

Global Lifestyles

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Good and Ready-to-Eat Food

DELIVERING CONVENIENCE, NUTRITION—AND TASTE

INTRODUCTION

Global demand for ready-to-eat foods—from snacks to full meals—is exploding. Spurred by accelerating urbanization, escalating time pressure, rising disposable income, and high consumer acceptance of such food throughout the world, the demand for foods that require little or no consumer preparation has jumped in recent years—and promises to continue expanding in coming years. Already the largest segment in the overall conventional and non-conventional food industry, ready-to-eat food is anticipated to continue its rapid growth over the next several years. Indeed, Research and Markets projects that the global ready-to-eat food market will grow at a 21.5% CAGR through 2021.¹

While the market for ready-to-eat and easy-to-prepare foods continues to grow, however, consumer expectations regarding the quality of these foods—not only in terms of taste but also in terms of nutritional and functional value—are growing just as rapidly. Increasingly well-informed consumers, motivated by rising health consciousness and bolstered by the readiness and abundance of information, are demanding that more of their meals—and even their snack foods—not only be quick and convenient, but also deliver nutritional value and even health benefits. And, of course, they have to taste great, too.

The tension between these escalating demands—for convenience and ready-to-eat foods on the one hand and for food that is both healthy and delicious on the other—is prompting accelerated applications of innovative technologies that hope to

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KEY FINDINGS

- Consumers increasingly want to reconcile their often conflicting demands for convenience and healthfulness in food products.
- New food preservation and processing technologies are enabling greater shelf stability without sacrificing either taste or nutrition.
- Millennial consumers, in particular, will welcome foods that are both good (for them, for society, and for the world) and ready to eat.

reconcile the apparent conflict between them. This brief examines the drivers propelling demand for foods that combine being good and ready-to-eat, reviews current applications of technologies that produce foods that might satisfy both of these demands, and explores the business implications of the expanding range of foods that deliver both convenience and clean labels.

DRIVERS

Several social and economic trends are driving the accelerated consumer demand for foods that deliciously combine convenience and nutritional benefits. These drivers include:

- **Snack society.** Consumers in the US and throughout the world are eating snacks more frequently than they did in the past. According to Nielsen, 91% of consumers worldwide say they snack daily—with one in four (25%) saying they snack three to five times a day.² Similarly, Mintel found that nearly all Americans (94%) snack at least once a day. This is particularly true of young adults, with one in four (24%) Millennials saying they snack four or more times a day.³ As a result, snack foods are currently the greatest growth driver in the consumer packaged goods (CPG) industry.⁴
- **The rising value of convenience.** Growing time pressure, accelerating urbanization, the increased monetization of services, and digital expansion have heightened the consumer demand for—and possibility of—convenience.⁵ This applies to eating, too—with more and more consumers choosing packaged foods due to their convenience. More than three in four (77%) snackers, for example, prefer ready-to-eat snacks to those they need to prepare themselves.⁶
- **Ascendance of the health consumer.** Consumers are exercising greater control over their personal health—and the lifestyle factors (diet, exercise, habits) that influence it. Products that make health and wellness claims, for example, outpaced total fast-moving consumer goods (FMCG) growth by a significant margin in recent years.⁷ In diet, this trend expresses itself in the growing consumer focus on “real food” and the desire to “eat healthier.” A significant share of consumers try to balance their rising focus on health with the growing habit of snacking. Indeed, one-third of consumers (33%) say they snack

For more on global and US snacking, see [GL-2015-01: Snack Society](#).

on healthier foods than they did a year earlier—and 30% of parents say they are offering healthier snacks to their kids.⁸

