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REPACKAGING THE PROTEIN PROCESSING INDUSTRY

New Approaches to Efficiencies and Growth

For the protein processing industry, today's marketplace offers unprecedented opportunities for expansion, with a new generation of educated food consumers seeking more selection, more flavors and more convenience in the food products they purchase. Processors who are ready to meet those new demands will see increased sales and customer loyalty.

Unfortunately, these prospects are being limited by a number of significant issues both in processing facilities and in the market: mounting expenses for raw materials, consumer preferences for smaller portions, unsold items on the shelf, and the need to reduce costs through improved operational efficiency.

In today's dynamic market, the well-traveled directions for solutions to these problems traditionally pursued by processors will no longer suffice. It's time for the industry to turn to new approaches—not only new techniques and technologies to improve production processes, or internal factors, such as wages or hiring and contract restrictions. It's time to stop concentrating solely on what competitors are doing and instead focus outward toward the consumer marketplace. A deeper understanding of consumer preferences, combined with consumer data, will give the industry the tools they need not only to monitor but also to anticipate broader trends in flavor, healthfulness, packaging and convenience.

The issues slicing into profitability for processors

ENVIRONMENTAL ISSUES

As with any other business, profitability provides the fuel necessary for the processing industry to power its advances in the marketplace. Profitability reflects prices and demand, and currently demand for proteins remains high. Supplies are tight, however, because of unrelated and unanticipated environmental issues that have impacted the beef, pork and poultry industries over the last few years.

Severe drought conditions in 2012 greatly injured the cattle industry, causing cattle producers to liquidate herds as a result of the drought because sufficient feed was not available. Subsequently, the number of animals was reduced to the lowest level ever recorded. The industry needed three years to recoup from those devastating losses and is just now returning to normal. Beef prices will remain high for at least another year, but the USDA reports that herds are expected to continue to expand in 2015 because of lower-cost feed and record-high prices for slaughter-ready cattle in 2014.

In 2013, the U.S pork industry was reeling from porcine epidemic diarrhea virus (PEDv), which killed more than 100,000 pigs, reduced slaughter rates by 4.2 percent and increased pork prices across the board.

In 2015, the poultry industry is beginning to feel the impact of a severe Avian flu outbreak, which has led to the destruction of more than 48 million wild birds and birds on commercial farms. Subsequent shortages in poultry available for processing are beginning to be felt throughout the supply pipeline, with tight supplies expected to drive prices up during the 2015 holiday season.

DEMOGRAPHIC IMPACTS

Yet, even with these high prices, consumers are not eating less meat. In fact, industry projections indicate that protein consumption will remain steady or increase in the months ahead.

Consumers today are buying smaller portions and lesser grades.

Demand and desire for processed proteins remain high; but consumers today are buying smaller portions, less expensive proteins, and lesser grades of proteins to compensate for these higher prices. Sales of chicken, traditionally less expensive than beef, have risen 6.2 percent since 2011.

With more expensive beef, consumers are purchasing more sirloin, roasts and shoulder than rib eyes, filets and strips. This trend fits well with the growing focus of consumers on both convenience and healthier food products. In general, they view smaller portions as healthier. For example, people are buying turkey breasts instead of whole turkeys, chicken parts and pieces or healthier cuts, such as chicken breast. With steaks, consumers are favoring smaller cuts, rather than large T-bones, and they are buying smaller roasts that can fit into crock pots for convenient cooking.

To compensate, some processors are reducing product size for all types of meat while charging the same price. However, this trend toward smaller portions impacts the efficiency of raw-material expenses, production efficiency and labor costs.

SHELF LIFE CONCERNS

With these types of pressures on margins, it's more important than ever for product to safely remain on the shelves as long as possible. Disposing of unsold, expired meats is costly, not only to the retailer but also to the processor, who often must absorb the cost of these unsold meats.

Normally, the shelf life for fresh chicken is 7-14 days depending on packaging methods. For frozen chicken it is 60 to 90 days. Cooked sausage can remain on the shelf for 90 days. Like chicken, fresh beef's shelf life in overwrap (tray and film) is seven days. Alternative packaging can extend beef's salability to 21-30 days. Compared to other retail products, these are relatively short timeframes so retailers prefer to move these packages much sooner than these dates.

