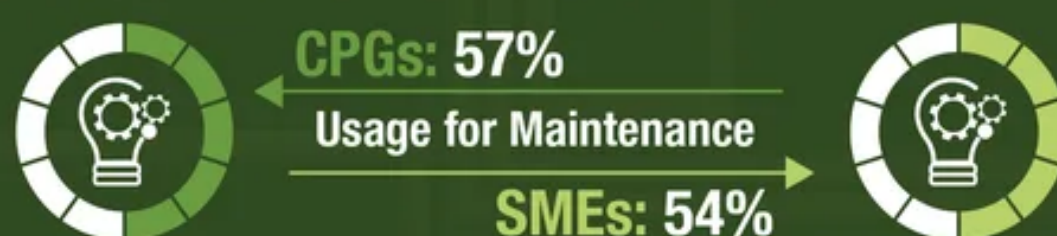
### ROBOTICS



### ARTIFICIAL INTELLIGENCE



### PREDICTIVE ANALYTICS



## MOVING ALONG THE TIMELINE

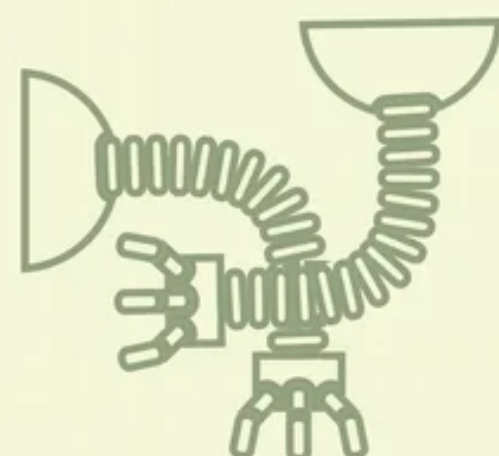
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### OEMs Fostering Partnerships:

- Understand challenges
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