FoodMech, LLC

SARE "Beyond Fresh" Food Processing Market Opportunities

Prepared for the National Center for Appropriate Technology

Dr. Rodney B. Holcomb & Dr. Timothy J. Bowser for FoodMech, LLC
April 22, 2016

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2014-38640-22155 through the Southern Sustainable Agriculture Research and Education program under subaward number LS14-264. USDA is an equal opportunity employer and service provider.

Contents

Market Assessment: Overview

Introduction

The products identified by the NCAT Central Texas team for market assessment are varied in nature, but to some degree they all tie into the demand for organic/natural, health/probiotics, and/or locally-produced food products. The list received by FoodMech, LLC, was reviewed in a conference call on March 1, 2016 with Sue Beckwith, Dr. Tim Bowser, and Dr. Rodney Holcomb. After this conference call, the list was revised to consist of the following options, in no particular order or ranking:

- Fermented sauerkraut
- Fermented and non-fermented salsas and vegetable medleys
- Raw “living” dehydrated vegetables and snacks (including broccoli leaves)
- Dehydrated vegetable soup mix
- Freeze dried vegetables
- Relishes
- Prepared (ready-to-eat, aka RTE) meals and/or side dishes
- Vacuum fried vegetables (bulk)
- Freeze dried fruit
- Fruit jams and jellies

All of these food products are presumed to be processing options for both organic and non-organic produce, in cases where the venture may identify market opportunities for non-organic but locally branded products (including co-packing). “Local” was not defined, although it was assumed that preferential treatment for “local” branding would be given to products primarily using crops grown within an hour’s drive of the Austin/Round Rock, TX Metropolitan Statistical Area. However, this does not preclude the processing and marketing of items identified as “Texas” products, manufactured from fruits and vegetables produced within the state.

Because of the varied and rather broadly-defined categories of products and the marketing angle of the venture, this market assessment document addresses relevant trends in consumer tastes and preferences and market overviews within defined classes of food products. Consumer tastes/preferences trends will specifically focus on organic foods, “free from” food marketing, and marketing to Millennials (largest market segment for local, organic, and “free from” foods). Thus, the market assessment document is divided into the following sections:

- Organic foods
- Millennial shoppers
- Fermented and pickled/acidified products, and salsas
    - Includes some specific information on the rising popularity of specific sauerkraut and kimchi brands
    - Includes information on relishes and pickled cucumbers
    - Includes a general overview of the salsa market, not distinguished by fermented/non-fermented
- Vegetables – canned, dehydrated, freeze dried, and otherwise processed
- Fruits – dried, jams/jellies

- Prepared meals and sides (RTE)
    - Emphasis is given to "free from" and biodynamic marketing opportunities for prepared foods

Processing technologies for manufacturing and packaging the identified products/categories vary, as size/scope impacts the economic viability of different technologies. Some information on processing and packaging technologies have already been provided to participants in the SARE project. Detailed processing technology requirements and size/scale factors will be established as the project scope is narrowed, but a follow-up report in May 2016 will include the following technology overviews:

- Fermentation
- Freeze drying
- Hot-pack processing
- Acidified food processing
- Packing (glass jars, vacuum packaging, etc.)

Summary of Market Assessments

The SARE "Beyond Fresh" emphasis on local, organic, and probiotic-rich foods plays well into growing food trends related to food provenance, organic/natural, and functional foods. The Austin/Round Rock MSA provides the venture access to a core market of Millennials and Hispanics, who are currently driving the demand for local and organic/natural foods.

Growing demand for fresh fruits and vegetables – which have fueled most of the growth in small-farm horticulture production in/near Central Texas – is a two-edged sword. Even as this demand has created fresh marketing opportunities for local farmers, the increased consumption of fresh produce has negatively impacted the demand for most types of preserved fruits and vegetables. Frozen fruits and vegetables have remained strong first-alternatives to fresh produce, but canned/jarred fruits and vegetables have been the most negatively impacted categories of preserved food products. However, greater emphasis on food provenance, local distinction, and pro-health messages has been used by some brands to maintain or grow their market presence in canned/jarred foods.

Dried and fermented foods may have the greatest niche market potential, as they have grown in market presence in recent years. Dried foods are shelf-stable alternatives to fresh produce, and are perceived as healthy snacking options. Fermented foods and their probiotic potential have allowed some food marketers to offset losses in other areas of canned/jarred produce items.

Organic Foods

Organic food sales have hit a plateau, even though more retailers are expanding their sales of organic food products. One challenge facing organic food suppliers is the delivery of their message – the value of organic certification, the benefits of the foods, and any other justification for the higher food costs. Any significant growth for the category will demand organic companies to provide clear and distinct reasons to compel consumers to pay the premium typically associated with organic products. The expansive choice, competitive pricing, and convenience offered by mass retailers make them a popular choice for organic shoppers. These retailers also continue to ramp up their selection of organic foods and beverages, while increasing their commitment to becoming more sustainable. Cost can be prohibitive when it comes to buying organics, so retailers that can combine value with natural benefits will likely see continued success.

Recent studies confirm the need for organic food marketers to better explain their message. A March 2015 report by Mintel Group Ltd. stated that 40% of high-volume organic consumers buy organic foods/beverages even though they are not sure what all of the benefits are. That number jumps to 67% when including moderate-volume organic consumers (those who buy organic forms of at least 50% of their foods/beverages). Only 30% of high-volume organic consumers trust that organic-labeled foods are actually organic. The same report found 51% of respondents to a 2,000-person national survey agree that labeling something as organic is an excuse to charge more. This represents the potential for longer-term fallout for organic marketers if their marketing message isn't fully understood by consumers.

Trends: Prove It, Factory Fears, and Guiding Choice

Prove It

Consumers aren't just asking where a product was made or what additives it contains, they're also questioning whether its price tag is justified. Consumers are confused when shopping for organic foods and beverages, due to the large selection of products, confusion over natural versus organic claims, and limited regulation of the term "natural." Mintel's consumer research shows that only 29% of shoppers recognize that organic foods/beverages are highly regulated, and an even greater percentage (38%) regard organic as a marketing term with no real value or definition.

This skepticism could be leading to some degree of consumer apathy, as shoppers may not perceive any real benefits to going green. Companies will need to counter this skepticism by striving for transparency and proactively making green and sustainable practices part of their business model. Consumers likely focus on the short-term impact of purchasing a product, but brands could help shift consumers' perception to be more about a longer-term and holistic approach to a healthy lifestyle.

Factory Fear

There are a variety of reasons that consumers choose to buy green – ranging from limiting exposure to certain ingredients, perception of improved quality, or even to be seen as green by others. Furthermore, reasons for purchasing organic foods and beverages vary by age with younger consumers deeming eco-friendly products to be better quality while older consumers are more concerned about the impact products have on their health.

According to Mintel's consumer research, 39% of respondents purchase organic products because they don't contain unnecessary ingredients, with that behavior skewing toward older shoppers (59% of those aged 55+). Given that consumers have different motivations for buying organic, brands have the opportunity to influence shopping behavior based on the age of the consumer. For example, products that appeal to older shoppers may want to tout a message of health and wellness in order to resonate with their target audience.

However, products that draw a younger audience (such as organic juices or energy drinks) may want to deliver a message of quality and improved efficacy when compared to mainstream offerings. In addition, considering that young shoppers value being seen as supporters of organics, brands can tap into this desire by allowing consumers to share their purchasing behaviors via social media or by making organic shopping a more social affair. Appealing to consumers based on their life stage could help maintain trust and potentially retain shoppers as they transition through different age groups.

Guiding Choice

When it comes to consumer products, sometimes the sheer number of options can be overwhelming. That's led to a variety of tools and tactics aimed at helping consumers make more educated, and more individual, decisions. Rather than willfully narrow their selection, many brands, retailers and services opted to develop tools that gave the consumer better choices (if not fewer choices) – think Netflix and Amazon's 'if you liked this, you'll like that' functions.

More than a quarter (29%) of respondents to a Lightspeed GMI/Mintel survey agreed that it is difficult to find organic products. There is the potential for brands to launch tools (apps, particularly) that help shoppers locate these items in stores (or the stores where their products are available) or even online. Guiding Choice is all about the many options people have, and narrowing them down. Many retailers – a growing number of retailers, in fact – are adding organic options to their shelves, and they and organic brands could do more to create tools that help consumers determine where to find favorite items or organic products that they may want to try. Furthermore, these apps could provide a social media component that would allow interested consumers to quickly update their followers and friends on their latest organic finds and successes.

High-volume organic consumers (those for whom organics comprise at least 75% of their grocery purchases) are environmentally aware (36% look for products in packaging that is recyclable or sustainable) and have adopted their organic habits beyond food and drink (49% also buy other organic items, such as clothing or personal care products). Taste is not the foremost factor for these high-volume consumers: nearly a third (32%) say organic foods do not taste as good as mainstream brands; however, image plays a distinct role in their purchase decision: half (49%) indicate they like others to see that they buy organic products. High-volume organic consumers appear perfectly willing to be proponents of the organic movement and want to set an example for others to emulate; manufacturers could engage these higher-volume consumers via social media campaigns and other efforts to expand awareness of available products and benefits.

Market Penetration

Consumers may, by and large, regard organic as synonymous with unprocessed, but organic labeling is showing notable growth in categories widely associated with processed. Organic chips, pretzels, and snacks saw sales grow nearly 40% from 2012-14, and that pace continued into 2015, when sales reached nearly $66 million. A similarly strong performance in candy and individual snacks suggests that, while consumers may associate organic with healthful to one degree or another, they are also perfectly willing to expand that definition of health to include their favorite indulgences.

Table 1: Natural Supermarket Sales of Organic Foods and Beverages in Selected Categories (source: Lightspeed GMI/Mintel).