Certainly, the inherent limits on freshness for protein products will, in turn, limit their shelf life, but high prices also can cause protein products to remain on the shelf for a longer period than desired. There is a threshold for what consumers will pay for meat products. If too many business costs are built into the price, thus raising the cost to consumers, shoppers will turn to alternative sources of protein, leaving what they perceive as "expensive" meat or dairy products on the shelf.

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CHALLENGES TO OPERATIONAL EFFICIENCIES

Operational efficiencies present an ongoing challenge for processors and their profitability. There are many aspects to operational efficiency, and they all have an impact on the bottom line. These include:

- Geography the plant's proximity to raw materials
- Labor factors associated with union vs. non-union plants
- Technology failure to keep up with advancements in automation
- Utilities overhead electricity and water used in processing
- Plant size the bigger the plant, the more efficient it usually is
- Packaging consistency among plants the need to run separate processes for different packaging

INEFFICIENT PROCESSING METHODS

When it comes to proteins, a certain amount of processing by hand always will be needed. Throughout the process, however, opportunities may exist for improving efficiency with automation. Processing plants that do not continually evaluate such new approaches for improved efficiency can find significant impacts to their overall profitability.

For example, one traditionally manual task that workers perform in the plant is applying spices to product. Typically, the spices are added by hand or with a shaker, which results in inconsistent applications. Considerable amounts of spice are wasted, leading to an inconsistent quality of seasoned products, as well as messy production lines that must be completely cleaned and sanitized after each run. These drawbacks can cause labor costs to swell.

Spices are added by hand or shaker, resulting in inconsistent applications, waste and messy production lines.

Even semi-automated processes can produce waste that impacts profitability. Using clipped or piece goods for large-volume production, such as netting or shrink bags, can result in costly inefficiencies on the production line. Frequently the products on the line are not consistent in size and shape, so the piece good must be longer to accommodate the largest items. As a result, a substantial amount of material may be wasted on smaller pieces. And if the pieces are too long for their application, getting the product into it may be more difficult, causing delays on the production line. The added costs of material waste and increased labor when working with piece goods can be significant.

When packaging meat in bags, another issue emerges regarding the use of laminated patches as bone guards. Considering the alternative technologies available today, these patches can be costly, visually unappealing and inefficient. They can cause delays because the meat in the bag must be carefully positioned so that the patch covers sharp bones. Then more labor is required to position the patch so it avoids contact with the seal bar on the vacuum chamber machine. The process amplifies inefficiencies and ultimately increases the cost of the package.



Taking an Advanced Approach to Industry Issues

While many of the issues previously identified are beyond the control of processors, it is possible to anticipate and mitigate their impact on the business. New technologies and new ways of thinking can help processors overcome these profitability challenges and stay ahead of the competition.

ADDRESSING SHELF LIFE ISSUES

The value of seasoning

While it has been established that higher protein prices keep product on the shelf longer, adding value to protein can increase the threshold prices that customers are willing to pay and move higher-priced product off the shelves more rapidly. One way to achieve this is by incorporating spices—teriyaki-flavored chicken, for example. Consumers often are willing to pay more for products with distinctive flavors.

"When adding seasoning and flavor and eliminating steps for the consumer, retailers can get premium prices," says Neil Stern, senior partner with McMillanDoolittle, one of the world's leading retail consulting firms. "People will coupon shop and price compare, being incredibly price conscious, but they also go to a Starbucks in the supermarket and pay \$5 for a cup of coffee."

Consumers willingly spend 10-15% more for boldly seasoned products.

Stern points out that, despite obsessing over the price of ground chuck or bone-in chicken, consumers are willing to pay double for a stuffed or seasoned burger, and that specially seasoned meat cannot be compared on a price basis to the retailer next door.

In fact, according to market research firm IRI's FreshLook database, consumers are willingly spending 10 to 15 percent more for bold-flavored products versus unseasoned ones. Bold-flavored proteins are driving overall category growth, despite the fact that unseasoned items, while high in volume, are flat to down year-over-year.

