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Greater Omaha Packing CEO  
Henry Davis (right) and  
President Mike Drury.

Upping their ground game at  
**GREATER OMAHA  
PACKING**

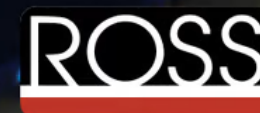
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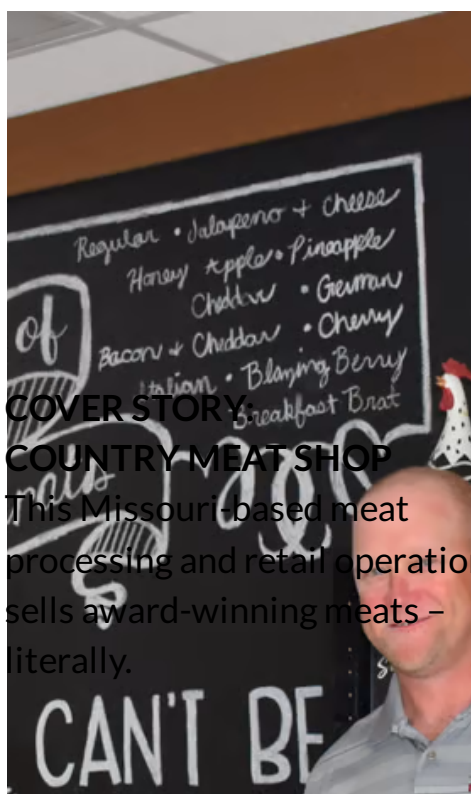
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**Voice of: Fred Wilkinson**  
Chief Editor, National Provisioner

## GREATER OMAHA PACKING EXPANDS

OMAHA, Neb. — Greater Omaha Packing Co. Inc. has launched a major expansion to its production capacity, and Mike Drury, president of Greater Omaha Packing, explains what the upgrades will mean for Greater Omaha Packing and its customers.



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# FROM THE

# GROUND UP

“Go big, or go home,” the old saying goes, and at Greater Omaha Packing they’re definitely going big. The beef processor is currently underway with an ambitious facility expansion in its hometown of Omaha. Among the goals of the project is responding to its customers’ demands for ground beef products. According to recent IRI retail sales data, sales for grinds generated \$1.4 billion during October 2022, and 84% of dollars and pounds were due to sales of ground beef products. Check out our Processor Profile and find out what else Greater Omaha Packing has in store with its expansion plans.

Also, make sure to take a look at our profile of Country Meat Shop in our *Independent Processor* section. The Missouri-based company’s distinctive red barn-looking building houses an operation that has claimed more than 150 state and national awards for its meat products.



FRED WILKINSON



EMAIL FRED WILKINSON

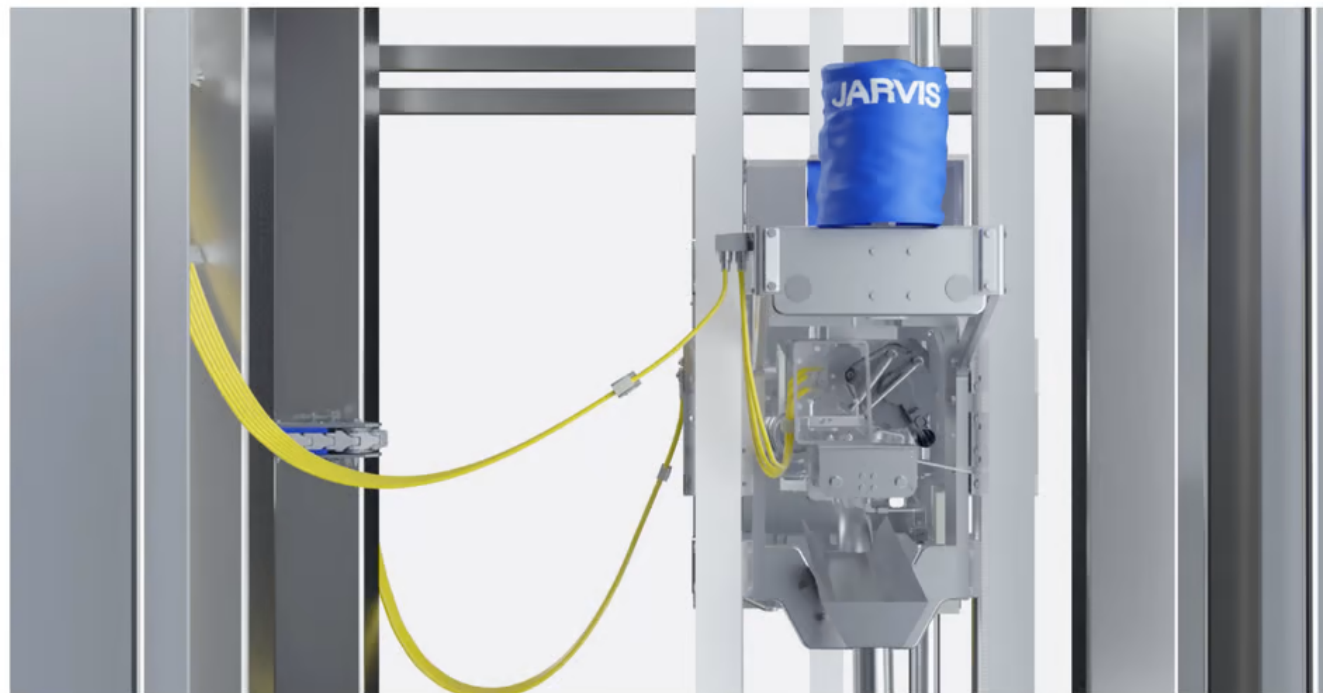
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# UPPING THEIR GROUND GAME

**GREATER OMAHA PACKING EXPANDS ITS GROUND BEEF PRODUCTION CAPACITY TO ALMOST 450,000 POUNDS A DAY, THE FIRST STEP IN A FACILITY EXPANSION EFFORT THAT INCLUDES A NEW AUTOMATED PACKAGING AND HANDLING SYSTEM FOR FROZEN PRODUCT AND NEW VALUE-ADDED PACKAGING.**

BY FRED WILKINSON  
CHIEF EDITOR

OMAHA, Neb. — In response to customer needs for expanded production flexibility and value-added packaging, Greater Omaha Packing Co. Inc. launched a major expansion this fall.

"One of those needs that customers are asking for is further fabricated and increased processed items," said Mike Drury, president of Greater Omaha Packing. "In particular, we're expanding our ground beef capabilities."

Aiming to fulfill those customer needs, the effort will enable Greater Omaha Packing to expand from processing around 250,000 pounds of ground beef daily to almost 450,000 pounds of ground beef a day, Drury said.

"That's in response to our customers' needs, taking rough-cut product and turning that into the custom grinds they're looking for," he said.

Complementing its efforts to meet its customers' demand for value-added products, Greater Omaha Packing also is embracing opportunities to reduce its customers' dependence on labor.

"Over the past several years, we have answered some of those questions with our customers in terms of cutting portioned steaks and further trimming loins down to meet their specifications so that they have less labor — or no labor — for themselves or their end-user customers," Drury said.

**IN ADDITION TO INCREASING ITS GROUND BEEF PRODUCTION CAPACITY, GREATER OMAHA PACKING'S EXPANSION INCLUDES ADDING AN AUTOMATED PACKAGING, BOXING AND PALLETIZING SYSTEM FOR FROZEN PRODUCT, MODELED AFTER THE SYSTEM IT EMPLOYS FOR FRESH PRODUCT.**

"Ground beef certainly is a value-added item," said Ryan Abell, vice president of operations. "Most people think of value-added as either seasonings, marinades or cut steaks, but ground beef certainly is one because these smaller operations may not have the capabilities to do ground beef."

Greater Omaha Packing's expanded ground beef production capacity will enable offering customers more customizable grinds using different cuts, whether it's round, chuck or rib brisket chuck, Abell said.



Kirby Childs, (left) vice president of quality assurance and technical resources, and Ryan Abell, vice president of operations, help guide Greater Omaha Packing's more than 1,500 workers.

"What we hear from our customers is they're having a harder time finding qualified workers at a retail store or even a foodservice back of house," he said. "They are asking for us to have further trimmed more steak-ready items or packaging. They want to be able to open the box or open the package and be able to put that into a meat case, or cooking and seasoning in a restaurant with minimal trim, minimal work. That allows them to have more product that they can sell versus having to trim off and figure out 'Do I need to scrap it? Do I need to grind it?'"

In addition to increasing its ground beef production capacity, Greater Omaha Packing's expansion includes adding an automated packaging, boxing and palletizing system for frozen product, modeled after the system it employs for fresh product, Drury said. That project broke ground in September and is scheduled for completion in the fall of 2023.

"As we're employing new technology that takes some of the physicality out of the work we're finding that those workers are able to up-skill and find other work that they can do here at our facility," he said.

## THE MEAT

Greater Omaha Packing began in 1920, when CEO Henry Davis' grandfather, Herman Cohen, began purchasing farm-raised, corn-fed cattle upon his return from World War I. The family-owned business today processes 2,400 head of English-bred cattle a day and exports to more than 70 countries.

"We produce some of the highest quality beef in the U.S. — that's our market," Davis said. "There's always demand for high-quality American beef around the world."

Given its location, Greater Omaha Packing finds itself well situated for accessing quality cattle.

"What we thrive on is high-quality cattle," Davis said. "We get about 90% of our cattle within a 200-mile radius of Omaha, Nebraska has more premium cattle on feed than any other state, and Iowa has more feed corn than any other state, so we're right in the middle of this environment that generates very high-quality cattle."

Greater Omaha Packing has strong relationships with numerous small to medium-sized feeders that understand the company is willing to pay more if they feed the cattle a few more weeks to generate more USDA Prime beef, Davis said. The company markets meat under its Greater Omaha Angus and Greater Omaha Hereford branded programs.

"Our cattle are young, which makes them more tender," he said. "And because we have them fed out longer, they have higher quality."

Greater Omaha Packing's beef undergoes a two-day chill, which adds to the initial process of aging and tenderizing.

"Two days aging and the chill that we have makes a big difference in the quality of the end product," Davis said.

**Adding value via packaging**

Adding value at Greater Omaha Packing doesn't just mean for the beef product itself, but also offering packaging options to enhance customer and end-user value as well. Part of the company's expansion for its value-added capacity is increasing use of skin packs.