- Importance of simplicity.** A majority of consumers (52% globally and 61% in the US) believe that the fewer ingredients a food product has, the healthier it is. Indeed, according to Nielsen, 62% of global consumers believe that “the absence of undesirable ingredients is more important than the inclusion of beneficial ones.”⁹ As a result, demand is rising for simplicity in the foods consumers purchase: “clean labels” that attest to products that are simpler, more natural, less processed, and “free from” ingredients and additives that consumers see as detrimental.¹⁰
- Prominence of functional foods.** Consumers are increasingly buying foods—including snacks and other ready-to-eat foods—that not only meet basic nutritional needs but also deliver additional health benefits. Such functional foods include, for example, probiotics to promote digestive health or omega-3 fatty acids to reduce inflammation and maintain mental health.¹¹
- Millennial purchase patterns.** Millennial consumers are not only accelerating such trends as snacking, but are also adopting and adhering to new purchase criteria. In addition to embracing convenience and simplicity, for example, Millennials look to buy products that, as much as possible, are simultaneously good for:
 - Themselves:** product that have clean labels (i.e., natural or even organic, less-processed, with fewer ingredients)
 - Society:** products that embrace free trade, fair labor practices, and/or other ethical considerations and
 - The planet:** products that are sustainable and “do no harm” to the ecology¹³
- E-commerce challenges to food stores.** Such major players as Amazon, Jet, Alibaba, and others are jumping into the grocery market, promising to use their existing distribution networks to deliver high-quality food directly to consumers.¹⁴ In order to succeed, these e-tailers will need an expanding array of ready-to-eat products that have an extended shelf life: products that will allow e-tailers to stock them until ordered without

“CLEAN LABELS”



Although preferences vary from market to market, for many consumers, the list of ingredients to avoid include:

- sodium (salt)
- sugars
- monosodium glutamate (MSG)
- trans fats
- saturated fats
- GMOs
- growth hormones
- antibiotics
- gluten
- allergens
- carbohydrates
- preservatives
- artificial flavors and colors

What’s more, a sizeable majority of global consumers (68%) are willing to pay a premium for foods and drinks that don’t contain ingredients they find undesirable.

-image: Wikimedia commons

NOT JUST TALK

Nielsen retail sales data suggests that many consumers globally are backing up their “free-from” beliefs with their wallets. In the US, for example, sales of products labeled “organic” grew 13.1% in 2016—and those labeled hormone- or antibiotic-free grew 21.7%.¹²

spoiling, and that consumers will find easy-to-use upon delivery.

NEW TECH FOR SHELF STABILITY

MATS and MAPS

915 Labs, which draws its name from the frequency of microwave it uses in food processing, has developed and launched two food preservation technologies that demonstrate the ability to retain the primary benefits of fresh foods: nutrients and flavor. The company's microwave-assisted thermal sterilization (MATS™) and microwave-assisted thermal pasteurization (MAPS™)—originally developed for the US military to improve the quality and tastiness of meals ready to eat (MREs), portable meals that do not require refrigeration for soldiers in the field—preserve color, texture, and most importantly the taste of processed food. As a result, they eliminate the need for excess sodium, additives, and enhancers.¹⁵

In conventional (retort) processing, which immerses packaged food in pressurized hot water for 40 to 90 minutes, the prolonged exposure to high heat damages the food, prompting processors to add extra salt, texture, and artificial flavors and colors in order to compensate for the loss of flavor, texture and color and make the food more palatable. Unlike conventional processing, however, MATS not only immerses packaged food in pressurized hot water, but also rapidly heats and sterilizes it with microwave energy (at a frequency of 915 megahertz). The use of microwaves significantly reduces the processing time from an hour or more to just a few minutes. This allows MATS—while still killing micro-organisms and providing a shelf life equivalent to that of conventionally processed foods—to preserve not only color, texture, and flavor, but also nutrients.¹⁶ MAPS employs a similar process for pasteurization, proving a longer chilled shelf life (up to 90 days) while retaining the foods' essential flavors and nutrients. Because the MATS process gives foods a shelf life of up to a year, Amazon is showing particular interest in the technology (see sidebar).¹⁷