Addressing shelf life concerns through value-adds, such as flavor, is an excellent example of managing issues with new ways of thinking about profitability, efficiency and consumer trends.

Packaging and functional ingredients to retain freshness

Even with more traditional and direct approaches to address the shelf life issue, available technologies can have tremendous impact. The most common way to lengthen shelf life is to modify product packaging. A number of food packaging systems are being adopted to help products last longer:

- Packaging that controls oxygen and water vapor/moisture transmission
- Modified-atmosphere packaging in which carbon dioxide is injected into the package to preserve freshness, extend shelf life and make the product more visually appealing
- Pasteurizing products after they have entered the final package, an effective but expensive technique
- Mother-bagging for case-ready meats, involving the placement of EPS trays with PVC overwrap inside a mother bag and bringing out the product as needed



Many seasonings and spices have natural antimicrobial properties that can add flavor and extend shelf life.

Another method of extending shelf life is to incorporate process improvements and functional ingredients that retard the growth of organisms and help mitigate the impact of waste. While meat processors have long relied on phosphates to retain water in protein for flavor protection and improved yields, new types of preservative and functional ingredients for extending shelf life have emerged over the past decade. Among these are phosphate alternatives. When these dry compounds are added to marinades or brine and then injected into meats (or added during tumbling) in place of phosphates, they produce an exceptionally succulent, tenderized piece of meat. They also increase yields on the production line by reducing the free moisture in the packaging and, therefore, the amount of packaging is less.

These phosphate alternatives can be used on beef, poultry and pork, and they require only minor adjustments in formulations—simply through the addition of water.

Functional ingredients are substances that prevent bacteria growth when injected or applied topically. In some instances, enzymes are injected to tenderize the meat as well. Ingredients like Bombal from Van Hees, available from Flavorseal, use natural ingredients to improve shelf life and overall food safety at a low usage rate.

In the ongoing search for cleaner labels that consumers are requesting, some processors are turning to functional ingredients that extend shelf life while also marinating and tenderizing. The anti-oxidant properties in some essential oils, including those from sage, rosemary and oregano, are effective antimicrobials. Many other seasonings and spices—such as garlic—have natural antimicrobial properties that can add flavor and extend shelf life. Researchers currently are investigating these and other new areas as they seek to extend product shelf life. Among these are:

- Antimicrobial, anti-mold packaging
- Biologically active packaging material
- Biodegradable food packages with films made from sugar cane extracts similar packaging already is used by the beverage industry

IMPROVING OPERATIONAL EFFICIENCIES: LOOK BEYOND THE PLANT FLOOR AND COMPETITORS

While technology available to the processing industry has progressed substantially, the industry has a history of very slow acceptance and implementation of innovation. Moreover, new technology may require a significant capital investment or additional plant space, resources that may not be readily available. Nevertheless, there are many new packaging technologies that can impact efficiency and, thus, the bottom line.

Some of the new, automated systems, like the Flavorseal Flexopack food packaging system, allow for real-time data monitoring, enabling processors to make sure they run at optimum efficiency and react more quickly when adjustments need to be made. Updated equipment is designed for reduced energy usage and water consumption, two areas where small adjustments can make a big difference in the bottom line.

Proper packaging selection is another way that costs can be held in check without negatively impacting performance. Packaging technology is constantly evolving, so a regular audit of the overall packaging usage can ensure that processors are using

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the most appropriate package for each product and identify ways to save costs in packaging. Some packaging companies, like Flavorseal, offer a comprehensive packaging audit to their customers as a free service.

Advancements in netting and bags

The potential waste resulting from piece-good packaging can be resolved with continuous-packaging technology, which allows a processor to use only the amount of packaging required for the specific product. Rather than requiring individual, precut lengths of netting or bags, this technique employs a continuous roll of packaging that is clipped where needed. Pulling what is needed from a continuous roll is less expensive than using pre-cut lengths and speeds up production. Adopting this methodology can reduce material waste and lower the number of production workers required for the line.