"It really makes that meat presentation very eye appealing," Abell said.

"We worked with our third-party supplier as well to make sure that they are sustainable," said Kirby Childs, vice president of quality assurance and technical resources.

The expansion efforts also will add printing on demand to allow retailers further display-ready finished product capabilities, Drury said.

Greater Omaha Packing's packaging for ground beef includes 1-, 3-, 5- and 10-pound chubs to meet various retail and foodservice customer portioning preferences, Abell said.

## INVESTING IN PEOPLE

Greater Omaha Packing's workforce is a diverse, speaking more than 15 languages and representing 32 nations. Staffers total more than 1,500 people across the company and its affiliated divisions, which include:

- Greater Omaha Express (a trucking company)
- Trex Corp. (a global export company based in California)
- High Country Meats (a wholesale meat distribution company based in Colorado)
- Progressive Protein LLC (further processor of bones and fat).



Expanding the value-added services Greater Omaha Packing can offer customers includes packing in skin packs.



Responding to customer demands for ground beef products, Greater Omaha Packing has nearly doubled its capacity for grinds.

"People here are the foundation of our success, and because of that we are really aggressive out there in the market when it comes to trying to get the best people to come and work for us," said Mohsine Gdid, vice president of human resources. "Our wages are some of the highest wages when it comes to our industry."

In addition to medical, dental and vision insurance, Greater Omaha Packing's employee benefits also include tuition reimbursement, day care assistance and ongoing training programs.

"We offer some comprehensive benefits programs that take care of our employees and also their dependents, such as education reimbursement for them and their dependents through a local partnership with some colleges," he said.

Greater Omaha Packing's employee recruitment efforts extend beyond the Omaha metro area.

"We also have a lot of offerings to encourage people from surrounding states — and really anywhere in the United States — to come and join us," Gdid said, adding that employee referrals of family members or friends play a key role in finding the company's workers.

"We make sure that every single person that works for us — it doesn't matter where they come from — has a voice," he said, citing the company-provided childcare benefit that was the result of employee input.

Prioritizing employee fulfillment extends to Greater Omaha Packing's management techniques as well, and Abell said his tenure on Greater Omaha Packing's sales desk before moving to the company's operational side helps him communicate to the staff about how their roles all impact customers.

"That knowledge of the customer, that knowledge of the product and the business as a whole has helped me explain things to our employees in the operations role, the maintenance role and even quality assurance roles," he said.



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# LEVERAGING FOOD COATINGS TO INTEGRATE HEALTH ATTRIBUTES

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**APPEARANCE AND AROMA — THAT DETERMINE THE SUCCESS OF A FOOD PRODUCT.**

A coating uniquely embodies all the key traits in a finished food product — texture, appearance, flavor, and even, in most cases, aroma. With the increased demand for clean-label nutritious foods, developers are leveraging food coatings as a way to take those attributes and build healthfulness into texture in products designed to meet such requirements.

Today's consumers are prioritizing convenience, affordability, and nutritional value when it comes to the foods they are purchasing. Consequently, frozen and prepared ready-to-eat (RTE) foods have become even more essential as people continue to balance health with economy and time. According to the American Frozen Food Institute, sales of frozen foods in the U.S. were up by 21% in 2020.

Consumers also continue to expand their palates and interests in new flavors, textures, and specialty diets. This has resulted in a greater call for innovative clean-label products. Moreover, they are ever more cognizant of the link between diet and immunity, leading to a heightened awareness of nutrient-based claims. As a result, snacks, meals, and sides with high nutritional value and “free from” claims — but also alluring flavors and textures — are now the rule.

Food coatings — including breading, batters, seasonings, glazes and edible films — are largely associated with RTE, refrigerated, and frozen products. Coatings enhance snacks, sides and meals.

## STAKING CLAIMS

One of the most prominent dietary restrictions among consumers today is gluten avoidance. The overwhelming demand for gluten-free products in every food and beverage category is now mainstream and here to stay. To meet the gluten-free criterion, dried vegetables (such as cauliflower and peas), along with whole-grain ingredients such as flours and starches from brown rice, corn, tubers and ancient grains, are replacing traditional wheat flour to yield gluten-free breadings for even the most traditional products, such as chicken tenders and fish sticks.

## BATTER UP

Developers must work through some key challenges when formulating a healthier coated or enwrapped food. Traditional starches, such as modified corn starch, offer predictable and reliable functionality. “These are the backbone of the formulation, holding the batter together and allowing it to set when cooked,” said Ryan Erwin, food chemist and innovation manager for natural foods manufacturer Fresca Foods Inc. “In breaded applications, starches are used to ensure that the breading adheres to the substrate throughout frying, freezing, and reheating. Starches are also the key to developing the crispy and crunchy texture of breaded and battered products.”

Animal protein substrates lead the coated foods category, with items such as chicken tenders, seafood, and fish being most common, both in retail and foodservice settings. Yet in 2020, 47% of U.S. consumers reported a desire to reduce their meat intake, and globally, other countries reported similar statistics. Consequently, the demand for plant-based meat and seafood alternatives has risen rapidly, challenging food manufacturers to innovate coatings for plant-based applications as well.

Plant-based protein sources, including pea, chickpea, mung bean, and fava bean, as well as mushrooms and even algae, are the main components used to create a substrate for food coatings. They typically are combined with starches, such as those from pea, chickpea, and tapioca, to carefully mimic the density and texture of animal proteins.

Animal proteins are easier to coat than plant-based proteins, and thus developers have the challenge of creating functional formulations of batters and breadings to ensure that consumers experience optimal appearance, taste, and mouthfeel in meat alternatives.

For plant-based battered or breaded products, such as vegetarian nuggets or vegan battered “shrimp,” developers can turn to a blend of clean-label starches that provide effective adhesion functionality, along with protective coating functionality to reduce oil pick-up and prevent sogginess. Native starches, such as tapioca starch, potato starch, and corn starch, have turned out to be effective replacers of refined modified starches, dextrans and methylcellulose.

Still, some adjustments are needed when replacing traditional starches with clean-label soluble fibers, such as pea flour, corn flour or brown rice flour. This is because these ingredients can alter the adhesive properties of the breading. The high heats used to set breadings and batters can cause fibers to break down in some formulations, reducing crispiness in the final product.

As functionality with less mainstream ingredients is far less predictable than in traditional formulas, developers making use of more novel ingredients in the food coatings space might require more extensive pilot-scale testing. They will find a distinct advantage in working more closely with available technical resources and expertise.



## FREE-FROM

Reducing fat, sugar and sodium is another major area of focus for product developers in the arena of better-for-you food coating formulations. Replacing traditional, hydrogenated fry oils with healthier vegetable oils is relatively easy for most developers, allowing for “Og trans-fat” and “Og saturated fat” claims that are highly sought after by consumers these days.

Sugar reduction can be aided by the addition of natural flavors, such as sweetness enhancers and modifiers. Similarly, the sodium content of a food coating may be drastically reduced by using umami-rich flavor boosters, such as light-colored soy sauce powders, yeast extracts, cheese powders, or mushroom powders.

Novel extracts and crusts, such as cornbread, pears, and tortilla strip crusts, may be utilized along with gluten-free, high-fiber, or high-protein flours to offer a diet-friendly breading that still allows a consumer to indulge in coated foods. Future opportunities will continue to arise in formulating vegetable-based and gluten-free coatings that entirely mimic traditional counterparts in terms of texture, appearance, and, of course, flavor.

## FAT FACTOR

The increased popularity of at-home air frying allows manufacturers to deliver on the desired crispy texture while drastically reducing the amount of fat in a formulation. The key to formulating a successful air-fried product is selection. Developers must ensure that the batter or breading will crisp up to the desired degree to mimic a deep-fried product. In some cases, this can require additional oil in the coating or batter matrix.

Still, with novel starches and flours in the mix, working with fat and oil suppliers to find the right oil for the product can ensure that functionality and health don't clash. Many healthy oils tend to have lower smoke points than traditional frying oils. But there are sources that can serve both demands. Coconut oil is able to stand up to frying temperatures of around 365°F, but it also imparts its own flavor. That can be an advantage in sweet formulations, but might be less desirable in savory ones.

Olive oil and avocado oil have high smoke points, as do rice bran oil, sunflower oil, and sesame oil. The latter works especially well with Asian and Asian-style products. Chia oil has turned out to be a star oil for combining the high smoke-point functionality of frying with a healthy, high-omega profile.

## HEALTHY COATINGS RULE

As the health and wellness trends continue to dominate across food categories, innovative coatings, batters, and glazes using gluten-free and high-protein ingredients will become the rule rather than the exception in coated and battered products. Better-for-you whole-grain and native flours and starches from sources ranging from roots and tubers (tapioca, potatoes) to nuts, seeds, and ancient grains (quinoa, millet, amaranth) to dried vegetables and even protein crumbles also add to the halo. Even the right healthy oils with smoke points able to stand up to air fryer temperatures, such as from chia and avocado, lend a more attractive nutrition profile.

*Olivia Conrad is a product development scientist and freelance science writer in Boulder, Colo., with a degree in Food Science from the University of Maine. She has extensive experience in natural foods product development in categories ranging from frozen desserts to meat snacks. She also is an expert in food safety with a strong working knowledge of FSMA and HACCP principles. She may be contacted at oconrad2013@gmail.com.*

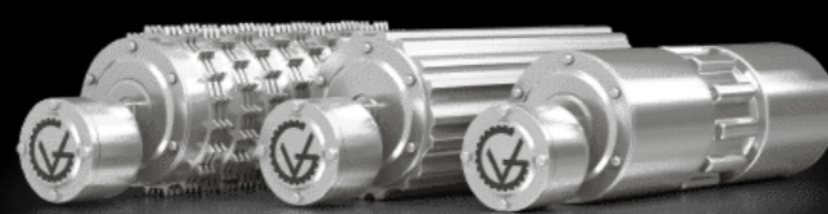


# REGULATORY PROPOSAL HEIGHTENS FOCUS ON INTERVENTIONS

FSIS WILL RELEASE A PROPOSAL THAT SALMONELLA BE CONSIDERED AN ADULTERANT IN CHICKEN PRODUCTS

BY FRED WILKINSON

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Looming regulatory guidance regarding *Salmonella* has drawn criticism from the poultry industry.