	52 weeks ending 1/27/13	**52 weeks ending 1/26/14**	**52 weeks ending 1/25/15**	**2013-15**
	$ million	**$ million**	**$ million**	**% change**
Packaged fresh produce	150.8	180.2	210.8	39.8
Refrigerated juices & functional beverages	82.0	101.4	121.7	48.4
Milk	93.1	103.8	120.5	29.4
Break and baked goods	84.4	92.1	98.6	16.8
Yogurt & kefir	61.3	66.4	82.7	35.0
Chips, pretzels & snacks	47.2	56.4	65.9	39.6
Candy & individual snacks	47.1	55.7	64.4	36.8
Soup	56.2	60.1	64.3	14.5
Shelf-stable fruits & vegetables	53.3	59.9	64.3	20.8
Tea	44.0	51.5	58.5	32.8

Sales of organic products may be on the rise, but actual consumer penetration appears to have plateaued. More major grocery and mass merchandiser chains are adding organic ranges, however, and this increased availability of organic foods and beverages should translate into an uptick in organic food usage.

Table 2: "What Types of Organic Foods are Used in Your Household?" (Lightspeed GMI/Mintel)

	July 2009 - September 2010	**July 2010 - September 2011**	**August 2011 - August 2012**	**July 2012 - September 2013**	**August 2013 - September 2014**
Base: adults aged 18+ whose household purchases organic foods	6,362	7,182	6,767	6,551	7,227

	%	%	%	%	%
Yogurt	47	46	46	46	47
Meat/ Poultry	37	37	37	38	40
Juices/ Other Drinks	32	30	31	31	29
Bread	30	32	29	28	28
Breakfast Cereal	32	33	31	29	27
Cheese	27	26	25	25	25
Any Frozen Foods	21	21	23	20	24
Pasta	20	22	20	21	22
Soups	23	21	21	21	21
Ice Cream	22	22	20	20	20

Organic Consumption by Location

Organic purchasers are largely concentrated in the West, where half of consumers purchased an organic food or beverage within the last three months prior to a December 2014 survey. Nevertheless, that indicates the potential for organics to expand their consumption levels, considering even in their most popular region, half of consumers bought no organic products at all in the last three months. In the other regions, organic consumption is even lower, suggesting a strong potential for organics to expand penetration.

Table 3: Survey Respondent Organic Purchasing Attitudes by Region (Lightspeed GMI/Mintel).

	All	**Northeast**	**Midwest**	**South**	**West**
Base: internet users aged 18+	2,002	368	429	743	462
	%	%	%	%	%
Any organic purchases	44	45	40	43	50
I purchased a food or beverage labeled as organic for myself	33	32	30	34	37
I purchased a food or beverage labeled as organic for another adult in my household	20	19	18	19	23
I purchased a food or beverage labeled as organic for a child/children under the age of 18 in my household	9	11	7	9	11
I did not purchase a food or beverage labeled as organic	56	55	60	57	50

Traditional food retailers (supermarkets, natural food stores, farmers markets) remain consumers' primary source for purchasing organic foods and beverages, particularly for non-Millennials. However, Millennials are significantly more likely to turn to organic products from mass retailers (e.g. Target, Walmart, etc.), drug stores, dollar stores, and convenience stores. As these retailers continue to bolster their organic offerings, Millennials appear clearly willing to support organic brands from nontraditional food channels, but these retailers are unlikely to convince non-Millennials to experiment with organic foods and beverages outside of traditional food retailers.

Table 4: Organic Food Purchasing Points for Shoppers (Lightspeed GMI/Mintel).

	All	**Younger Millennials (born 1987-1994)**	**Older Millennials (born 1977-1986)**	**Non-Millennials**
Base: internet users aged 18+ who purchased organic food/beverages in the past three months	889	138	285	466
	%	%	%	%
Organic purchases at traditional food retailers	85	83	80	89
Organic purchases at non-conventional food	65	72	75	57
Mass retailers (eg Target, Walmart, etc)	46	52	53	40
Warehouse/Club stores (eg Costco, Sam's Club, etc)	26	21	31	25
Drug stores (eg Walgreens, CVS, etc)	15	16	25	8
Dollar and discount stores (eg Family Dollar, Dollar General)	13	13	21	9
Convenience stores (eg 7-Eleven, Wawa, etc)	12	16	18	7
Online retailers	3	1	2	4
Other	1	0	1	1

Millennial Shoppers

Millennials represent a challenge to traditional food marketing efforts. Compared to older generations, Millennials exhibit a unique set of behaviors regarding their eating and food shopping habits. They prioritize health and freshness, have a foodie mentality at home and away, and shop for food across a variety of retail channels. Additionally, Millennials distrust large food manufacturers, citing a need for greater transparency about how foods are produced, as well as a desire for brands to communicate with them directly and authentically. It remains important for retailers and manufacturers to recognize the impact Millennial behavior has on their businesses.

Defining Millennials

While the Baby Boomer generation is specifically defined by birth years (1946-1964), other generations identified by social researchers do not have specific years as beginning/ending points and some overlaps occur in their definitions. For the purposes of this market study, generations are defined by their age in the year 2015, as follows:

- **World War II/Swing Generation**: Age 83 or older in 2015 (i.e. born in 1932 or earlier).
- **Baby Boomers**: Ages 70-82 in 2015 (i.e. born from 1946-1964).
- **Generation X**: Ages 39-50 in 2015 (i.e. born from 1965-1976).
- **Millennials**: Ages 21-38 in 2015 (i.e. born from 1977-1994).
- **iGeneration**: Ages 8-20 in 2015 (i.e. born from 1995-2007).
- **Emerging**: Younger than 8 years old in 2015 (i.e. born in 2008 or later).

In total, Millennials represent 25% of the US population in 2015, according to US Census Bureau data. This generation presently represents the largest generation and the fastest growing segment of the population, due mainly to the loss of persons in the previous generations and lower U.S. birth rates in the subsequent generations. Depending on the social research source used as a reference, the Millennial generation is made up of several smaller sub-groups. In the remainder of this report section, any reference to "younger" Millennials refers to those of ages 21-28 and "older" Millennials are those of ages 29-38.

Millennials also are more racially diverse than other generations. They are most likely to be Hispanic (21%), and one quarter is non-White. This is significantly higher than Baby Boomers who as a generation include 11% Hispanics and 19% non-Whites. Furthermore, Millennials are waiting longer to marry. The average age at first marriage was 29 for men and 27 for women in 2013, the highest ever recorded. Yet regardless of marital status, Millennial households with children represent about one third of all households with children. This is second only to Generation X which accounts for nearly one in five households with children.

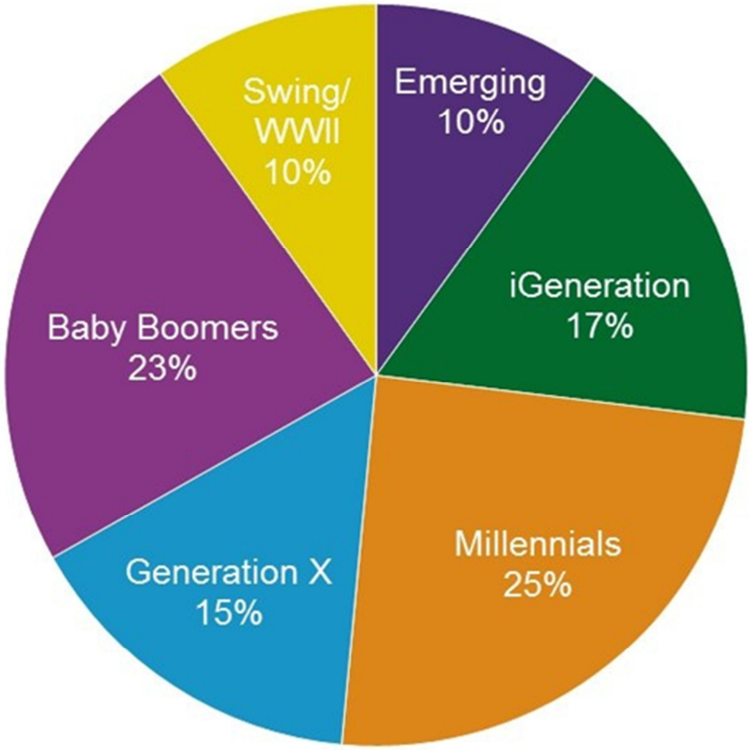

Figure 1: US Population by Generation Share, 2015. (U.S. Census Bureau, rounding errors may be present.)

Table 5: Distribution of Generations by Race and Hispanic Origin, 2015 (source US Census Bureau).

	Emerging Generation	**iGeneration**	**Millennials**	**Generation X**	**Baby Boomers**	**Swing/WWII**	**Total**
	%	%	%	%	%	%	% of total
Race:							
Asian	5.2	5.0	6.5	6.5	4.7	3.9	5.5
Black	15.1	15.0	14.6	13.2	11.6	8.7	13.2
White	71.9	73.7	74.6	77.1	81.4	85.9	77.3
Other*	7.9	6.2	4.3	3.1	2.3	1.5	4.0
Hispanic origin:							
Hispanic	25.7	23.4	20.9	18.0	10.7	7.6	17.7
Non-Hispanic	74.3	76.6	79.1	82.0	89.3	92.4	82.3

An examination of spending power between generations requires careful consideration of differences in median income between Younger and Older Millennials. Younger Millennials earn much less than the average household income of $51,939. This generation includes those still in school that may not work, or may work part-time or in low-earning jobs. In contrast, Older

Millennials earn about the same household income as the average. They likely have established their careers, and are working full- or part-time. Despite these differences, Millennials are earning less than Generation X and Younger and Older Baby Boomers.

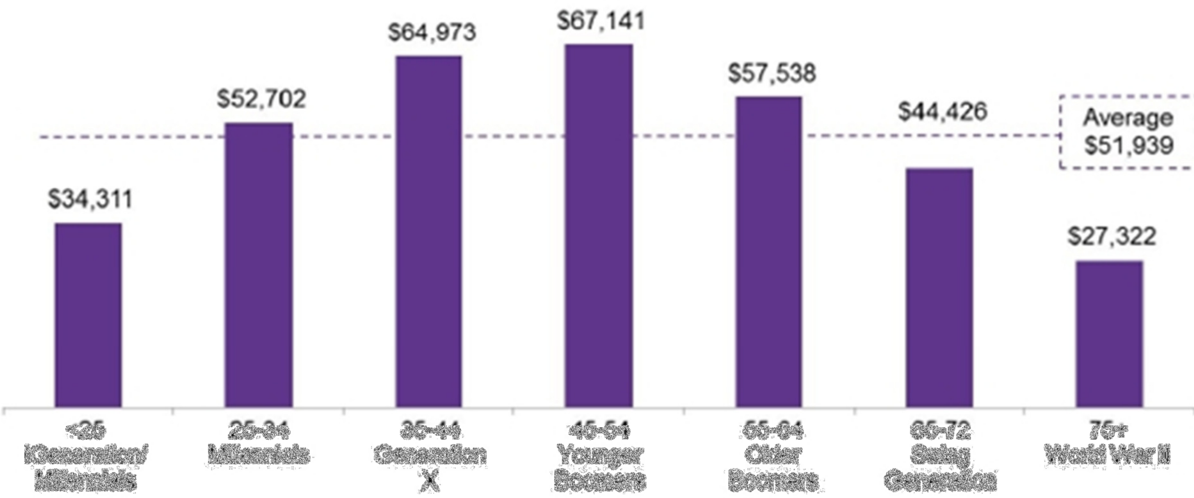

Figure 2: Median Household Income by Age/Generation, 2013 (US Census Bureau).