On the other end of the spectrum, improving the look of final retail packaging is another way to attract customers to your products on the shelf. Decorative food netting is a classic example of this. This type of netting, often seen on salamis and other cured meats, has traditionally been used to impart an "Old World" quality to the packaging and can make nearly any product look "artisanal" – an appealing adjective to today's food consumers. More updated applications for this type of netting have appeared on cheeses or even have been used to package meat and cheeses together. And advances in knitting technology are producing a wider array of netting patterns, so companies can customize their look with patterns unique to their product lines.

More savings can be achieved by no longer using laminated patches on bags for bonein meats. Patches have been made virtually obsolete by technological advancements in the form of bone guard shrink bags. These multi-layer, co-extruded bags provide a high resistance to abuse and reduce overall packaging costs because they do not require the multi-step process of laminating patches onto bags. When using them, production line workers spend less time on positioning the product properly and packaging each product, since its orientation in the bag does not matter. The boneguard material is puncture-resistant from edge to edge.

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35179 Avon Commerce Parkway Avon, Ohio 44011 Toll Free: 866.769.1500 Fax: 440.937.3901 flavorseal.com Additionally, leakers are minimized with these bags, and vacuum sealing becomes easier and more efficient since the entire bag is heat sealable, avoiding the need for precise placement on the seal bar. As a result, more bags can pass through the vacuum chamber machine in a given amount of time—more products are packaged per minute. That means savings in labor and time while increasing yields.

Improving Efficiency During Seasoning Application

As discussed earlier, seasoning adds important dimensions to proteins. Seasoning and flavors give processors a way to keep up with changing consumer desires. Consumers want to taste new things, and market analysis shows they will pay a premium for flavored products.

Until now no one has found a way to make the seasoning process efficient enough to create multiple flavors in a single process.

Moreover, flavorings appeal to all consumers of all incomes. The deli counter makes it easy for consumers to try new flavors, because the customer can control the amount they purchase.

Today's protein seasonings go beyond the common spices for meats to include sriracha, garlic, roasted red pepper, chili lime and other flavors that have delighted consumers in other foods. The proliferation of these new flavors has been held back, however, because until now no one has found a way to make the seasoning process efficient enough to create multiple flavors in a single process.

One proven method of increasing production efficiency and profits is the use of seasoning transfer technology – available in seasoning sheets, casings, bags and netting – that seamlessly transfers seasoning to meats.

Today, processors are capitalizing on seasoning transfer technology from Flavorseal that directly and precisely transfers seasoning to the protein, avoiding messy shakers or application by hand. With this technology, the seasoning process becomes simple, automatic, consistent and flexible.

Seasoning transfer sheets and casings are made from plastic to which a proprietary bonding agent is applied, followed by the spice or seasoning blends. The seasoning is transferred by a process that does not require heat. It also can be used as marination before cooking. All seasoning blends are customized, and proprietary blends are available as well. Functional ingredients also can be incorporated into the blend to serve as antimicrobial substances.

Seasoning transfer technology allows processors to transition from one flavor to another on the same production line very quickly, reducing downtime between flavors.

Many other benefits can be found in seasoning transfer products:

- New flavors can be launched quickly and painlessly, as soon as they are ready for market, and limited-time offers can be implemented easily.
- Because flavor trends are growing and changing rapidly, with many different markets and populations preferring different flavors, processors have been challenged with finding ways to have shorter runs with many different flavors efficiently. Seasoning transfer sheets, casings and netting allow processors to transfer from one flavor to another on the same production line very quickly, reducing the often expensive cleanup and wash-downs of spice between runs. This technology makes seasoning a shorter, less-manual and less costly process.
- The technology reduces labor cost at retail locations. "The more value that manufacturers can provide, the more they help on the labor side for supermarkets," Stern points out. "Labor in the meat department is expensive. If a retailer can get seasoning or marinating done beforehand, he's saving time and money on operations. So the argument for seasoning transfer sheets and similar technologies is about more than revenue. They also reduce the need for people behind the counter to do things to the protein to try to increase its retail sale price. They just need to stock it on the shelf."