“In October, USDA proposed a new regulatory framework for controlling *Salmonella* in poultry, which includes more rigorous monitoring of the microbial condition of poultry carcasses during processing, as well as new final product testing standards,” said Rob Ames, business development manager for Corbion. “This, along with looming performance standards for in-tact and comminuted pork, means that surface treatments, like all food safety tools, will need to bring more performance to a challenged industry.”

Of particular concern for poultry processors under the proposed regulatory changes is the USDA’s Food Safety Inspection Service considering whether “there are specific *Salmonella* and raw poultry product pairs that have characteristics that distinguish them from other raw poultry products contaminated with *Salmonella*, such that *Salmonella* at certain levels and/or types of *Salmonella* should be considered as an adulterant when present in that specific raw poultry product.”

Further, FSIS will “soon be releasing a proposal that *Salmonella* meets the criteria to be considered an adulterant in not-ready-to-eat (NRTE) breaded and stuffed raw chicken products.”

can be an overlooked benefit that fresh meat and poultry products, as well as ready-to-eat products surface-treated with antimicrobials can be extremely clean from spoilage organisms, and this contributes to quality and shelf life in and of itself. If ultimately the treatments used can promote quality and safety concurrently, then they are of great value to fresh meat and poultry producers.”

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# TAKING ANOTHER LOOK

**INCORPORATING VISION SYSTEMS CAN ADD BENEFITS ON MULTIPLE LEVELS.**

BY FRED WILKINSON  
CHIEF EDITOR

Processors continue to push the growth of vision systems as automation increases on processing and packaging lines. We spoke with Melissa Fischer, director of sales-automation at MULTIVAC USA, about recent developments and trends in meat and poultry processors' use of vision systems.

**WHAT EMERGING TECHNICAL DEVELOPMENTS ARE FURTHERING VISION SYSTEMS' CAPABILITIES?**

There are developments in both the camera technology and the speed of processing the data that are contributing to the success of vision systems. You can now get higher resolution cameras and process them in production rate speeds. We are also starting to see more 3D cameras have a place in the market.

**HOW DO VISION SYSTEMS FIT IN WITH PROCESSORS' OVERALL PRODUCT QUALITY/FOOD SAFETY EFFORTS?**

Vision systems have greatly improved over the last few years and they can add benefits on multiple levels. One of the main reasons for recalls is incorrect labeled product; a vision system can look for graphics, bar codes, date codes, label presence and placement. All of these can avoid a recall to the producer. Another way vision systems can help is to look at the integrity of the seals, any contaminate in the seal area can cause a leaker and spoil the product. In some cases, vision can even inspect the product quality.

“VISION SYSTEMS ARE INFLUENCING REGULATORY MORE THAN THE OTHER WAY AROUND. VISION SYSTEMS CAN OFFER 100% INSPECTION, AS OPPOSED TO SPOT INSPECTIONS THAT ARE GENERALLY DONE.”

**FOR SMALL TO MEDIUM-SIZE PROCESSORS, ARE THERE SOME OPERATIONAL CONSIDERATIONS TO KEEP IN MIND WHEN WEIGHING WHETHER TO INCORPORATE VISION SYSTEMS INTO THEIR PROCESSING LINE OR UPGRADING THEIR CURRENT VISION SYSTEM EQUIPMENT?**

There are a couple things I would suggest to include in consideration. When a product is non-conforming, what do you want the system to do, how will you reject the bad product? The other is to clearly define acceptable versus non-acceptable. Generally, producers will create specifications that are very tight, then are surprised at the amount of rejected products generated.

**WHAT REGULATORY ISSUES ARE INFLUENCING ADOPTION OF VISION SYSTEMS?**

I would say that vision systems are influencing regulatory more than the other way around. Vision systems can offer 100% inspection, as opposed to spot inspections that are generally done.

**AS TIGHT LABOR MARKETS SPUR PROCESSORS TO AUTOMATE THEIR PRODUCTION LINES, WHAT LABOR-SAVING BENEFITS DO VISION SYSTEMS OFFER?**

As with most industries, we see an extremely tight labor market. As processors add automation to the lines to reduce labor, they also lose that manual inspection that people add to the process. We often recommend to processors if they are removing people from the line, they should consider adding vision inspection to catch the defects that operators were catching previously.

**WHAT CAPABILITIES DO VISION SYSTEMS OFFER THAT OTHER DETECTION SYSTEMS (X-RAY, MAGNETIC, ETC.) DO NOT?**

They can do a lot more inspection on surfaces such as graphics, print, color and even product presence. Combining vision inspection with recipe management, you can quickly eliminate the potential for a recall situations for mismarked or incorrect labeling. Vision is really designed for the appearance or surface of the product/package.

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# FORECASTS PREDICT SLOW GROWTH

**EXPECT RECESSION-LIKE MARKET CONDITIONS, EVEN IF ECONOMIC FORECASTERS SHY AWAY FROM ACTUALLY USING THE WORD 'RECESSION.'**

BY FRED WILKINSON  
CHIEF EDITOR

Economic trends forecasters don't have a lot of shiny, happy predictions for the economy in 2023, but there are some positive trends. The International Monetary Fund predicts global growth will slow to 2.7% next year, a slight drop of 0.2 percentage points from its July forecast. While many economic analysts are tiptoeing around using the word "recession," for millions of financially stretched Americans 2023 will feel like a recession.

As Dan Emery noted in October in our [State of the Industry Report 2022](#), continued price inflation coupled with low unemployment are likely to continue to put upward pressure on the cost of labor. On the consumer side, shoppers are trading down to value-priced items and store private labels to stretch their purchasing power. Whether this trading down will be a permanent change in shopping habits or a temporary cope in an inflationary market remains to be seen.

On the producer side, higher feed prices and continued strong consumer demand have kept wholesale meat prices historically high through 2022, according predictive market analytics firm [DecisionNext](#). Stubbornly high inflation and continuing market instability suggest that the predictability of wholesale meat prices continues to be driven by market-specific fundamentals as opposed to broader macroeconomic trends.

A potential cause for optimism is the foodservice sector, which following a brutal couple of years of disruption during the pandemic-related restrictions and shutdowns is experiencing a gradual return to on-premise dining, according to foodservice market research firm Technomic.

**FOR QUICK-SERVICE AND FAST-CASUAL RESTAURANTS, RISING FOOD COSTS AND RELATED CONSUMER PRICE-SENSITIVITY ARE CLOSING THE PERCEIVED VALUE GAP BETWEEN THE TWO SECTORS.**

Diners' gradual return to on-premise eating suggests that the foodservice industry's focus on takeout and delivery service while downplaying in-person dining may see some reversal. According to Technomic research, "Years of social distancing and restrictions have created a pent-up demand for an experience beyond a simple meal, while workers' reappearance to offices, increased travel and lengthier time windows for pickup at busy units are also making placing an order and eating on-site more attractive." As consumers continue to revert to their pre-pandemic dining routines, finding the right mix of menu offerings and service options will be key for operators that are also continuing to contend with challenging staffing and food price inflation. Despite the trend toward on-premise dining rebounding, Technomic predicts on-premise dining will continue to be less common than it was pre-pandemic.

For quick-service and fast-casual restaurants, rising food costs and related consumer price-sensitivity are closing the perceived value gap between the two sectors, Technomic suggests. The convenient off-premise takeaway aspect of fast feeders has become routine for fast casual restaurants' takeout or delivery options. According to Technomic, "This great blur within limited service will widen these operators' competitive set and force consumers to prioritize occasions and cravings over value, convenience and quality when making dining decisions. Watch for limited-service operators to step up efforts to distinguish their brand through refreshed decor, signature menu introductions, enhanced loyalty programs and seamless service."

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# CELL-CULTURED MEAT PRODUCTS CONTINUE TO MAKE HEADWAY

**THE FDA COMPLETES ITS FIRST PRE-MARKET CONSULTATION FOR A HUMAN FOOD MADE FROM CULTURED ANIMAL CELLS**

BY SHAWN K. STEVENS  
FOOD INDUSTRY COUNSEL LLC

By now, most of us are familiar, at least conceptually, with food made from cultured animal cells. This refers to meat that is “grown” in a controlled environment, rather than as part of a living animal. It has been referred to by a variety of names, including “lab meat.” While the concept of “lab meat” remains less than desirable to many, and the subject of at least some consumer scorn, that will likely change over time as these products are increasingly produced in a manner that is readily indistinguishable from traditionally sourced products. Of course, that will also require meeting and exceeding other types of benchmarks by which we judge animal-derived products, such as safety, taste, texture, nutrition and cost.

Clearly, many hurdles remain to be cleared, and there is no way to know if cultured meat products will ever become widely available. For years, the development of cell-cultured products has languished due to technological and scalability issues. That may be changing, however. Advancements in cell culture technology have brought producers to the threshold of bringing new products to market.

On Nov. 16, 2022, the Food and Drug Administration announced the completion of its first pre-market consultation for a human food made from cultured animal cells. According to the FDA Constituent Update, the agency evaluated the information submitted by UPSIDE Foods related to the safety of its products, and had no further questions or concerns regarding the firm’s formal safety-related conclusions. UPSIDE plans to utilize “animal cell culture technology to take living cells from chickens and grow the cells in a controlled environment to make the cultured animal cell food.”

In addition to meeting FDA requirements applicable to the manufacture and sale of food, including cell culture approval and registration, UPSIDE will also have to obtain a grant of inspection from the U.S. Department of Agriculture’s Food Safety Inspection Service. Likewise, the products must receive the USDA-FSIS mark of inspection in order to be introduced into commerce. So, again, this is but a single step of many that must be cleared before this (or any other) product enters the market.

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As of today, there are no consumer-facing foods made from cultured animal cells available in the U.S. grocery market. For that to happen, manufacturers will not only need to obtain the required approvals and regulatory permissions, but will also need to significantly scale up production. Thus, it will likely be years before cell-cultured products are even an option for consumers, much less offering meaningful competition to animal-derived meat products.

In the meantime, we’ll continue to watch with anticipation as these new products continue to look for ways to successfully enter the market.