In-house studies have shown that MATS- and MAPS-processed food products can completely eliminate the need to use artificial enhancers and additives—and require 20-50% less sodium than comparable conventionally packaged foods. In addition, functional foods processed using these technologies retain almost all of the

915 LABS INNOVATION

Future in Focus spoke with Mary Henderson, VP of Marketing at 915Labs:

ON NUTRITION

“Our true value proposition is in packaging “real” healthy foods—proteins, vegetables and grains—and not only keeping a higher percentage of nutrients intact during the sterilization process, but also minimizing the overheating typically with conventional sterilization. As a result, we can eliminate additives and extra salt that food manufacturers add to compensate for heat damaged food. As you know, there is movement afoot by governments and health advisory organizations to reduce the level of salt, as well as unhealthy fats and sugars, from processed foods.

ON MEAL KITS

“Our vision for meal kits would be to supplement fresh foods with MATS-made components: for example, packaged salmon filet with packaged vegetables and quinoa and fresh salad and lemon/herbs.”

ON SHIPPING MEALS

“Ecommerce providers are interested in meal and component options that can be shipped direct to consumers without the excessive packaging required for fresh, chilled and frozen foods. Food companies in regions not served by cold chains are very interested in high quality, shelf-stable packaged foods that can be stored and shipped without refrigeration. The current alternatives do not meet consumer demand for authentic, clean label and tasty food.”

benefits that make them appealing to health-conscious consumers. A MATS-processed salmon dish, for example, retains 5.3 mg of omega-3s, while the retort-processed version of the same dish would retain just 0.3 mg.¹⁸

In an effort to reconcile these drivers and trends—which are not always pulling in the same direction—food companies and retailers are exploring new technologies and new applications of existing technologies that will facilitate the delivery of a wider array of ready-to-eat or easy-to-make foods that deliver greater nutritional value and health benefits.

The traditional retort method—the standard of food processing for many years—sterilizes and preserves foods to give them a longer shelf life, but tends to destroy both nutrients and flavor. Over the last decade, however, engineers and researchers have been testing and refining new technologies and applications that have the potential to promote greater shelf stability—and do so for longer periods of time—while retaining the essential flavors, colors, and nutrients of the foods they preserve. Among these technologies, two of the most promising are microwave-assisted thermal sterilization (MATS) and pulsed electric field (PEF).

The first foods processed with MATS technology hit retail shelves in Asian markets in the summer of 2017. MATS-processed foods will also begin hitting shelves in US markets in late 2018.²⁰

Pulsed Electric Field

Although the technology still needs further development and testing to be fully proven under commercial conditions, pulsed electric field (PEF) processing is currently available in pilot-scale programs in the US and three European markets. PEF inactivates micro-organisms in food by applying short pulses of high voltage.²²

Although not suitable for preserving solid foods, PEF may allow the pasteurization of a wider variety of liquid and semiliquid foods—not only milk and juices, but also more semisolid foods like yogurt, soups, puddings and liquid eggs. Like MATS and MAPS, PEF minimizes the damage and detrimental changes to foods, safely and effectively extending their shelf life while maintaining their freshness and sensory and nutritional qualities. In particular, PEF does not affect a processed food's flavor, texture, color, vitamins, proteins, or other nutrients.²³

THE AMAZON EFFECT

Heightening competition for the e-commerce grocery market and growing consumer demand for quick and easy home dining options are accelerating the need for—and development of—technologies that will facilitate the stockpiling and shipping of complete meals, snacks, and other food offerings. In 2017, it was reported that Amazon was investigating microwave-assisted thermal sterilization (MATS) technology in conjunction with its AmazonFresh offering to expand food delivery through the Internet.¹⁹

PRESERVING FLAVOR AND CUTTING COSTS



MATS not only delivers food that tastes and looks better than retort-processed food while maintaining its nutritional value, it does so at significantly lower production costs.²¹