The trend with this technology is clearly toward having seasoning done outside the store to save labor, for more consistency in product, more variety and the ability to set a premium price point without extensive additional labor.



To address evolving consumer demands, seasoning transfer technology is on track to influence the meat processing segment in a way that is analogous to the microbatch beer phenomenon. Processors now can create micro-batch custom flavors for restaurants and retailers, something that would be impractical, if not impossible, without flavor sheets. In fact, Flavorseal uses consumer trend data to show processors the specific flavors they should consider. For example, current popular flavors include:

- Spicy blends: More than 70 percent of younger consumers prefer spicy flavors and foods, according to the Technomic's Flavor Lifecycle data. These include pepper, chipotle, and habanero.
- Complex combinations: In a Technomic MenuMonitor study, 30 percent of consumers preferred sweet heat, rather than pure heat, in their foods.
- Ethnic flavor: In the past year, Mexican flavors appeared on 42 percent of restaurant menus in the United States, Technomic reports. Additionally, Italian continues to be popular while Asian flavors are entering the mainstream.

These flavors are readily available through seasoning transfer technology, which allows processors to produce small batches for a variety of tastes, based on customer data.

The same technology can be applied to other proteins, such as the seasoned cheese market.

Bold-flavored cheeses have become popular, growing 14.3 percent in sales from 2013 to 2014, according to IRI. This is twice the 7.1 percent growth of natural cheese during the same period. But bold-flavored cheese composes only 8 percent of overall natural cheese sales, so considerable opportunities exist to boost sales in this product segment. Finding effective, efficient methods to apply spices to cheese, however, has been an elusive effort.

Pre-seasoned casings that transfer seasoning as part of the cheese production process can introduce endless new flavors to revitalize the declining sales of processed cheeses. The trend toward spicy blends, sweet heat and ethnic flavors that can energize the meat buyer also can attract customers for cheeses. Consumers are seeking out these favorite flavors and enjoy discovering them in the proteins they purchase.

This evolution from manual, bulk seasoning to selective, customized seasoning is a game changer for the industry. Not only does seasoning transfer technology offer variety to meet customer demands and thereby shorten the time proteins stay on the shelf, but also it is clear that customers are willing to pay a premium for new flavors that appeal to them.

Processors are spending too much time looking at competitors and not enough time looking at consumers.

Understanding the new marketplace

The most important factor holding back profitability and efficiency, however, is that processors are spending too much time looking at competitors and not enough time looking at consumers—the people who actually buy their products.

Consumers today are very savvy and can obtain information through the Internet very easily—at home or at the meat counter through their smartphones. Because they are



more knowledgeable and have an ease of access to information that was not available to them before the Web, consumers have more control over selection and purchases.

Millennials should be a key target market for food processors.

According to Neil Stern, these "digisumers" are calling the shots in retail, and those shots often are aimed at specialized food styles. At the 2015 MeatCon event, hosted by the North American Meat Institute and the Food Marketing Institute, Stern observed that demographic specialization is increasing, in part because the millennial population is 35 percent ethnic.

The fact is that millennials should be a key target market for food processors, because they are a growing and important part of the population. Today they are in their 20s and 30s, beginning to form families and becoming prime customers.

REACHING DIGISUMERS

To reach millennials—the new generation of shoppers—a brand must fulfill this group's desire to share in real time. Recommendations and word-of-mouth, in the form of review sites and social networks, are supremely important in this sharing, and often the topic is food. Many millennials are passionate about photographing and posting online every dish they prepare or order, as word-of-mouth from a food standpoint.

80 percent of women who own smartphones use these devices to conduct grocery shopping activities.

Everyone is using social media, but the way millennials use it is different. They are heavily committed to social sites like Instagram, Facebook, Pinterest and food blogs. Retail consultant Stern says that, for millennials, "information is available all the time and in real time, and food blogs are a huge part of that. Food plays an enormous role in social sharing."