Millennial Food Shopping Decisions

"Trust" in the food system plays heavily into Millennials' food shopping decisions. Older Millennials are less likely to trust large food manufacturers (47%), and wish food companies were more transparent about how they manufacture their products (77%), compared to Younger Millennials (35% and 70%, respectively). According to ***Mintel Trend, Prove It***, consumers are doing their own research to educate themselves before making a purchase. This demographic is in need of more information from manufacturers about their ingredients and product manufacturing processes. Distrust of large food manufactures and a desire for greater transparency is slightly higher among Hispanic Millennials and significantly higher when compared to non-Hispanics as well. Older Millennials also are significantly more likely to agree some food companies try too hard to be genuine.

Health decisions also play into Millennials' food shopping decisions. Older Millennials also are more focused on health, compared to Younger Millennials. They are more likely to agree their generation is more focused on health, and slightly more likely to agree that it is important to avoid health problems before they occur. Health-focused messaging is thus likely to resonate more with this audience. Manufacturers of foods centered on specific diets, such as vegan or paleo, also should target their messaging toward Older Millennials who are more open to trying foods for these diets.

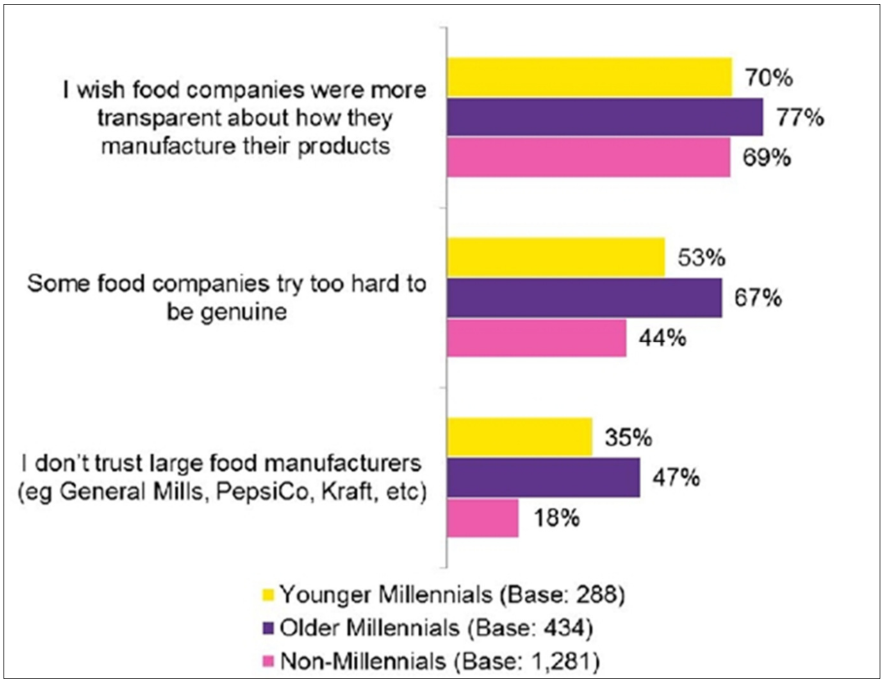

Figure 3: Attitudes Toward Food by Millennials (Mintel Group 2015).

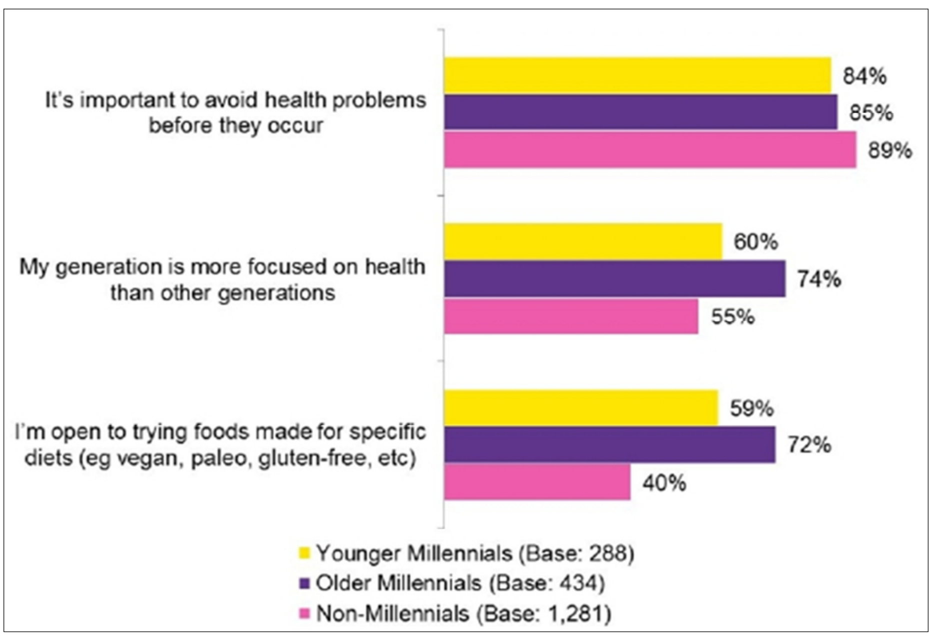

Figure 4: Millennials' Focus on Health in Food Purchasing Decisions (Mintel/Lightspeed GMI).

Challenges: Message and Market Choice

Millennials' general desires for transparent food chains and health-consciousness present opportunities for smaller, short-supply-chain food suppliers. Older Millennials are significantly more likely to only shop the fresh sections of the grocery store, including produce, meat, dairy, and deli. Millennials also are more likely to avoid buying processed foods altogether. A focus on freshness, whether in food retailing, or product messaging, is likely to resonate with Millennial audiences. Additionally, with their greater interest in foods for specific diets, an organic/natural foods processor in Central Texas can reach these audiences in the Austin MSA by catering to these various health needs.

Product availability (in-store and online) and an online marketing presence are crucial to attracting this key market segment. Millennials are highly digitally connected and tend to use the largest range of channels and devices when considering purchases. Compared to Younger Millennials and Non-Millennials, Older Millennials are significantly more likely to use their mobile devices while in a food store to assist in their shopping experiences. Nearly two thirds of Older Millennials create a shopping list on their phone, while 63% use their phone to look up food products. One option for a food manufacturer is to partner with retailers to offer mobile recipes featuring branded products.

In addition to their greater likelihood of using mobile devices in store, Older Millennials also are more likely to only shop where they have a rewards or loyalty program (57%). Knowing their greater likelihood of using mobile devices in store, retailers can reward Older Millennial shoppers with mobile coupons or offers for using a retailer app or using their devices to look up information about specific products. Mobile retailer apps include personalized offers, online coupons, and mobile shopping lists all in one.

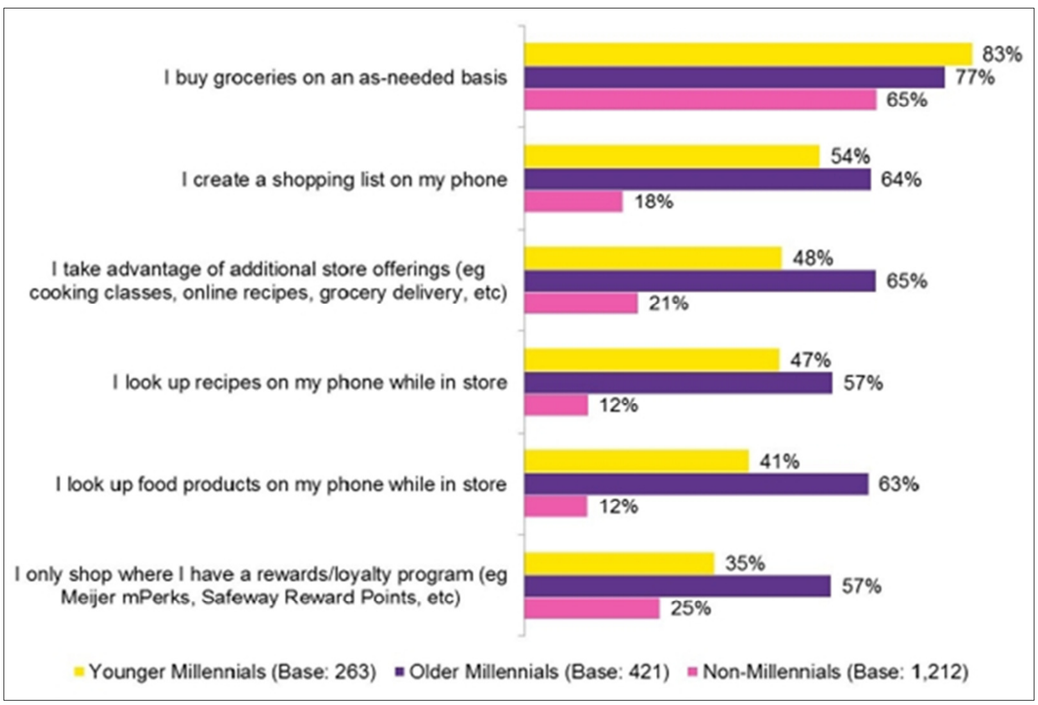

Figure 5: Agreement with Select Food Shopping Behaviors, 2015 (Lightspeed GMI/Mintel).