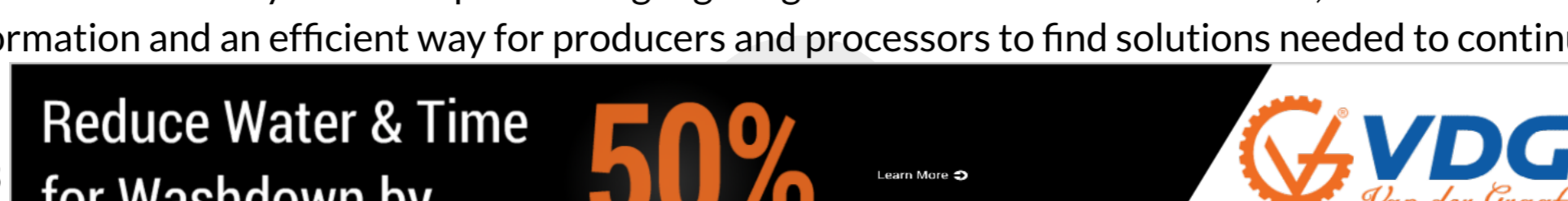
# IPPE TO SHOWCASE LATEST TECH, RESEARCH, TRENDS

IPPE ENCOMPASSES THREE INTEGRATED TRADE SHOWS—THE INTERNATIONAL POULTRY EXPO, INTERNATIONAL FEED EXPO AND INTERNATIONAL MEAT EXPO. BY GWEN VENABLE  
USPOULTRY

The 2023 IPPE Production & Processing Expo (IPPE) is back at the Georgia World Congress Center in Atlanta, Ga., from Jan. 24–26, 2023. IPPE encompasses three integrated trade shows—the International Poultry Expo, International Feed Expo and International Meat Expo - attracting decision makers and 25,000+ industry leaders with the latest innovations in equipment, supplies and services used in the production and processing of poultry and eggs, meat and animal food products. And in January 2023, the International Poultry Expo will be celebrating 75 years of trade shows.

The 2023 IPPE will provide the latest technology, research, processes and products that the global animal food and protein industries have to offer. As the only annual exposition highlighting the best of all three industries, the 2023 IPPE will offer timely and important information and an efficient way for producers and processors to find solutions needed to continue and enhance their operations.

IPPE will feature 3



ogy, equipment

Daily educational programs will be led by industry experts focused on addressing the latest insights, industry issues and best practices. Education content will be offered Monday, Jan. 23, 2023, through Friday, Jan. 27, and there will be 80+ hours of education sessions. Kicking off Expo week, the educational program schedule will include the International Poultry Scientific Forum, Latin American Poultry Summit, and the ever-popular Pet Food Conference.

The 2023 IPPE will also include new educational programs, such as the Foreign Material Prevention & Control Workshop, and IPPE encourages participation in these learning sessions.

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IPPE would like to especially thank the following sponsors that make it possible for qualified attendees from member companies of all three associations engaged in the production of poultry, eggs and meat for consumption, production of feed, and for pet food manufacturers to attend for free. The Members to Atlanta program (M2A) is supported through the sponsorship of these elite exhibiting companies: Aviagen, CEVA Animal Health, Cobb-Vantress, Inc., Elanco Animal Health, Georgia Poultry Equipment Co., Heat and Control, Huvepharma, Jamesway Chick Master Incubator Inc., Kemin Industries, Inc., Monon House Farms, Soybean Meal Information Center and Zoetis. IPPE sincerely appreciates these companies for their continued support of the M2A program.

IPPE attendee activities include the TECHTalks, New Product Showcase and the Welcome Reception to be held on the trade show floor at the Georgia World Congress Center. Attendees can also connect with future industry leaders through the College Student Career Program and the IPPE Young Leaders Under 30 Program.

IPPE is ranked No. 21 in the Top Trade Shows in the U.S. and is a collaboration of three partner organizations representing the animal food and protein industries. The event is sponsored by the American Feed Industry Association (AFIA), North American Meat Institute (NAMI) and U.S. Poultry & Egg Association (USPOULTRY).

## TUESDAY, JAN. 24

### TECHTalks

- 10:30 a.m. – 4:30 p.m., B3646, B8675, C10611
- IPPE is offering short educational presentations by exhibitors regarding operations and technical issues critical to all aspects of the animal food, meat, and poultry and egg industries.

### Welcome Reception

- 4:15 – 5:00 p.m., Georgia World Congress Center
- The IPPE Welcome Reception will be held on the trade show floor Tuesday afternoon. Take time to network and catch up with your colleagues!

### New Product Showcase

- 10:00 a.m. – 5:00 p.m., BC10119
- The New Product Showcase will provide attendees with an outstanding opportunity to see the newest products or innovations offered by exhibitors.

## WEDNESDAY, JAN. 25

### TECHTalks

- 9:30 a.m. – 4:30 p.m., B3646, B8675, C10611
- IPPE is offering short educational presentations by exhibitors regarding operations and technical issues critical to all aspects of the animal food, meat, and poultry and egg industries.

### New Product Showcase

- 9:00 a.m. – 5:00 p.m., BC10119
- The New Product Showcase will provide attendees with an outstanding opportunity to see the newest products or innovations offered by exhibitors.

## THURSDAY, JAN. 26

### TECHTalks

- 9:30 a.m. – 12:30 p.m., B3646, B8675, C10611
- IPPE is offering short educational presentations by exhibitors regarding operations and technical issues critical to all aspects of the animal food, meat, and poultry and egg industries.

### New Product Showcase

- 9:00 a.m. – 3:00 p.m., BC 10119
- The New Product Showcase will provide attendees with an outstanding opportunity to see the newest products or innovations offered by exhibitors.

## PAID PROGRAMS

### International Poultry Scientific Forum

- Monday, Jan. 23, 8:00 a.m. – 5:00 p.m.
- Tuesday, Jan. 24, 8:00 a.m. – 12:00 p.m.
- Registration Fee: \$80 early bird, \$140 after Jan. 6
- Sponsored by the Southern Poultry Science Society, the Southern Conference on Avian Diseases and U.S. Poultry & Egg Association. The forum presents information on industry topics such as environmental management, nutrition, physiology, pathology, processing and products and avian diseases. Students with a valid student ID may register complimentary onsite. Price includes admission to the IPPE show floor.

### Latin American Poultry Summit

- Monday, Jan. 23, 9:00 a.m. – 5:00 p.m.
- Registration Fee: \$250 early bird; \$350 after Jan. 6
- The Latin American Poultry Summit (LAPS) presents leading technical topics addressing live production and processing issues of greatest priority to Latin American poultry and egg producers and processors. The summit brings together leaders from genetic companies, suppliers, integrators, and academia to learn, discuss and network.

### Understanding and Implementing Updated Appendix A&B Guidelines

- Monday, Jan. 23, 2:00 p.m. – 5:00 p.m.
- Tuesday, Jan. 24, 8:00 a.m. – 11:00 a.m.
- Registration Fee: \$299
- Learn how to navigate the updated Appendix A and Appendix B guidelines. In this workshop, we will explain the differences between the previous version and the updated version of the guidelines, and how the updates may affect your processes. The workshop will cover what to do in the event that companies can no longer follow the updated version of the Appendices, as well as include a discussion on which hazards are associated with cooking and cooling deviations. Additionally, we will provide step-by-step instruction on how to use pathogen modeling, including information on selecting the most appropriate program and a discussion on when sampling should occur in response to a deviation. Don't miss this opportunity to ensure your processes are in compliance and learn from industry experts.

### Pet Food Conference

- Tuesday, Jan. 24, 7:30 a.m. – 4:00 p.m.
- Registration Fee: \$105 early bird/\$150 after Jan. 6
- The American Feed Industry Association's Pet Food Conference covers a variety of topics from regulatory and technical aspects of production to product claims, marketing and nutrition. The conference attracts more than 300 attendees from pet food manufacturing to ingredient suppliers covering all ingredient categories, offering an excellent opportunity to network with a diverse audience. Program registration includes breakfast and lunch.

### Feed Mill of the Future Conference

- Tuesday, Jan. 24, 8:00 a.m. – 12:00 p.m.
- Registration Fee: \$95 early bird/\$125 after Jan. 6
- The half-day Feed Mill of the Future Conference brings together leading feed industry experts to examine emerging feed mill technologies and processes that will impact animal feed manufacturing in the years ahead. Feed milling professionals will leave with a better understanding of how innovation and early adaptation will help achieve their sustainability, productivity and profitability goals of tomorrow.

### Facility Inspection Package Training by USDA-APHIS

- Wednesday, Jan. 25, 10:00 a.m. – 4:00 p.m.
- Registration Fee: \$260 early bird/\$300 after Jan. 6
- Are you engaged in your company's export activities? Specifically, preparing inspections packages for rendered products, animal-based feed or pet food? Then join us for an interactive training and Q&A with USDA-APHIS. Learn directly from APHIS how to better prepare packets and for facility inspections. This program is ideal for those who actively preparing packets and facility inspections and those working directly with APHIS field staff (not a policy meeting). This program is sponsored by AFIA, Pet Food Institute and North American Renderers Association. Members of AFIA, PFI and NARA should contact their representatives for a discount coupon.

### Biosecurity: Preparedness Must Be Perpetual

- Wednesday, Jan. 25, 9:30 a.m. – 12:00 p.m.
- Registration fee: \$65 early bird/\$85 after Jan. 6
- The American Feed Industry Association's nutrition committee is hosting a program in 2023 focused on how the industry can remain vigilant in the area of biosecurity. In addition, updates will be provided on foreign animal diseases such as African swine fever and avian influenza and what to expect from government agencies in the event of an outbreak.

### Foreign Material Prevention & Control Workshop

- Wednesday, Jan. 25, 8:00 a.m. – 12:00 p.m.
- Registration fee: \$249
- This workshop is designed to help meat and poultry processing establishments reduce the occurrence of foreign material in meat and poultry products. Food safety is the top priority of the industry and the North American Meat Institute, along with the National Turkey Federation, the National Chicken Council, the American Association of Meat Processors and the Southwest Meat Association, recently published The Meat and Poultry Industry Foreign Material Program: Considerations for Designing a Foreign Material Control & Prevention Program. This workshop will provide a comprehensive look at the most critical information for establishments to consider when designing a Foreign Material Control & Prevention Program (FMCCPP). Divided into three main sections: prevention, detection, and response, attendees will come away with a better understanding of how to develop establishment-specific FMCCPPs.