The analytics firm Placed has reported that 80 percent of women who own smartphones use these devices to conduct grocery shopping activities. Millennials use them to compare prices, add items to wish lists, scan QR codes, watch video demonstrations and read reviews of products. Yet, most supermarkets are lagging behind other business sectors in making their websites, digital tools, mobile tools and social media engagement effective for these digisumers. On the other hand, brands supplying supermarkets are becoming smarter about digital by offering more QR codes and links to websites at the store.

Digisumers, however, are not looking to the food brand or the supermarket for authoritative information; they go to third parties, such as food bloggers, social sites, review sites, family and friends. Brands, therefore, must be engaged socially with today's shoppers if they expect their products to be considered via word-of-mouth, blog posts and reviews.



Mining data can help processors and retailers more appropriately stock shelves and adjust production to consumer preferences.

The issue today is not whether resources should be devoted to trying to reach delicounter shoppers inside or out of the store but rather how to reach them virtually. This requires brands to break down traditional silos that separate the packaging department from product development and marketing from sales. To be effective, all these units must be married in an integrated marketing effort.

BUILDING FUTURE BUSINESS ON MARKET DATA

Because consumers now are constantly using search engines to find and compare products and because their conversations can be monitored and joined through social media, processors have the ability to capture market data and employ it to make assumptions for the future. Mining such data can reveal who processors should target for their products, how frequently they buy proteins and what features those customers prefer in terms of cuts, flavoring, portion sizes and other factors.

This data can help processors and retailers more appropriately stock shelves to avoid unsold expired products and help them adjust production to accommodate ongoing changes in consumer preferences.

Retailers also should work closely with processors to analyze the available shopper data from loyalty cards and other data sources to identify the products that consumers are buying. Then discount promotions can be developed to target the patterns of individual shoppers to increase sales and repeat customers.

COOKING FOR MILLENNIALS

Certainly millennials love to talk about and share new flavors and tastes that they have discovered, but they are not necessarily skilled at cooking. While they may cook as a hobby on weekends, during the week they want easy ways to find prepared meals.

Supermarkets are becoming the kitchen for today's shoppers, offering prepared hot meals and preassembled meal ingredients. Some retailers even cook the meat on grills inside the store. At the same time, the smartest store owners are showing customers the dollar value and health benefits of these meals versus eating at a restaurant. Consumer demand also is increasing as a result of in-store cooking demonstrations and classes.

Processors can support this trend by supplying wide varieties of flavored meats and cheeses for consumers to try in-store and use at home.



Eight steps toward repackaging your processes and technology

How can your processing facility begin reshaping operations to focus on consumer trends and improve efficiency, flexibility and growth? Here are eight steps to help guide you on the right path to your evolving marketplace.

- 1. Realize that the next big thing in your industry will come from your suppliers and partners. Talk with them about the new approaches they are developing to help resolve the challenges you face. As part of these conversations, call on the expertise of your partners to audit your operations and find areas where improvements can be made cost efficiently, such as in packaging and seasoning processes.
- 2. Explore new food packaging technologies that offer a quick return on investment, such as continuous-roll netting, bone-guard bags, decorative netting and seasoning transfer sheets.
- **3.** Promote and highlight your new flavors on your packaging and labels when adopting customized flavoring processes as a way of differentiating your products from those of competitors.
- 4. Produce new flavors frequently. It is easy to do that now with seasoning sheets, casings, bags and netting.
- 5. Use consumer data to constantly keep your product and flavor offerings up-to-date and to create bold new flavors that you may discover consumers favoring in restaurants or in small specialty shops.
- **6.** Learn how to upsell and use marketing information from your consumer data to effectively target your customers and offer the products they like.
- 7. Continue to automate as many processes as possible to reduce labor costs.
- 8. Improve efficiencies in ways that increase the value of products to consumers so that you can benefit from premium prices, rather than cutting prices.

VALUE IN VARIETY

Manufacturers, producers and marketers in virtually every other industry have learned the value of collecting, analyzing and acting on customer data. It is time for the processing industry to do the same and offer the variety of products that today's consumer is accustomed to finding in everything from the technology in her car to the spices in her kitchen. Your products and production processes can rely on today's cost-effective technologies to provide the right approaches to efficiency and the right path to the tables of today's consumers.