Key Points for Reaching Millennials

Given the market area's proximity to a large metropolitan with a high percentage of Millennials (and notably Hispanic Millennials), any marketing decisions for processed food products should be based on factors important to that generation. A condensed view of national marketing research offers the following "need to know" bullets for attracting and keeping that market segment:

- Function and convenience are important to Millennials' purchasing decisions.
- Trust in the company/brand is important, and transparency is key to building trust.
- Millennials are frequent shoppers (more trips, smaller purchases) and access many different market channels (supermarkets, farmers markets, online, etc.).
- Millennials are closely associated with the "foodies" movement.
- They value quality, locally-produced, and smaller-scale food products.

A cluster analysis of Millennials surveyed in 2015 identified three different clusters of Millennial buyers from a survey of 722 Millennials. Each cluster basically captures/represents a combination of the bullets above: Food Skeptics, Health-Conscious Independents, and Brand Loyal Eaters.

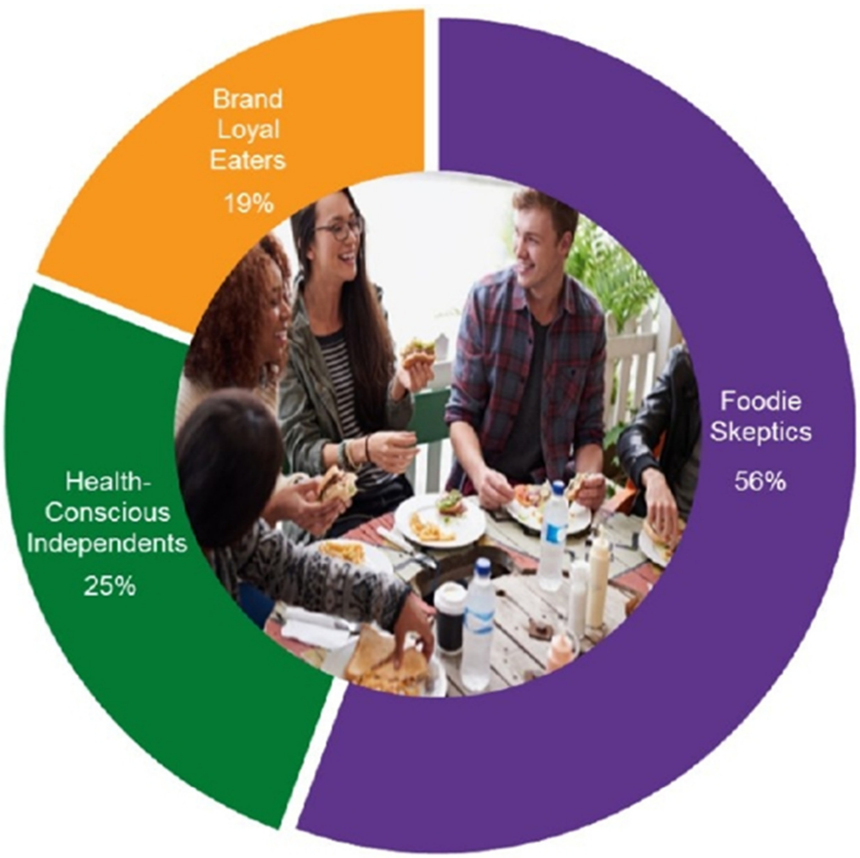

Figure 6: Cluster Analysis Results: Millennial Food Attitudes (Lightspeed GMI/Mintel 2015).

Food Skeptics

Foodie Skeptics are most likely to value food that is fun to eat, tasty, energizing, and similar to restaurant foods. They are most likely to agree traditional grocery stores are not as appealing as specialty stores, and that they primarily buy groceries online. They also are the most mobile savvy, looking up products and recipes on their phone while in store, and creating shopping lists on their phone.

Furthermore, according to survey results, Foodie Skeptics are fairly evenly split between males and females and are mostly comprised of Older Millennials. More than half earn a household income of $75,000 or more, and 62% are a parent of a child under the age of 18.

As the least trusting cluster, Foodie Skeptics are most likely to agree some food companies try too hard to be genuine. The marketing message that processors need to convey is one of fun/flavorful food that can be enjoyed by the parents and the children. Also, to build trust with these consumers a processor needs to offer information via mobile channels, in addition to more "traditional" marketing mix efforts.

Health-Conscious Independents

Health-Conscious Independents value food that is fresh, nutritious and affordable. They also are most likely to agree that it is important to avoid health problems before they occur. According to survey results, this cluster of consumers skews female and includes an even split of Younger and Older Millennials. Nearly half in this segment earn less than $50K annually, while more than one quarter is Black.

Although Health-Conscious Independents value affordability, this should not come at the expense of good taste and nutrition. Affordable, nutritious foods would especially appeal to this demographic, especially if paired with messaging promoting preventive health. The fermented products suggested for the SARE "Beyond Fresh" venture would fit the message desired by this group of Millennial consumers.

Brand Loyal Eaters

Brand Loyal Eaters are more likely to say a familiar brand would influence them to purchase a retail food product, and they prefer to shop for food where they have a rewards or loyalty program. When it comes to buying food, these consumers value high quality ingredients and food that is fresh and nutritious. Just more than half of Brand Loyal Eaters are female, while 60% are Older Millennials. Nearly three quarters earn $50,000 or more annually and one in five has three children or more children living in their household.

A marketing message targeted at this group should include items that will attract their attention – such as the Texas flag. Brand Loyal Eaters are loyal not only to the food brands they purchase, but also the retail channels where they shop. Because they value fresh, high quality foods, retailers and manufacturers looking to gain this group's loyalty should emphasize their perimeter of the store offerings, including fresh dairy, deli, and produce, for example. Additionally, offering rewards for purchasing fresh foods can turn new patrons into repeat customers for retailers.

Fermented and Pickled/Acidified Foods, and Salsa

Overview and Disclaimers

Fermented foods and pickled/acidified foods are not distinguished from processed or canned/jarred vegetables in almost all market research literature. Similarly, salsa is most often included in market reports with chips and dips. The following section pulls relevant information from a variety of sources to address the market demand for these products. However, detailed market assessments for specific types and flavor profiles of fermented, acidified, and/or salsa-style foods will require hands-on market testing of products once recipes and packaging/labeling decisions have been made.

Fermented and Pickled/Acidified Foods

Fermented foods, such as old-fashioned pickles, sauerkraut, and kimchi, have seen resurgence in recent years due to the increased emphasis on probiotics (i.e. helpful bacteria) for health. Similarly, non-fermented but pickled (vinegar-added) products have seen growth due to their appeal to "real food" or "whole food" consumers – even if vinegar-added pickling is not a traditional fermented pickling form of processing. These and many other acidified vegetables are included in the condiments market category, primarily because all types of pickles are listed as condiments but also to distinguish this class of products from other canned/jarred vegetable products.

Natural foods stores have been a growth area for fermented and pickled products. From 2013-2015, all segments of condiments experienced sales growth, especially sales of refrigerated condiments (not including sales through Whole Foods Market). Pickled vegetable sales grew 32% from 2013-15, reaching $29.9 million in 2015. Other retail channels should consider merchandising pickled and refrigerated products to appeal to consumer interests in local fresh products out-of-season, which could help boost overall sales.

Table 6: Natural Supermarket Sales of Pickled Vegetables, 2013-2015 (IRI).

	2013 ($M)	Market share %	2015 ($M)	Market share %	2013-2015 % change	Share change
Pickles, peppers, olives and other vegetables	22.7	20.1	29.9	20.7	31.9	0.6

The pickles, olives, relishes segment was one of a few segments to experience slight growth during the 2013-15 review period. Much of this growth was driven by success of several pickle and olive brands, plus new varieties of relishes with seasonal and/or international flavor profiles. The segment likely benefits from positive "whole food" or "real food" perceptions.

Further, positive health benefits associated with fermented foods and their probiotic properties found in this segment may be contributing to growth.

Of the leading products in this category, Kraft's Claussen brand experienced 6% growth, reaching sales of $172.9 million in 2015. Segment leader, Pinnacle Foods, increased sales of its Vlasic brand 3% from 2014-15, reaching $318.2 million. Vlasic also features a Farmer's Garden product line of pickles made with cucumbers harvested at the peak of freshness, as well as no artificial flavors.

Fermented Foods as Gourmet Foods

Importantly, the demand for pickled products has moved beyond just cucumbers. Brands are pickling a variety of vegetables and greens, from kale and tomatoes to the more traditional cabbage. Consumer interest in digestive health appears to be increasing, as does the appearance of related product claims on pickled items. According to a September 2015 ***Supermarket News*** article, fermented foods are popping up across specialty retailers and supermarkets are beginning to see this growth, based off "associated probiotic properties said to aid in digestion and potentially battle conditions like diabetes." Examples of products identified in that report were:

- Grillo's Kale Original Garlic Pickled & Ready to Eat Kale. The raw and vegan product is all natural, said to be a nutrient-dense food, contains vitamins A and C, five calories and is free from fat and gluten. It retails in a 32-fl.oz. re-closable pack.
- Grillo's Pickled Pre-Sliced Green Tomatoes are all natural, and made fresh from a family recipe. The premium product retails in a 16-fl. oz. pack.
- Saverne Bavarian Raw Natural Kraut naturally ferments in the package and the valve allows the natural by-products of lacto-fermentation to escape, while keeping contents sealed and fresh. It contains naturally raw probiotic, which is necessary to maintain good digestive health. The all natural product is kosher certified, GMO-free, a good source of vitamin C, gluten free, ready to eat, can be served hot or cold and retails in a 16-oz. resealable pack.
- Hat Creek Pickle Company Texas Style Sauerkraut is produced using lacto fermentation which transforms the vegetables into probiotic powerhouses and increases the quantity, availability, digestibility, and assimilation of nutrients. It is made in partnership with Strange Land Brewery and in small batches with locally sourced cabbage. The product is rich in enzymes, contains no artificial preservatives, gluten, milk or high fructose corn syrup and retails in a 16-fl. oz. pack.
- Wildbrine Korean Kimchi is artisan kimchi with all the health benefits of probiotic rich, fermented foods. This product contains no gluten or GMO, and retails in an 18-oz. pack. The manufacturer supports the Ceres Community Project.