### International Rendering Symposium

- Thursday, Jan. 26, 12:00 p.m. – 5:00 p.m.
- Friday, Jan. 27, 8:00 a.m. – 12:00 p.m.
- Registration Fee: \$250
- Rendering is an integral and often invisible aspect of the global economy and animal agriculture sustainability. The program will discuss rendering's impact, market value and future. Registered attendees can enjoy a reception directly after the symposium Thursday evening. The symposium is sponsored by North American Renderers Association and USPOULTRY.

## FREE PROGRAMS

### Animal Agriculture Sustainability Summit

- Tuesday, Jan. 24, 9:00 a.m. – 12:00 p.m.
- Registration Fee: FREE (included with trade show admission)
- An ever-increasing population coupled with a changing agricultural workforce has compelled the animal agriculture industry to make sustainability its top priority. Each animal agriculture sector has identified an industry driven program to define sustainability and measure its commitment to become more sustainable. Representatives of the meat, poultry and animal feed industries will share details on the development of industry programs or tools to advance their aspirations of producing more protein in a sustainable fashion.

### AFIA Feed Education Program

- Wednesday, Jan. 25, 8:00 a.m. – 10:00 a.m.
- Registration Fee: FREE (included with trade show admission)
- The American Feed Industry Association's production compliance committee is hosting the annual Feed Production Education program again in 2023. As regulatory requirements for the feed industry continue to evolve, this training session will update participants on any recent changes from several federal agencies including DOL, DOT, EPA, FDA and OSHA. In addition, the Feed Mill of the Year winner for the commercial feed category will be announced.

### Securing the Future of Meat: Sustainability, Innovation and the Next Big Thing

- Wednesday, Jan. 25, 8:30 a.m. – 10:00 a.m.
- Registration Fee: FREE (included with trade show admission)
- The future of the animal protein industry is full of promise, with no shortage of challenges to overcome. This session will bring together thought leaders and operational experts to discuss what sustainability looks like, now and in the future, from an environmental, nutritional, food safety, workforce and animal welfare perspective. With technology, an evolving workforce, and innovation driving societal change, how does the meat industry fit in? Don't miss this opportunity for thought provoking content, followed by discussion and interaction on what it means to create a sustainable future.

### Poultry Market Intelligence Forum

- Wednesday, Jan. 25, 9:00 a.m. – 12:00 p.m.
- Registration Fee: FREE (included with trade show admission)
- A leading industry economist and industry experts will provide insights on how the domestic and global economies, continuously improving performance, and regulatory issues impact the poultry and egg industries. They will identify challenges facing the industry and discuss how the U.S. and international poultry industries are positioned to move forward.

# FATTY ACID COMPOSITION OF MEAT ANIMALS AS FLAVOR PRECURSORS

BY THU T. N. DINH<sup>1\*</sup>, K. VIRELLIA TO<sup>2</sup>, AND M. WES SCHILLING<sup>2</sup>

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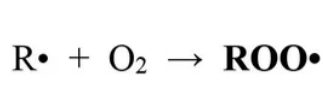
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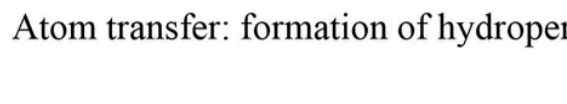
## FATTY ACID COMPOSITION OF MEAT ANIMALS

Animal fat includes subcutaneous, intermuscular, and intramuscular (marbling) adipose tissues (Rhee et al., 2000), containing mostly triglycerides (neutral lipids) and a small amount of phospholipids (polar lipids). In lean meat, phospholipids account for up to one-third of marbling. Fatty acids in meats are unbranched and have an even number of carbons from 4 to 24, although 12 to 24 is the most common (Voet et al., 2006). However, some branched or odd-numbered fatty acids can be found in ruminant fat (Lobb and Chow, 2000). Lamb has up to 3% volatile branched-chain fatty acids (Bravo-Lamas et al., 2018), contributing to characteristic lamb and mutton odors. Longer branched-chain fatty acids in beef do not contribute to flavor.

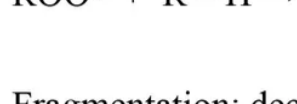
Radical coupling: formation of very reactive peroxide radicals



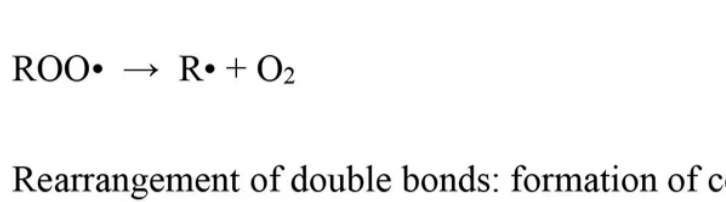
Atom transfer: formation of hydroperoxides



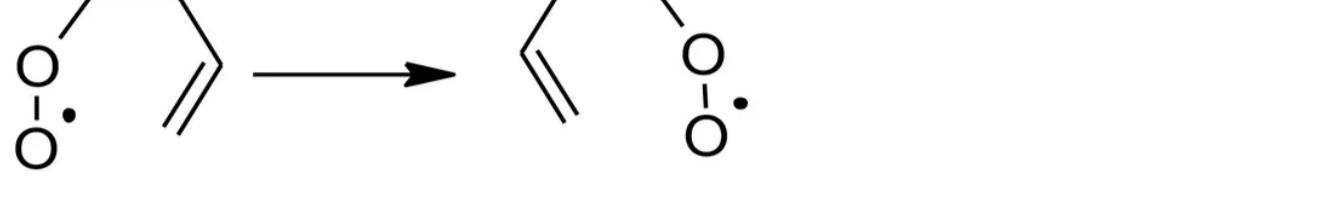
Fragmentation: decomposition to various volatile products



Rearrangement of double bonds: formation of conjugated dienes



Cyclization: formation of cyclic peroxides



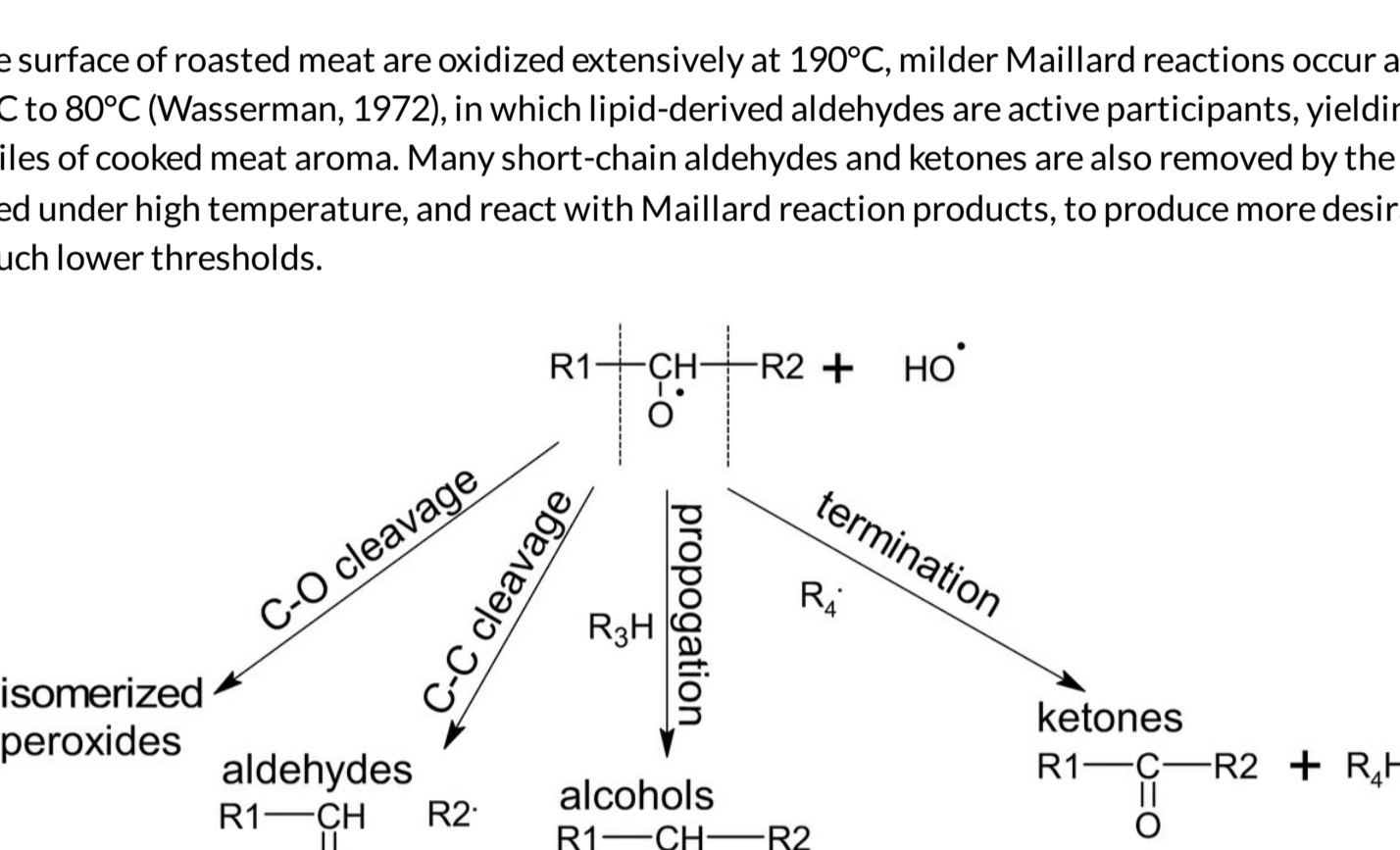
**Figure 1. Various mechanisms for the propagation of lipid oxidation (ACD/ChemSketch, 2020; adapted from Frankel, 1980).**