-image: US Department of Defense

Like MATS and MAPS, PEF has demonstrated energy-efficiency compared to conventional pasteurization technologies. So when it becomes more commercially available, PEF will likely not only yield a shelf life comparable to thermally pasteurized foods and add value (by improving product quality), it will also save time and money (by reducing processing time and energy costs).²⁴

BUSINESS IMPLICATIONS

- The next decade will see a proliferation of convenience and snack foods that satisfy nutritional needs and health guidelines (for example, by significantly reducing salt content or eliminating artificial flavors and colors) while still maintaining consumer appeal—and ultimately consumer satisfaction.
- New food preservation technologies will allow food companies to greatly expand the range of shelf-stable, ready-to-eat, and still healthful packaged snacks and meals to include such once-perishable items as asparagus and other vegetables, seafood, pasta, and spicy ready-to-eat meals of all international cuisines. What's more, because they require fewer—or even no—added salts, flavors, and artificial additives, these new processed foods will all have cleaner labels. This will better enable the CPG sector to meet the growing consumer demand for tasty, high-quality, natural, clean-label, additive-free packaged foods.²⁵
- Increased use of innovative food preservation technologies could result in significantly less food waste, since it will allow farmers in remote growing areas to quickly process fresh produce that might otherwise go to waste before it can reach consumers.
- As food preservation technologies that combine taste, nutrition, and shelf stability become the norm, food companies will become increasingly transparent about their food labeling. Most food labels will become cleaner, since food products will need fewer and fewer artificial ingredients.
- Since parents, especially parents of infants, want to provide only the best possible products to their children, Millennial parents—looking to feed their babies foods that satisfy the highest standards of both taste and nutrition—will increasingly seek out products that employ innovative preservation technologies to deliver on these promises.

- Likewise, pet owners want to provide their animals with the best possible products—one reason that human food trends so often spread quickly to pet foods. As they become standards of human processed food, look for MATS, PEF, and other food preservation technologies that deliver full flavor without sacrificing nutritional value to be applied to pet foods as well. Pet food companies may at first use these technologies to differentiate their products from the competition. Yet within several years, pet owners will likely expect and demand the same quality in their pet foods as in their own foods.
- A more varied range of MREs, traditionally distributed as rations to armed forces, could allow shelf-stable foods to better serve the needs of underserved and needy populations, thereby facilitating hunger and disaster relief by humanitarian agencies.
- At the same time, the growing market in developing nations for packaged foods that offer greater convenience is likely, despite technologies that better retain nutritional value in processed foods, to increase the incidence of “diseases of affluence” in these economies. This increase will likely heighten the need for new products and services to address such chronic health conditions as obesity, high blood pressure, and cardiovascular disease, among others.
- Snack-servicing websites—for example, graze, Boxtera, and nibblrbox—that offer direct delivery of snacks to consumers’ homes or offices will be increasingly able to differentiate themselves through their range of healthy yet still-delicious snack offerings.
- As healthier snacking and on-the-go eating become increasingly prevalent, automakers may find a growing demand for amenities that facilitate in-vehicle eating. The advent of self-driving cars, in particular, will make vehicles more amenable to the addition of fold-out food trays and built-in appliances that quickly and safely heat good and ready-to-eat meals, snacks, and beverages.

FOR MORE INFORMATION...

For a customized analysis about what the trends and forecasts in this report could mean for your organization, please contact Michael Vidikan at michael@futureinfocus.com.

RELATED FORECASTS

- **TF-2015-14: Convenience—a ‘Technology Values’ Update** and **TF-2015-15: Simplicity—a ‘Technology Values’ Update** analyze how convenience and simplicity—two values driving the good and ready-to-eat market—help drive and shape the development of new technologies.
- **GL-2015-01: Snack Society** examines drivers behind the steady growth of snacking and the global snack food market, identifies trends in snacking behavior and snack foods, and explores business implications of the global snack society.

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