Salsas

Sales of salsas and dips continue to grow, and more than half of their sales are generated outside of a "traditional" supermarket. Sales and dips have performed especially well in natural retail channels (excluding private label items or sales through Whole Foods), with sales of salsas experiencing the strongest relative growth from 2013-15. These products already benefit from featuring more natural ingredients, such as tomatoes, peppers, and spices. The segment is mostly driven by sales of shelf-stable salsas, although refrigerated salsas represent a sizeable portion of natural channel sales.

Table 7: Salsas and Dips, Natural Supermarket Sales, 2013-2015 (SPINS/Mintel, excludes Whole Foods).

	52 wks ending 10/6/13	Market share	52 wks ending 10/4/15	Market share	Sales change 2013-2015	Share change
	$ million	%	$ million	%	%	%
Dips	41.0	26.1	48.6	25.5	18.5	-0.6
Salsas	22.8	14.5	28.1	14.8	23.1	0.2

While the majority of chips, salsa, and dips sold in natural channels do not contain organic ingredients, there has been growth in organic products sold in these channels. There are three types of products that may be sold in natural channels: organic products, products with organic ingredients and non-organic products. Organic products are defined as those with 70% or more organic ingredients.

According to SPINS data, sales of organic chips, salsa, and dips grew 33% from 2013-15. Products with organic ingredients are defined as products with 1-69% organic ingredients. Sales of products with organic ingredients increased 12%. Non-organic sales also increased 16% during the same time period.

Aside from having a lack of artificial ingredients, health-focused claims – including organic – are of less importance to consumers. Only 20% of consumers indicate organic is an important claim when purchasing chips and dips. According to ***Mintel's Organic Food and Beverage Shoppers – US, March 2015*** report, the main reason consumers purchase organics is because they believe them to be healthier. The chips and dips categories are driven by taste and indulgence, rather than health, which may explain why consumer interest in organic products is so low. Nonetheless, organic product sales continue to perform well in natural channels, where more of these products are likely to be found, compared to traditional retail channels.

What's Working for Salsas

Flavor is a key driver for purchases of salsas and dips, especially as a majority of consumers agree it is okay to indulge from time to time. In a survey of 2,001 adults in November 2015, Lightspeed GMI found that half of consumers agree taste is more important than health when buying chips, salsas, and dips. Offering new and seasonal flavors is a good approach for appealing to consumer interest in flavors. Those who purchase salsas and dips are open to trying new flavors, and are especially motivated by innovative flavors, as well as those they've tried in a restaurant.

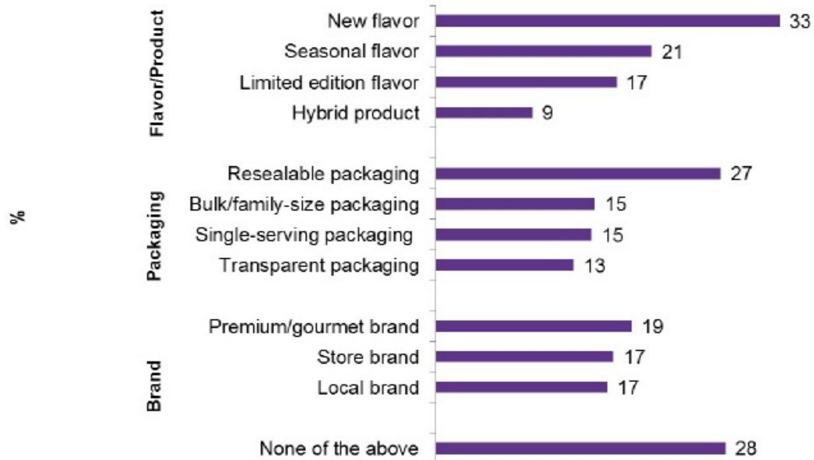

Figure 7: Factors Influencing Salsa/Dip Purchases, November 2015 (Lightspeed GMI/Mintel).

About one in five consumers indicate premium or gourmet brands would influence them to purchase more salsas and dips. With nearly half of consumers noting brand is more important than price, there is opportunity for premium brands to appeal to these consumers who may be willing to pay more for higher quality items. Although consumers have positive perceptions of store brands, name brands dominate in both salsas and dips, creating opportunity to build strong brand loyalty.

PepsiCo brands, including Tostitos salsas, represent roughly 58% of all chip/dip/salsa sales in multiple outlet retail markets. In 2014, sales in this category were almost $7 billion for the PepsiCo family of products. As the parent company of leading brands (e.g., Frito-Lay brands, Doritos, Lay's, Tostitos), the company's strategy has been to continually roll out new flavors in chips, dips, and salsas. Tostitos is the largest seller in the salsa segment.

Campbell Soup Co.'s Pace salsas follow Tostitos, with an 11% market share that grew 3.4% since 2012. Pace offers a specialty Restaurant Style series, as consumers seek products they try when eating out. Flavors include Garlic & Lime Verde and Pacific Fire Mango & Habanero.

Table 8: Multiple Outlet Sales of Leading Salsas, 2013-14 (IRI).

Company	**Brand**	**2013** ($M)	**Market share** %	**2014** ($M)	**Market share** %	**Sales change 2013-14**	**Share change** %
Total		**1,094.9**	**100.0**	**1,113.2**	**100.0**	**1.7**	**-**
PepsiCo Inc.	Tostitos	455.1	41.6	471.7	42.4	3.7	0.8
	Total	**455.1**	**41.6**	**471.7**	**42.4**	**3.7**	**0.8**

Campbell Soup Co.	Pace	115.2	10.5	119.1	10.7	3.4	0.2
	Total	**115.2**	**10.5**	**119.1**	**10.7**	**3.4**	**0.2**
Hormel Foods	Herdez	44.4	4.1	48.2	4.3	8.7	0.3
	Chi Chis	42.1	3.8	41.6	3.7	-1.2	-0.1
	La Victoria	22.0	2.0	20.0	1.8	-9.2	-0.2
	Others	1.5	0.1	0.9	0.1	-40.9	-0.1
	Total	**109.9**	**10.0**	**110.7**	**9.9**	**0.7**	**-0.1**
Truco Enterprises	On The Border	28.7	2.6	35.3	3.2	22.8	0.5
	Total	**28.7**	**2.6**	**35.3**	**3.2**	**22.8**	**0.5**
Private label		**171.5**	**15.7**	**160.9**	**14.5**	**-6.2**	**-1.2**
Other		**214.4**	**19.6**	**215.5**	**19.4**	**0.5**	**-0.2**

Vegetables: Canned, Dried, and Otherwise Processed

The vegetable industry has seen significant growth in recent years, partly because of increased emphasis on the importance of healthy dieting but also because of the increased emphasis on locally-grown fruit/vegetable consumption. The market has been clearly delineated and shows just how successful the fresh food movement has become, as fresh vegetable segments combined to grow 20.1% during 2010-15. However, the growth in fresh vegetable consumption has occurred at the expense of the non-fresh segments, e.g. canned, dehydrated, freeze dried, and otherwise processed.

Compared to fresh vegetables, non-fresh vegetables certainly haven't pulled their weight, barely growing at a tenth of the pace. Over the next five years, food industry experts expect more of the same, led by significant growth with fresh-cut salads and declines with shelf-stable vegetables. This represents a challenge for an Central Texas-based vegetable processing operation, and further emphasizing the need to focus on products that have recognizable public appeal, emphasis freshness and/or nutritional benefits, and can draw upon the demand for locally-produced food items.

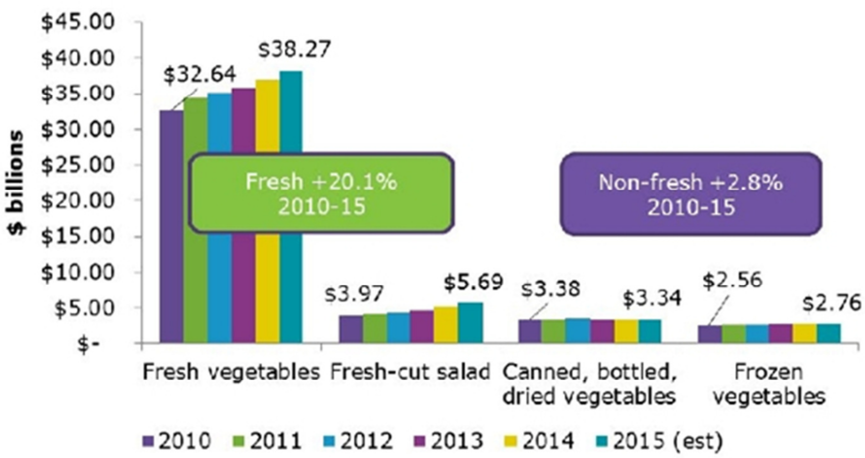

Figure 8: Total and Estimated US Sales of Vegetables, by Segment, 2010-2015 (Sources: IRI, Bureau of Economic Analysis, Bureau of Labor Statistics).

Marketing and Position Issues for Processed Vegetable Products

Successful marketing of processed vegetable products requires attention to the issues impacting consumer purchasing decisions. Consumers need reminding to combat any negative associations they have with fresh and non-fresh vegetables. Surprisingly, most vegetable companies aren't effectively addressing these issues with their label claims and marketing. With fresh vegetables, for example, storage life and spoilage are the biggest concerns. Packaging innovation has improved over the years to extend life, but labels are still largely devoid of tips or guarantees to assuage concerns.

At the other end of the spectrum, consumers think that non-fresh vegetables are too processed and/or have inferior taste relative to their fresh counterparts. Yet, today's frozen and canned/jarred vegetable labels often tout basic nutritional facts but otherwise too often stick to the basics without any marketing to reassure consumers. For the proposed Central Texas facility, one key to successful market penetration is to reassure consumers with nutritional information as part of a marketing campaign that also addresses local production, state pride, and shelf life.