## FATTY ACID OXIDATION AND COOKED MEAT AROMA

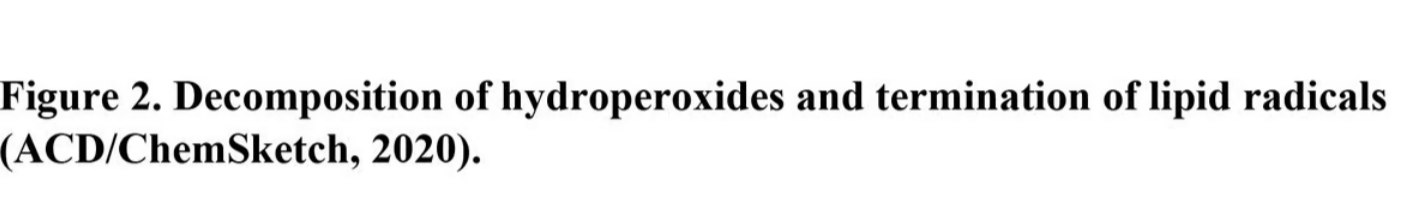
The abstraction of the hydrogen at an allylic carbon adjacent to the C=C double bond in fatty acids produces lipid radicals, which couple with oxygen and produce hydroperoxides. Lipid peroxides undergo structural changes (Figure 5) and are decomposed into various aldehydes, esters, alcohols, ketones, carboxylic acids, and hydrocarbons (Figure 8), yielding undesirable aromatic profiles during storage (Dominguez et al., 2019) but a desirable ones during cooking under thermal oxidation (Nawar, 1984). Song et al. (2011) reported that hexanal, 1-octen-3-ol, (E,E)-2,4-decadienal, and (E,E)-2,4-heptadienal are characteristic of beef flavor in addition to butanoic, 2-methylbutanoic, 3-methylbutanoic, heptanoic, 4-ethylheptanoic, and nonanoic acids (Um et al., 1992). However, other n-aldehydes and unsaturated aldehydes such as (E)-2-nonenal, 4-heptenal, nonanal, octanal, and (E)-2-decenal are undesirable. Studies in beef and pork have consistently identified hexanal and 2,3-octanedione as warmed-over flavor markers. Pork-characteristic volatiles are slightly different, including ethyl acetate, 3-(methylthio) propanal, hexanal, 2-butanone, dimethyl disulfide, and dimethyl trisulfide. Lamb-characteristic volatiles result from alkylpyrazines, such as 2,5-dimethylpyrazine, and alkylpyridines, such as 2-pentylpyridine (Buttery et al., 1977); both are products of lipid-Maillard interactions. Lamb volatiles also contain more saturated aldehydes than goat meat and other meats (Madruaga et al., 2013). Unsaturated fatty acids, more predominant in polar lipid fraction, are oxidized more during cooking (Legako et al., 2015). Elmore et al. (1999) increased n-3 PUFA in beef muscle and produced up to 4-fold more undesirable lipid oxidation products, particularly n-alkanes, 2-alkenals, 1-alkanols, and alkylfurans. Mottram and Edwards (1983) also reported that polar lipids, not neutral lipids, are more important for cooked beef aroma.

Thermal oxidation of lipids occurs through similar mechanisms and produces the same classes of compounds as autoxidation (Choe and Min, 2007). Although it can occur at as low as 60°C, the desirable composition of lipid-derived volatiles is produced at a temperature from 100°C up to 300°C (Wasserman, 1972) because these conditions create more lactones, alcohols, ketones, and short-chain fatty acids. High temperature and available oxygen during cooking drive volatile composition to a more desirable direction with rapid and further oxidation to organic acids and esters (Choe and Min, 2007; Song et al., 2011), greater polymerization of unsaturated fatty acids and lipid peroxides to produce fewer volatile products, and degradation of SFA to long-chain alkanes, aldehydes, and lactones (Nawar, 1984), especially at 150°C or above - such as on the surface of grilled steaks (Figure 9). However, lipid thermal oxidation products such as cyclic compounds and fatty acid dimers are also decomposed to offensive aromas during storage.

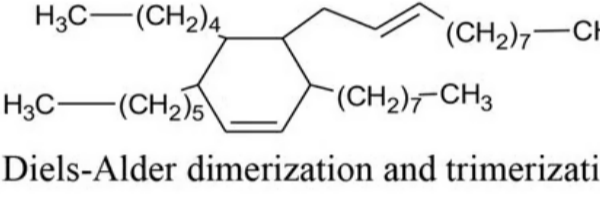
As fatty acids on the surface of roasted meat are oxidized extensively at 190°C, milder Maillard reactions occur at an internal temperature of 60°C to 80°C (Wasserman, 1972), in which lipid-derived aldehydes are active participants, yielding some of the most characteristic volatiles of cooked meat aroma. Many short-chain aldehydes and ketones are also removed by the steam during cooking, decomposed under high temperature, and react with Maillard reaction products, to produce more desirable volatile compounds with much lower thresholds.



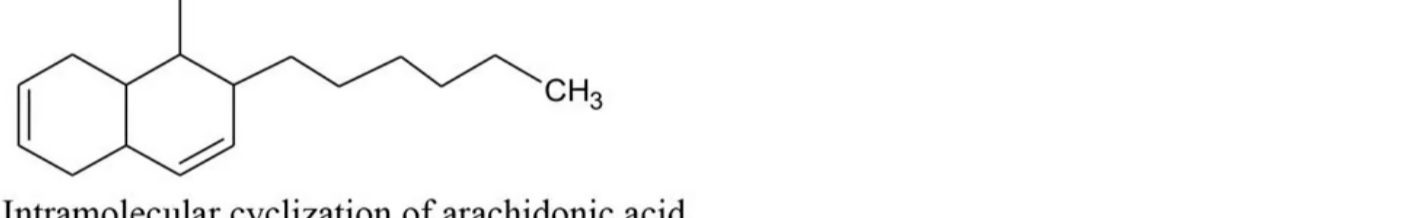
**Figure 2. Decomposition of hydroperoxides and termination of lipid radicals (ACD/ChemSketch, 2020).**



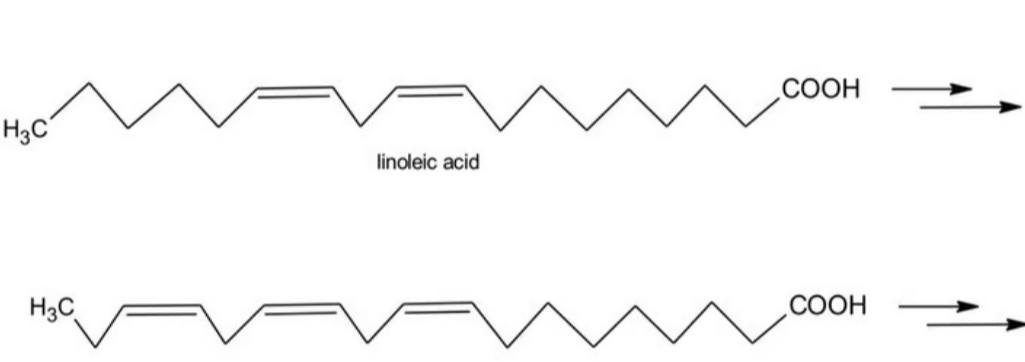
Diels-Alder dimerization and trimerization of conjugated linoleic and oleic acids



Intramolecular cyclization of arachidonic acid



Lactone production from linoleic and linolenic acids

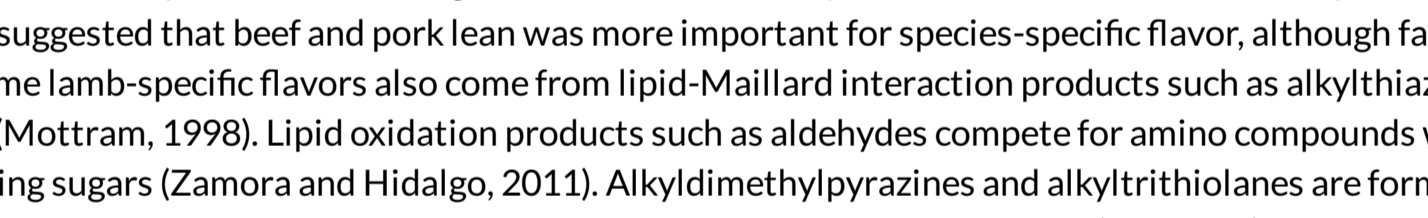


Thermal oxidation of stearic acid - oxygen attack at C4 or C5 yields  $\gamma$ - or  $\delta$ -lactones

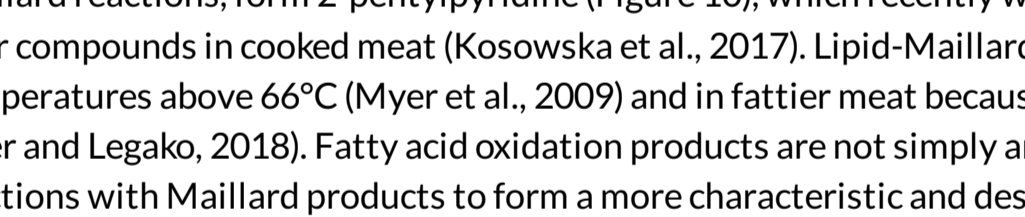
**Figure 3. Several thermal oxidation products of fatty acids (ACD/ChemSketch, 2020; adapted from Nawar, 1984; Świzdor et al., 2012).**

## FATTY ACID OXIDATION AND MAILLARD REACTIONS

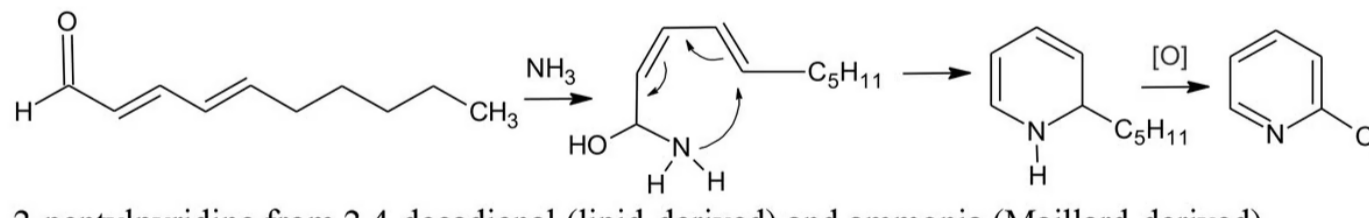
Lipid-Maillard interactions were recognized early in meat chemistry research as pathways to produce some of the key flavor compounds in cooked meat. Fat extract from pork tissues with chloroform and methanol developed species-specific meat flavor after heating but such flavor notes diminished after the extract was washed with water (Wasserman and Spinelli, 1972), leaving only a "piggy" note identified as 5, $\alpha$ -androst-16-en-3-one, the boar odor dissolved in pork fat. Phippen and Mecchi (1969) similarly demonstrated that lipids from chicken adipose tissues had no chicken aroma after removing polar compounds by water washing. Sanderson et al. (1966) also reported that heating beef fat with beef lean yielded much more flavor carbonyls than only beef fat. Myers et al. (2009) suggested that beef and pork lean was more important for species-specific flavor, although fat level affected flavor intensity. Some lamb-specific flavors also come from lipid-Maillard interaction products such as alkylthiazoles, alkylpyrazines, and alkylpyridines (Mottram, 1998). Lipid oxidation products such as aldehydes compete for amino compounds with carbonyls derived from reducing sugars (Zamora and Hidalgo, 2011). Alkylidimethylpyrazines and alkylthioliolanes are formed as lipid-derived aldehydes enter Maillard reactions with either pyrazines or hydrogen sulfide, respectively (Figure 10). Lipid aldehydes and ammonia, a byproduct of Maillard reactions, form 2-pentylpyridine (Figure 10), which respectively was reported to produce various characteristic and desirable flavor compounds in cooked meat (Kosowska et al., 2017). Lipid-Maillard interactions occur at a greater intensity at higher internal temperatures above 66°C (Myer et al., 2009) and in fattier meat because of the availability of lipid oxidation precursors (Gardner and Legako, 2018). Fatty acid oxidation products are not simply aromatic compounds; they are also precursors for complex interactions with Maillard products to form a more characteristic and desirable cooked meat aroma. Such interactions do not occur in autoxidation during the storage of meats.