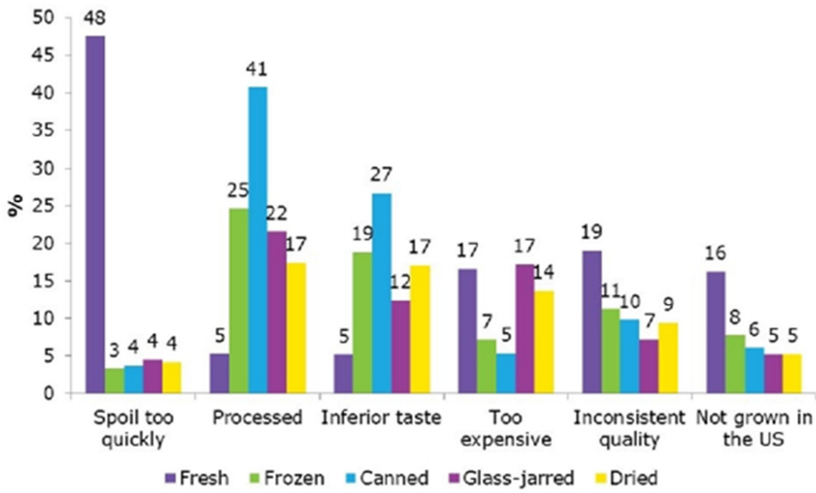

Figure 9: Negative Characteristics Associated with Vegetable Products, March 2015 (Source: Lightspeed GMI/Mintel survey).

Consumers are attuned to nutrition and health when thinking about vegetables. While most certainly understand that vegetables are a great nutritional source, many buyers responding to the survey questions say they want to know more about the nutritional differences between fresh, frozen, and canned/jarred products – though more than a third believe these products are all about the same, nutritionally speaking.

Buyers are divided as far as health claims driving purchases, though many say they eat vegetables to avoid chronic disease. Food safety is also a factor for many vegetable buyers, whether farm sanitation, pathogen concerns in pre-cut produce, or allergen labeling in processed foods. Even statements assuring the absence of GMOs, although largely misunderstood by consumers in general, are considered measures of "food safety" by many consumers. The following figure shows attitudes of 1,860 internet users ages 18+ from March 2015.

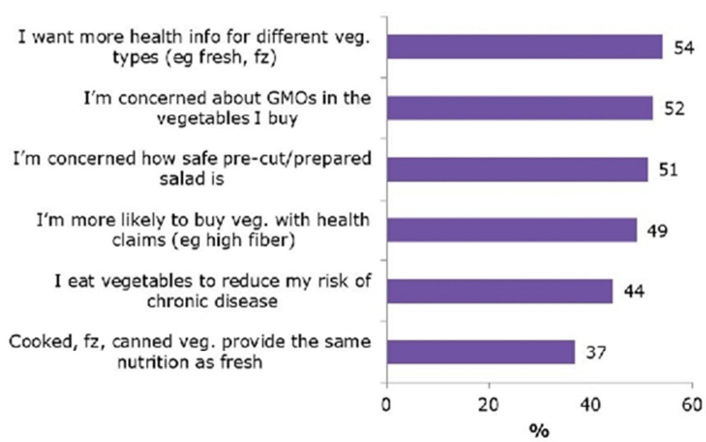

Figure 10: Safety and Nutrition Attitudes towards Vegetables, March 2015 (Lightspeed GMI/Mintel).

While fresh vegetable segments are growing well and generally far more appealing to consumers, they aren't always convenient to eat and can induce stress in households, with spoilage an ever-present concern. Innovation has stepped in to meet some consumer demands with fresh-cut and prepared offerings meant for immediate usage, and today uber-convenient and portable fresh-cut salads represent the fastest-growing segment.

But for convenience, non-fresh segments are quintessential, as buyers – especially those who aren't the core vegetable buyers, i.e. men and Millennials – appreciate the fact that these products are convenient, available year round, mean less prep time, and are in some cases portable. While frozen brand marketers have exploited convenience well, the shelf-stable canned/jarred vegetable segment is lackluster and in need of a reboot. The perception of convenience is likely there already but marketers must sell this feature. Packaging innovation (eg aseptic, glass) and fresh-chilled recreations of shelf-stable offerings may be the best bet to giving consumers a fresh way of looking at these products.

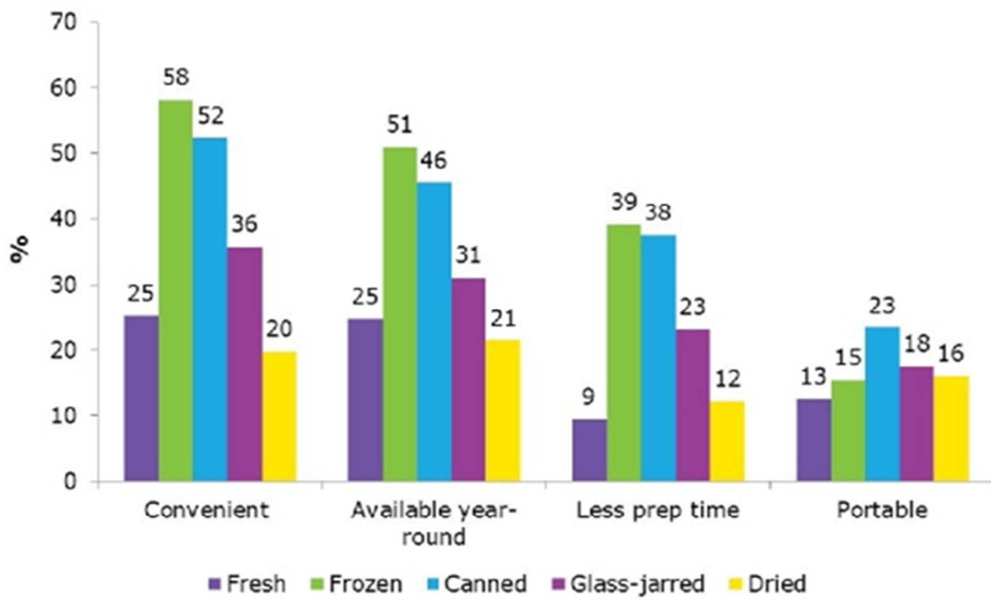

Figure 11: Favorable Characteristics of Vegetables, by Type, March 2015 (Lightspeed GMI/Mintel).

Labeling and marketing must tell the business' whole story. This statement cannot be over-emphasized, as consumers are very interested in vegetable provenance, preparation ideas, recipes, nutrition, and food safety assurance. Marketing all of this information on product labels and websites is critical to retaining core vegetable consumers, since they're curious and regularly seek out a broad variety of vegetables and retailers where they can buy them. When shoppers are deciding which brand to buy, price/value may mean the most, but the company/brand story should be a key retention strategy.

While there's ample evidence to support the importance of marketing to Millennials right now, vegetable companies must spend as much time and money (or more) on mature consumers. Baby Boomers are core to this market, not only because they control more than half of all food dollars spent on food but also because they are among the most likely of any generation to buy vegetables. As shown in the following figure, Baby Boomers rank high in survey results with their favorable attitudes and behaviors toward this market – especially for jarred, dried/dehydrated, and pre-cooked/packaged vegetables.

With the US population collectively aging, it's not a given that behavior and attitudes with Boomers will pass down to the Gen-Xers. But these generations share much commonality as it relates to staying fit and active. For these reasons the extremely healthy halo associated with the vegetable market should mean the market will benefit as Gen-Xrs mature into their late 50s and beyond.

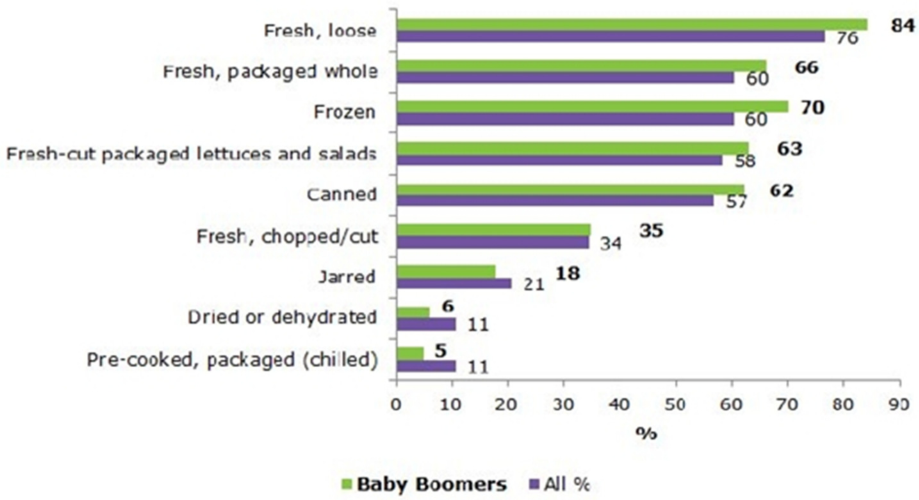

Figure 12: Vegetable Purchases by Type, Boomers vs. Total, March 2015 (Lightspeed GMI/Mintel).

While fresh, loose vegetables contribute the majority of vegetable sales, convenient offerings represent the most exciting and diversified innovations. It is difficult to identify the products with the most potential as the future growth drivers of this market, so a food processor with flexibility in processing options can alter production to match future demand. Unlike many food categories where Millennials represent the core generation of focus, vegetables are most often appealing to the mature consumer. But to retain younger consumers, marketers must seek to develop the whole story behind the brand, going the route of non-GMO and/or organic with at least some of their offerings.

Fruits: Dried, Jams/Jellies

As with vegetables, the overall fruit market has increased primarily on the strength of fresh fruit sales. From 2010-2015, fresh fruit sales have increased by almost 25%. The $1 billion frozen fruit segment may be the smallest overall segment of the fruit industry, but it jumped more than 27% since 2013, and has experienced an average of 14.7% growth annually from 2011-15.

Conversely, over the same time period shelf-stable fruit products have <u>declined</u> by almost 8%. Only dried fruit managed to maintain a relatively constant market from 2010-2015, but actually that was only due to price inflation. Canned/jarred fruit products – especially jams and jellies – have been especially challenged during this time period, as greater emphasis on health and lower sugar consumption has resulted in demand contraction.

Overall, dried fruit may be an opportunity for an Central Texas processor. Canned/jarred fruit products may represent a marketable product opportunity, but only if the nature of the products (e.g. organic fruit) and the emphasis on production location are strong enough to carry the marketing message.