2-pentylpyridine from 2,4-decadienal (lipid-derived) and ammonia (Maillard-derived)



Alkylidimethylpyridine from lipid aldehydes (RCHO) interacting with Maillard reactions.



Alkylthioliolanes from lipid aldehydes (RCHO) and hydrogen sulfide (or other sulfide bonds)

**Figure 4. Several volatile compounds from lipid-Maillard interactions (ACD/ChemSketch, 2020; adapted from Mottram, 1998).**

## CONCLUSIONS

Volatile compounds from autoxidation of unsaturated fatty acids causes off-odors, whereas the lipid-derived volatile profile is more desirable under thermal oxidation and in the reactions with Maillard reaction products. Recent research has suggested that the development of lipid flavor compounds is influenced by the lean portion of meat. Therefore, the interactions between lipid-derived compounds, water-soluble compounds, and Maillard compounds are likely more important than originally thought and warrant further research.

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# MOBERLY'S BEST OF SHOW

CONSUMERS ALL OVER MISSOURI KNOW THAT SOME OF THE BEST CURED MEATS IN THE COUNTRY ARE BEING MADE BY COUNTRY MEAT SHOP.

BY SAM GAZDZIAK  
AAMP

Drivers passing through Moberly, Mo., on U.S. Highway 63 might notice the distinctive red barn-looking building and see the signs that tout award-winning products. On the return trip and see just what the Country Meat Shop is one of the t

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A recent expansion has doubled the company's retail space to allow for the addition of many more retail coolers and freezers. It is also working to perfect the rustic look of the building's front with the addition of barn doors and other decorations.

"You drive by places, and you'll say, 'That kind of looks like a neat place. I'd like to stop there.' That's kind of what we're hoping," says Mark Reynolds, who owns and operates the business with his wife Lara. He notes that the four-lane highway next to Country Meat Shop gets heavy traffic, with people coming and going from nearby Columbia. "We get the comments like, 'I don't know how many times I've been meaning to stop by. I'm glad I did.' And then every time you hear, 'We'll be back.' Evidently, we impressed them."

Country Meat Shop originally operated in a 2,900-square-foot space. Expansions have doubled the size of its footprint, and Reynolds also added a 1,200-square-foot side building for storage in 2020. The expansion has taken place in gradual stages, with the first stage made to streamline the company's deer processing operations. After that, Reynolds added its packaging and further processing areas. The final state is the new retail area, which Reynolds expects to have completed by September.

"With COVID, we took a big jump in sales—about a 30% jump. And we have been able to maintain that sales volume, even throughout the last year and a half or two years," Reynolds says. "With this (expansion) I anticipate another good jump because of just the openness of this building."

Country Meat Shop opened its doors in 2011, but Reynolds is a fourth-generation meat processor. His great-grandfather started a packing plant in Moberly in 1934, and the family later launched the Little Dixie line of cured hams. Reynolds and his brother Dan helped to transition the company into the processed meats business. A fire in 1989 destroyed the plant, and the family decided not to reopen it. The Reynolds brothers both found work at a nearby Oscar Mayer plant and were quickly promoted to shift supervisors. The experience at working in a large production facility was an educational experience for them.

Country Meat Shop's products include their award-winning bacon, ham, hot dogs and other products.

"We both learned a lot about food safety, productivity, automation, which is why I have a lot of equipment and not very many people," Reynolds explains. "I'm big on what equipment can do."

The brothers decided to relaunch the family brand as part of a joint venture with some other partners. Reynolds split from that business to concentrate on his own work in 2011. He had been doing deer processing on the side since 2006 and moved into that building, making it into a meat market. Country Meat Shop's current retail space isn't large, but it features a fully stocked meat case and a couple of coolers that show off many of the products that the business offers. The expanded retail area will allow the full range of products to be sold, as well as multiple new flavors of sausages and brats.

As Reynolds noted, the back rooms of Country Meat Shop emphasize machinery over manpower. Among his latest purchases are a bacon slicer and rollstock packaging machine. Reynolds and his long-time meatcutter, Allen Carter, make all the products themselves, and the high-speed equipment allows just two or three workers to slice, weigh and package a large amount of product in a relatively short time span. Lara Reynolds joined the company full-time about a year and a half ago, and she manages the bookkeeping and the retail store. She retired from her own career in sales for the food distribution industry.



Dan Reynolds, (left) and Allen Carter show off some of the awards Country Meat Shop has garnered.

"My wife has always had a good job," Reynolds said. "It enabled me to take this business on, and it could struggle if it had to until we got it up and going. The problem is that she's such a good salesman, we've got to work harder to keep up with her!"

The Reynolds family business had been associated with the Missouri Association of Meat Processors, and once Country Meat Shop got its start, Reynolds began participating in the association's cured meat products competition. In 2015, after winning eight Grand Champions and six other top four placings and the overall Cured Meat Excellence Award, Reynolds began entering products in the American Association of Meat Processors' American Cured Meats Championship (ACMC) as well. At his first ACMC, two of the products won awards, and the other five were just a few points away from placing.

"With the MAMP competition, I saw how close I was. That's when I really started pushing and trying harder," Reynolds says. "Allen and I are trying to make competition products every day. We're testing and fine-tuning the process every day we make product. So when it comes time for AAMP or MAMP, really there's not anything we have to do differently."

Country Meat Shop has won more than 150 state and national awards for its products. Reynolds has won two Best of Show Awards at the ACMC—2017 for a Round Bacon and 2018 for a Shank-On Boneless Ham. At the 2022 ACMC held in Des Moines, Iowa, the company won Grand Champion awards for both Coarse-Ground and Emulsified Frankfurters/Wieners.

Country Meat Shop displays many of its awards, which do help to spur sales. The success Reynolds and his team have had at the cured meat competitions has changed the business as well. At the onset, Country Meat Shop was selling primarily steaks and ground beef, with a few of the processed items. As the awards started coming in, the company was able to capitalize on them by advertising award-winning hams, bacon, hot dogs, and more on its in-store signage and its outside advertisements.

"The popularity of our award-winning products has flipped from a majority of our sales being fresh meat to processed meat, which is where the profit margin is. It's given us a huge leg up," Reynolds notes. "Comment after comment is, 'I won't eat a hot dog anymore, but now that I bought yours, I'll eat hot dogs again!'"



"The popularity of our award-winning products has flipped from a majority of our sales being fresh meat to processed meat," Dan Reynolds says.

Country Meat Shop maintains its deer processing services. Reynolds has a crew of 8 to 10 seasonal workers who come in every year to process up to 1,300 tickets annually. Even though the workers have good jobs within the Moberly community, they still show up every year to the camaraderie and the holiday money—and the food.

"We eat like kings during deer season," Reynolds says. "We feed the guys lunch and dinner because they get dirty and don't want to go out and sit down to eat somewhere."

Country Meat Shop has expanded its repertoire in recent years with a "cater it yourself" option. It sells frozen aluminum pans that feature entrees like pulled pork and barbecue brisket, as well as sides like cheesy hashbrown casserole, baked beans with bacon, and macaroni and cheese. Consumers or local businesses can buy the trays they need, warm them up in an oven and serve a full meal. "Through word of mouth, it really is local to grow," Reynolds says. "We used to make that stuff maybe once a month, but now we're making it every two weeks or a week and a half."

Like all meat processors, Reynolds is trying to navigate the price fluctuations and supply chain issues in the meat industry. He has stopped selling brisket from time to time when the price soared past what a typical customer would be willing to pay. Fortunately, the product diversity of Country Meat Shop has allowed customers to find plenty of reasonably priced options. Reynolds has even made Facebook posts to let customers know when fresh meat prices were overly inflated and that there were alternatives.

"Every one of our core (cured meat) items has won at AAMP—hams, bacon, hotdogs, summer sausage and smoked sausage," he says. "Don't be going overboard paying for burger when there's all these other items that are reasonably priced. Don't pay \$8 a pound for a burger when you can eat national champion hot dogs or national champion bacon."

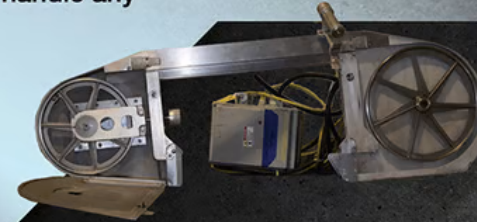
Sam Gazdziak is communications manager for the American Association of Meat Processors.



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# MANAGING FOOD SAFETY IN MEAT PROCESSING

## NINE TIPS FOR PROCESSORS TO INCORPORATE INTO THEIR SAFETY PROTOCOLS.

BY NICK WARRICK  
ALL SEASONS UNIFORMS

Meat processing has its own unique challenges when it comes to food safety. Foodborne illnesses are incredibly common, and you need to have the proper safety processes, procedures, clothing and personal protective equipment (PPE) in place. No one wants to lose the trust of their customers or face a lawsuit when proper food safety techniques can easily be implemented. Here are nine simple ways to improve food safety in the workplace.

### 1. START WITH QUALITY MEAT

High-quality ingredients do more than make food taste better. Farmers who take pride in the animals they raise are doing their part to improve food safety. There are several diseases and risks that become more common when animals are kept in poor conditions, aren't eating proper food or don't have access to clean water. Before purchasing meat, carefully review the farm or processing company you will be working with. Make sure they have a reputation for following all safety procedures, including using the appropriate PPE.

### 2. USE PROPER PACKAGING

The Food and Drug Administration has very specific requirements for meat packaging and processing. These guidelines are developed with consumer safety in mind. In addition to knowing these guidelines inside and out, always use new, clean packaging for your products.

### 3. IMPLEMENT QUALITY PPE

Handling meat exposes workers to a variety of contaminants and environmental dangers. When choosing PPE, consider:

- What parts of the body do the hazards affect?
- How long will workers be exposed?
- What materials protect against the hazards?

Each situation has its own requirements. For example, the ammonia commonly used for refrigeration in meat-packing facilities is corrosive. Workers need protection for their lungs, eyes and skin. For short periods, disposable PPE might be sufficient. However, if workers will be around ammonia for longer periods, sturdy reusable gloves and coveralls might be better.

Meat handlers encounter blood, feces and other biological hazards, risking exposure to swine flu, Q fever, salmonella and livestock-associated MRSA. They should use PPE made from material that shields against those exposures. Aprons and face guards shield workers from splashes of blood and cleaning chemicals. Masks protect them from breathing in airborne bacteria such as brucellosis.

When using knives, OSHA suggests cut-resistant gloves made from steel mesh. However, when using grinders or band saws, steel-mesh gloves are more likely to become caught, leading to accidents. Choose gloves that fit well so that workers' dexterity remains unimpeded. Also consider the color of the gloves. If a glove gets sliced, a bright color like blue is easier to spot. This ensures that no material remains mixed with the meat. For gloves that contact food, check that they meet FDA requirements.

Aprons, hairnets and coveralls also protect consumers by keeping germs, dust, pet hairs and other debris off the meat. Outfitting with the proper PPE protects workers while preventing cross-contamination.



Before purchasing meat, carefully review the farm or processing company you will be working with.

### 4. PAY CLOSE ATTENTION TO TEMPERATURE

In addition to following the Safe Minimum Internal Temperature Chart published by the U.S. Department of Agriculture, you need to pay close attention to the environment you are working in. Most meat processing areas are kept below 50 degrees Fahrenheit. Commercial kitchens tend to be kept below 78 degrees Fahrenheit. Invest in backup generators and temperature control devices in case there is a power failure. Employees who work in cooler environments might need special PPE to protect them. For example, for extra warmth, you might choose a cotton-blend glove for them to wear next to their skin beneath a cut-resistant glove.

### 5. DON'T SKIP PEST CONTROL

Pest control plays a crucial part in food processing. All food, even when kept in optimal conditions, can attract flies, cockroaches and rodents. Unfortunately, you can't keep pests away using the same methods you would use at home, such as mousetraps, poison sprays or flypaper. To avoid contaminating products, you will need to work with a pest control expert to keep your facility pest-free and compliant. Pest control experts should be in a clean, appropriate uniform to avoid introducing allergens to the environment. This ensures that no meat is contaminated with peanuts or soy.

### 6. KEEP YOUR FACILITY CLEAN

The area you process meat in should always be kept clean and free of any waste. Some quick cleaning guidelines include:

- Rinse all surfaces with hot water.
- Wash and sanitize surfaces and equipment regularly.
- Keep the processing area free of paper, trash, and discarded products.
- Clean up any spills immediately.
- Follow a regular cleaning schedule.
- Enforce a strict uniform code.

Make a list of food sanitation best practices, and be sure to follow it closely. In addition to understanding general best practices, check to see if there are any additional local, state or federal guidelines that your facility needs to follow. For example, many locations require separate, sterile areas where workers can change into clean uniforms. This keeps them from bringing outside dirt, bacteria and germs into the meat processing area.

Make sure that any employees who use harsh cleaning chemicals have adequate protection, such as face masks, gloves and non-slip shoes.

### 7. ENFORCE A STRICT DRESS CODE

Uniforms don't just look professional; they help promote food safety. A well-made butcher coat adds a protective barrier between your product and your employee. This helps you to stop cross-contamination. In addition to a white butcher coat, meat processing facilities should require slip-resistant footwear with closed toes and rubber soles. This prevents employees from falling on slick floors; as well as injuring themselves, falling employees risk transferring debris from the floor to the food. Full-coverage shirts and full-length pants are also necessary for both worker and food safety.

### 8. DEVELOP A FOOD SAFETY PLAN

Like all other company guidelines, you should put your food safety expectations in writing. This will also help employees better recognize potential hazards, sanitation requirements, and other safety concerns. Some things to include in your company's food safety plan are:

- How to handle your product
- How to dispose of unusable products
- How to use personal protective equipment
- Proper machine use
- Cleaning guidelines
- Required uniform standards
- Prevention techniques in case of a power failure or other emergency

Be sure to write detailed how-to guides for each procedure and make the information readily available.

### 9. MAKE EMPLOYEE TRAINING A PRIORITY

Even in a busy environment, you need to ensure every employee has a good understanding of FDA regulations and food safety guidelines. Each worker should understand how, when and why to use PPE. They should know how to fit their protective equipment and uniforms properly to prevent accidents and food contamination. While you will still need to work closely with your staff to ensure that your company's food safety guidelines and standards are met, you may also encourage your employees to get food safety certifications from the American Meat Science Association (AMSA) or the North American Meat Institute (NAMI).

Food safety is an important part of the meat processing industry. By carefully following all FDA regulations, investing in high-quality personal protective equipment, implementing your own safety guidelines, maintaining a clean environment and enforcing a strict dress code, you can greatly reduce the risk of illness and build trust with your customers.

*Nick Warrick is sales manager at All Seasons Uniforms Inc.*

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## CAPTURING YOUR SOCIAL AUDIENCE

Capturing the attention of consumers is no easy task. To be frank, it may not be a means of advertising that is important to processors. But what if I told you there is a method to the madness? Whether it is educating consumers, promoting a new product or introducing a new label, there is value in social media marketing. Today, the largest audience on many of the trending social media platforms are millennials (27–41 years of age) and Gen Z (26 years and younger). Both age groups are proven trendsetters. While shopping for their growing family, these consumers desire to know the story behind the label. Therefore, why not use social media to tell consumers your story?

Check out the latest social media statistics. You may find something valuable to take back to your marketing department.

## FACEBOOK

Facebook is the "meat and potatoes" of social media platforms. For most small meat and poultry companies, Facebook may be the only social media platform used for capturing an audience. If you are a new processor to the industry, it is not too late to start marketing on Facebook. Check out some of the latest data:

- Launched in 2004
- 1.62 billion people visit Facebook daily
- The largest audience on Facebook today is Millennials, at 84% of the total audience.
- The largest growing audience for Facebook is users 65 years and older.

An astonishing fact is that in 2021, 400 users created a Facebook account per minute. This equates to 500,000 comments, 290,000 status updates, 130,000 photos uploaded and 4 million post likes per minute.

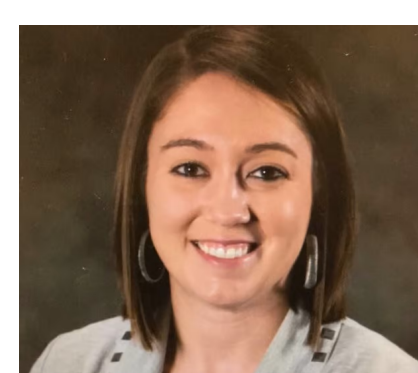
While Facebook continues to dominate the market, there are a few other social media platforms that may help you reach a larger more diverse population.

## TIKTOK


This is the hottest social media platform on the market today. TikTok is a short-video platform that quickly captured an audience of all ages and demographics.

- Launched in 2016
- By the conclusion of 2022, TikTok is expected to reach 1.8 billion people worldwide. In the U.S., TikTok will reach 138 million people.
- It's no surprise that the largest demographic on the platform is users 20–29 years old, counting for 35% of users.

While TikTok may be initially intimidating, it is an excellent platform to engage and educate consumers. For example, check out Jess Pyles', the Hardcore Carnivore, TikTok account here. Jess has more than 77,000 followers and 1 million likes. Jess's page includes informative videos ranging from how to properly grill a steak, how to cut a tri-tip and the importance of proper cooking temperatures.



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## INSTAGRAM

Instagram started as a photo-sharing platform and rapidly grew into something much larger. Today, users can share stories (short videos that expire after 24 hours), long-form videos to IGTV, and short, snappy videos to Reels. It is now a platform that allows companies to generate brand awareness and connect to their target audience.

- Launched in 2010
- Instagram has received 3.8 billion downloads.
- Nearly 1 billion Instagram users worldwide. In the United States, approximately 157 million people are on Instagram.
- Users average 30 minutes a day on the app.

Southwest Meat Association member Pederson's Natural Farms has found great success in Instagram. The pork producer has captured the attention of nearly 55,000 followers. When visiting their page, it does not take long to find a new creative recipe to try this holiday season or proper food handling instructions.

## PINTEREST

Pinterest is a favorite social media platform for those searching for inspiration ranging from DIY projects, home décor, and recipes. Pinterest allows members to 'pin' (save) a photo or video to a board. Think of it as like a mood board or an album. 98% of users have tried something they have seen on Pinterest.

- Pinterest is used by over 400 million people worldwide with 40% of the users are in the United States.
- Given the platform's uses, it is no surprise the largest audience is women.

During the holiday season, I find myself turning more to Pinterest for the perfect recipe to take to a family gathering. Upon doing a quick search for ground beef recipes, my computer screen was filled with thousands of recipes incorporating ground beef. Whether it is a quick instant pot or air fryer recipe, share it with your audience and watch your following grow.

Social media is a great tool to get your product into the shopping carts (and hearts) of consumers.

## CITATIONS

[TikTok Revenue and Usage Statistics \(2022\) - Business of Apps](#)

[30 Essential Facebook Statistics You Need To Know In 2022 \(thesocialshepherd.com\)](#)

[24 Essential Instagram Statistics You Need to Know in 2022 \(thesocialshepherd.com\)](#)

[22 Essential Pinterest Statistics You Need to Know in 2022 \(thesocialshepherd.com\)](#)



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