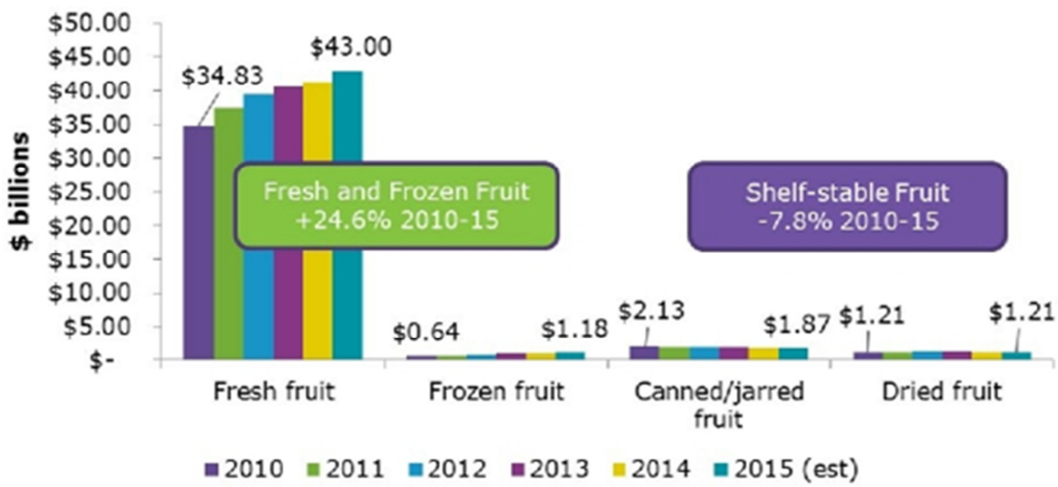

Figure 13: Total US Retail Sales of Fruit, by Segment, 2010-2015 (IRI, BEA, BLS, Mintel).

Looking ahead, leading market research suggests that the fruit market will grow to $56.12 billion by 2020. This is a growth of 19% during 2015-20, but more likely just a 7% growth when adjusting for expected inflation over that time period. Fresh and frozen fruit segments will continue to perform well, thanks to generally favorable consumer perception, but canned/jarred and dried fruit segments will each be challenged within and outside of the overall fruit market.

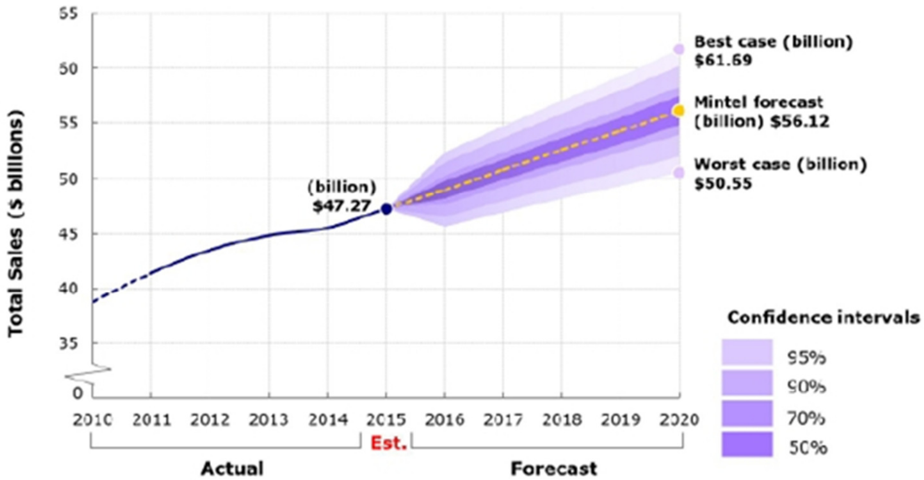

Figure 14: US Sales and Fan Chart Forecasts for Fruit (current prices), 2010-2020. (IRI, BEA, BLS, Mintel)

Snack Opportunities: Fresh Fruit vs. Shelf-Stable Fruit

While fresh fruit owns the lion's share of sales in this market, today's most time-strapped consumers – Millennials and especially parents – are much more likely than others to indicate an affinity (or at least less of a dislike) for non-fresh fruit, from frozen to various shelf-stable options.

Currently, they crave less-processed canned/frozen fruit, though they already see these options as just as nutritious as fresh. Ingredient simplicity is a critical trend for the shelf-stable sector. In particular, it should aggressively adapt to remain relevant not only versus fresh fruit offerings, but also to appeal to the needs of these key demographics. While parents and Millennials clearly enjoy the convenience and taste of non-fresh fruit options, marketers must act urgently here to innovate with lower sugar, all-natural (or organic), minimally processed products targeted to these demographics who are already very actively consuming fruit in various forms (snack bars, yogurt, drinks) outside of the core fruit market.

A June 2015 survey by Lightspeed GMI of 1,916 responding adults shows that Millennials and parents were more inclined – relative to all respondents – to purchase non-fresh fruit offerings. The following figure presents the results of that survey. It should be noted that respondents were informed that "jarred fruit" and "canned fruit" did not include pie mixes, pumpkin filling, apple sauce, and jams.

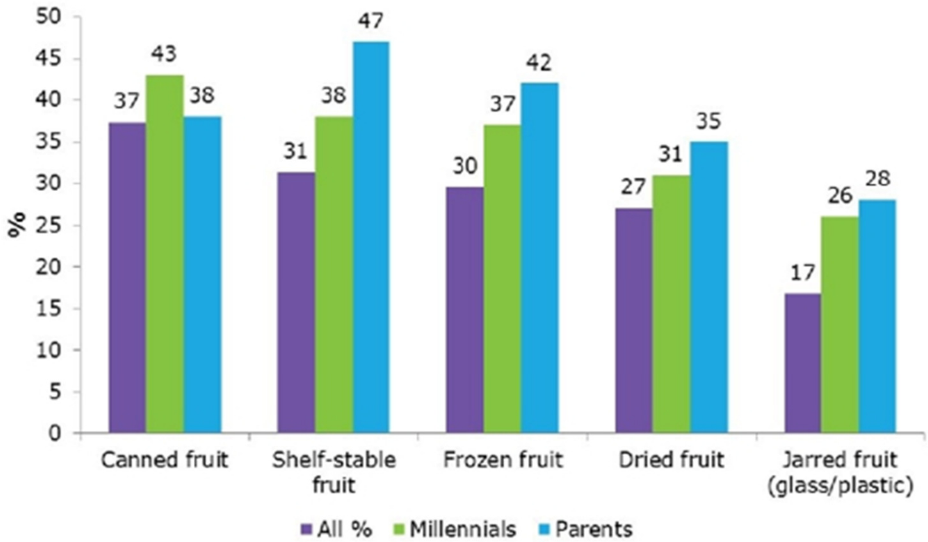

Figure 15: Fruit Purchases - Millennials, Parents and All Consumers, June 2015 (Lightspeed GMI/Mintel).

In general, fruit products can seem hard to differentiate as a brand because of its commodity-like presence. However, ailing shelf-stable fruit brand marketers are increasingly specializing in innovations that call out US regions or foreign countries. Such labeling, which can assuage consumer concerns over safety, is particularly effective when used also as a marketing/selling term, elevating a brand out of its otherwise commoditized position. Two thirds of fruit buyers agree that when buying fruit, it's important to know where it is grown (e.g., country, region, state). Across all demographics, parents are far more likely than nonparents to say that this matters to them.

Figure 16: Agreement with: "When buying fruit products, it's important to know where it is grown (e.g. country, region, state)." (Lightspeed GMI, June 2015)

In summary, the fruit market's solid performance since 2010 and broad demographic appeal will serve to offset some of the challenges ahead. Fresh fruit's growth trajectory may be harmed at times by environmental issues that cause shortages and price hikes. For shelf-stable options, negative perceptions related to processing concerns, added sugar, and prices won't be easy for companies to shake. Additionally, the flurry of fruit-based innovation in snacks and drinks will continue to steal usage occasions from the core fruit market, particularly with time-starved, convenience-driven Millennials and parents.

Prepared Meals and Sides

The Rise of "Free-From" and Biodynamic Foods

Whether free of GMOs, gluten, fat, or artificial ingredients, prepared meal launches continue to leverage the notion that less is more, and consumers would appear to agree: nearly six in 10 consumers (59%) agree that the fewer ingredients a product has, the healthier it is. That being said, free-from foods suppliers are introducing an increasing array of further-processed options to cater to consumer interest in a variety of cuisines and healthier ingredients.

Sustainability and organic have long been key drivers for consumers, particularly in the natural foods sector, but recent launches have attempted to take such notions a step further and leverage the "biodynamic" label. Biodynamic is organic farming employing a holistic approach to agriculture, treating soil fertility, plant growth, and livestock care as ecologically interrelated, while eschewing the use of artificial chemicals in favor of manures and composts. While critics and scientists question the actual merits of some biodynamic beliefs, the biodynamic claim is emerging, particularly among brands in the natural market, notably Amy's Kitchen and Lundberg Family Farms, whose products also capitalize on the more-established consumer interest in GMO-free and organic claims.

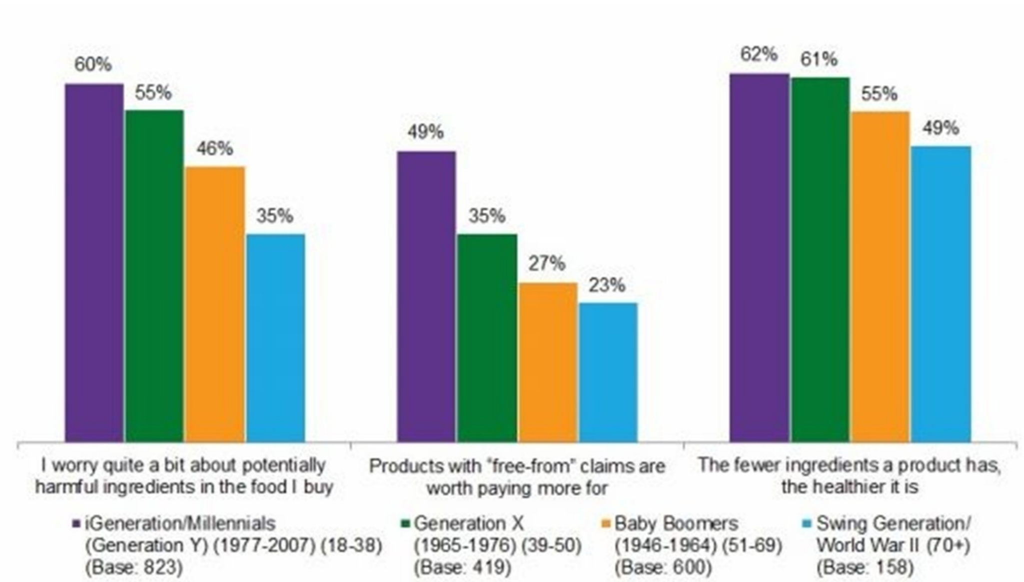

Figure 17: Generational Opinions of Free-From Prepared Food Claims, February 2015 (Lightspeed GMI/Mintel).

According to a February 2015 Mintel survey, health issues appear to be top of mind among consumers when seeking products bearing a free-from claim: products with reduced or no levels of sodium typically target consumers seeking to improve their heart health. Even products with "fat-free" claims, which have been around for over 30 years, still have a strong following among consumers. The federally-mandated labeling of trans-fats a few years ago has increased demand for trans-fat-free products.

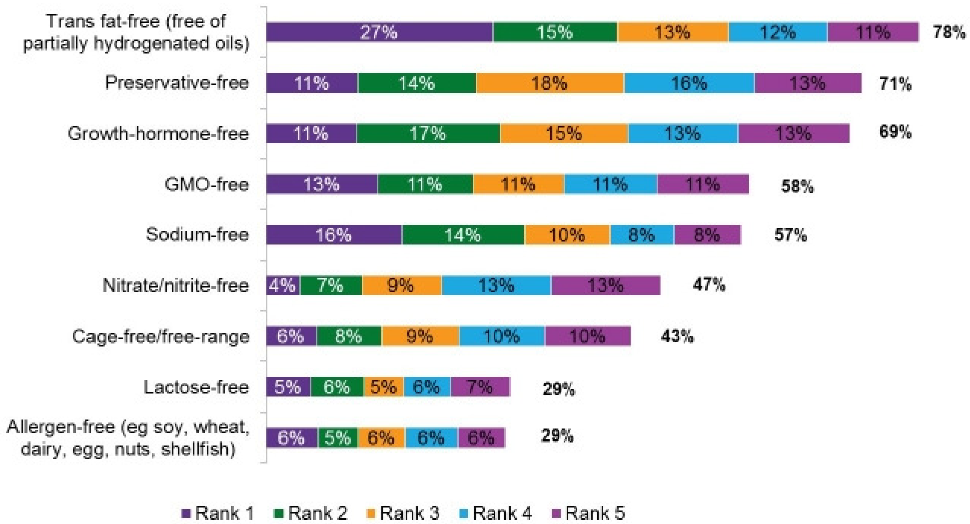

Figure 18: Stated Importance of Free-From Claims, February 2015 (Lightspeed GMI/Mintel).

"Artificial-free" has become a major selling point in prepared foods. The antibiotic-free claim has yet to make a strong impact on consumers, as just more than a third indicates they would like to see the claim on more food products. However, it is one of the few free-from claims (along with MSG-free) that rises in significance among older generations. In the case of each, the interest in a cleaner label – also evidenced in the widespread interest in products free of artificial sweeteners – appears to be compelling consumers.

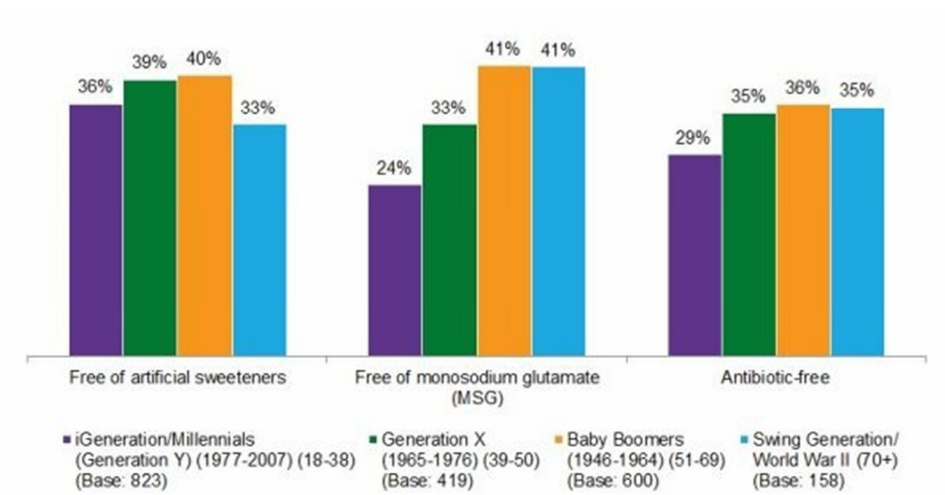

Figure 19: Claims Consumers would Like to See More, by Generation, February 2015 (Lightspeed GMI/Mintel).

Brands Reformulating to Meet Free-From Demand

National brands have started to address the demand for free-from prepared foods. As an example, Kraft Foods removed artificial preservatives and colors from its namesake Mac & Cheese, opting instead for a more natural approach using paprika, annatto, and turmeric. The reformulation follows on the company's Kraft Mac & Cheese Boxed Shapes, which boast no artificial flavors, preservatives or synthetic colors. Nestlé and Hershey have likewise announced moves away from artificial flavors and ingredients in their candy products.

In April 2015, Chipotle Mexican Grill Inc. finished removing GMO foods from its ingredients, the first major restaurant chain to do so, so far. The GMO-elimination effort took the company more than two years. The Non-GMO Project, an independent organization that verifies products as "Non-GMO" if they contain less than 1% genetic modification, reports verified products tallied \$8.5 billion in sales in 2014, a dramatic increase over the \$3 billion reported in 2013.

Even regional food stores have incorporated free-from foods in their private label offerings. For example, H-E-B Organics Pretzel Sticks do not contain GMOs, fat, cholesterol, artificial colors or flavors, or preservatives. The pretzel sticks are said to be crunchy by nature and individually baked to perfection right in the heart of pretzel country, Pennsylvania. They are made using a short list of simple ingredients and contain 0g trans-fat. The manufacturer uses sustainable soil management methods and are grown using only organic compliant products. The product is also kosher-certified.

By product category, free-from claims vary in significance. The following figures show the breakdown of new product introductions in 2014 by food category and the trends in 2010-2014 new product introductions, respectively.

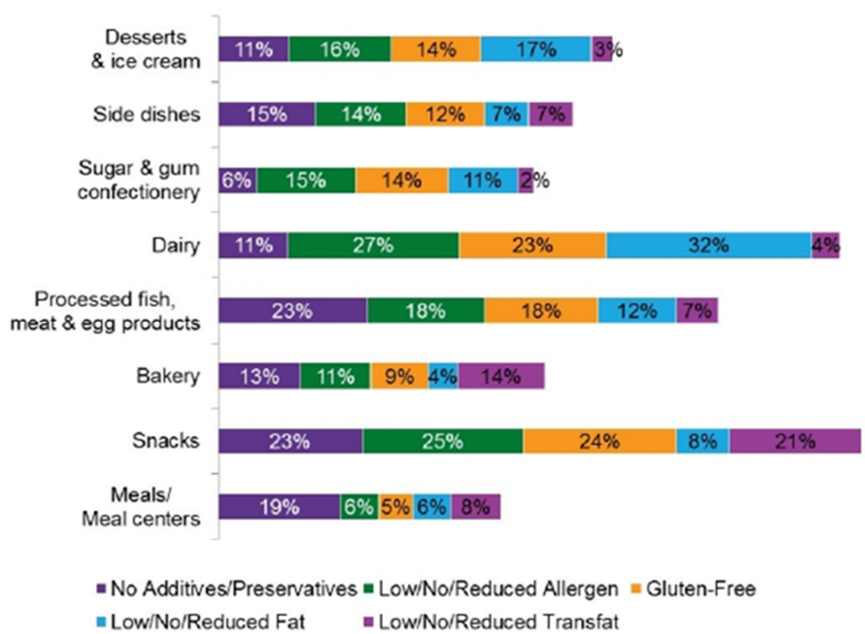

Figure 20: New Free-From Food Product Introductions, 2014 (Mintel).

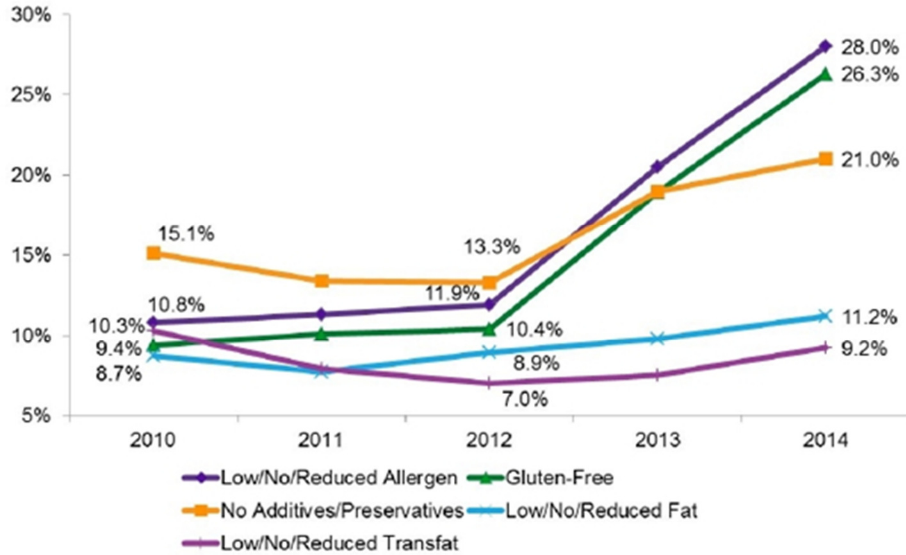

Figure 21: Food Launches by Claim, 2010-2014.

In summary, a Central Texas food processor with organic certification can easily address the "free-from" expectations of consumers. Care must be taken to understand the desires of the market and the most common types of free-from product introductions. Still, when combined with food provenance and biodynamic claims, the result may be unique market potential for the company.