

STUDIES REGARDING MARKET TRENDS GLUTEN-FREE ORGANIC PRODUCTS

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Abstract

A gluten-free lifestyle has become one of the most popular diet trends. For this reason, consumers, food manufactory and healthcare professionals are being influenced by the growing popularity of the gluten-free diet. Next-generation food manufacturers have understood the scale of the problems related to gluten intolerance and especially the potential of the market for organic gluten-free products. This translates into creating a new market with potential, that of green gluten-free products. Interest in this type of food is constantly growing, due to its health benefits, nutritional and sensory characteristics, as well as the demand for quality food produced in a sustainable way. The paper presents the impact that the new trend has on the bakery industry and on the health of the final consumer.

Key words: bakery, food, gluten free.

INTRODUCTION

Celiac disease is known as an autoimmune condition and inflammatory disease triggered by the presence of gluten in the upper small intestine (Jingwen et al., 2020), which untreated or incorrectly treated can have important health consequences such as osteoporosis, infertility, repeated miscarriages, anemia through iron deficiency and certain forms of cancer. Symptoms in people with celiac disease include malnutrition, diarrhea, stunted growth, anemia, and fatigue (Jingwen et al., 2020). Food allergy is a costly, potentially life-threatening condition (Gupta et al., 2019) if a gluten-free diet and healthy lifestyle are not strictly followed. According to the non-profit organization Beyond Celiac, 1 in 133 people are affected by celiac disease, 83% of patients being undiagnosed or misdiagnosed (Bolst Global.org). On the opposite end of the spectrum are those who suffer from intolerance to gluten. In this case, symptoms similar to celiac disease are observed, but without the autoimmune damage to the small intestine.

The reported prevalence of celiac disease worldwide is continuously increasing, partly attributed to the development of clinical test detection techniques and improved diagnostic capacity, mainly in Australia, Europe and North

America (Singh et al., 2018; Lebowitz et al., 2015). A meta-analysis found that the global incidence of celiac disease is increasing "significantly". Singh et al., 2018 noted that "a real increase in the incidence of celiac disease is occurring beyond diagnostic improvements, most likely due to environmental factors". It also found that the global prevalence of celiac disease would be 1.4% (Singh et al., 2018). Celiac disease is a condition that affects people of all races, sexes and ages.

Unlike people who have other autoimmune diseases, such as type 1 diabetes, rheumatoid arthritis or multiple sclerosis, patients with celiac disease are lucky enough to know what caused their body to react against itself: *gluten*. There are no medical or surgical treatments for celiac disease; it can only be controlled by a strict, lifelong gluten-free diet.

The food industry is evolving at a fast pace, driven by a constant change in eating habits and consumer preferences. In recent years, there has been a growing trend in demand and consumption for gluten-free products. This is due to the increase in the number of people with metabolic problems, the awareness of the various benefits brought to health, so that in the panoply of customers we find gluten-intolerant consumers and gluten-tolerant consumers who adopt a healthy lifestyle.

Gluten-free products have a wide range of advantages: they help prevent and treat health problems; they are extremely useful for people suffering from diabetes, autoimmune problems and digestive disorders. Moreover, these foods can be low in fat and are therefore recommended for people who want to lose weight or reduce their fat intake. Food is essential to personal health, as well as to the health of the planet given that current patterns of food production and consumption have considerable environmental impacts (Rockström et al., 2009). Conversely, disasters such as the COVID-19 pandemic can disrupt our food system (Galanakis CM., 2020) and change our relationship with food (Janssen et al., 2021).

MATERIALS AND METHODS

On the market of gluten-free products, several consumption trends were identified that determine an upward evolution of the consumption of gluten-free products. Market trends are present, organic gluten-free products are presented in the following: (a) food as "Medicine"; (b) satisfaction through food choices; (c) increased intolerance or consumption tendency; (d) choosing plant-based foods; (e) methods of obtaining gluten-free products.

RESULTS AND DISCUSSIONS

Food as "Medicine"

In recent years, thanks to the sanitary measures imposed on the population and social distancing, the average consumer has turned his attention to products obtained from natural ingredients, without the addition of additives, healthy products. Health has the first place in consumers' preferences, and thus the foods consumed are vectors through which nutritious and beneficial substances are brought into the body. We know food is important in the prevention and during the treatment of some diseases, and for this reason it is important to pay attention to the products consumed (Lerner et al., 2021).

Consumer preference for natural and organic foods is continuously increasing due to increasing health awareness among consumers. In addition, increasing disposable income, improved living standards, increased health

spending and widespread promotion of organic foods due to their benefits such as their chemical-free nature complement the adoption of products without artificial ingredients.

Consumer interest in and concern about gut health, the benefits of dietary fiber consumption, protein, immunity boosters and anti-inflammatory ingredients are spearheading what's next in dietary preferences.

Healthy products that are easily accepted at the moment, and that are needed, are "sugar-free", "low-fat", "cholesterol-free" products, allergen-free products, plant-based alternatives to dairy products, meat products and so on. These products are more expensive compared to conventional products and have a shorter shelf life.

In the case of food allergies and related diseases, the only effective treatment may be to control what we eat. Dietary and nutritional changes can have an immediate and profound impact on the health and well-being of people with food allergies. And just as important in our society, these people should be able to eat and enjoy meals with their families and eat healthy during social events. Our culture is one that is based on food and social events. Eating and enjoying our food is a choice, but it's also a way of life.

Satisfaction through food choices

These consumers find satisfaction through consistent, health-conscious eating choices. Clean-label solutions, plant-based protein, gluten-free options and healthy swaps form the foundation of this trend.

When it comes to specific ingredients, pseudocereals and plant seeds are critical. Their versatility allows them to naturally fit across a variety of applications and dishes, forward clean-label attributes. Organic, whole grains, pulses and specialty blends that support diets like gluten-free, paleo and more are also popular.

Finding ways to boost the immune system is top of mind for most families these days. People want food and drinks containing vitamins and minerals that will not only help them stay healthy but also prevent any future illnesses.

As people prioritize convenience and spending time with their families and as evidence increase singly cautions against a gluten-free diet for those who don't need it, food retail stores may

start to make a shift in product demand and to inform more.

The results of the studies make by *Mengesha* in 2021, showed that perception is significantly affected when the information concerns safety and nutritional characteristics, whereas the opposite occurs regarding the product flavour. Furthermore, findings revealed that, while the willingness to buy increases after providing positive information, the willingness to try does not. Indeed, willingness to try depends upon further stimuli other than information, suggesting a deeper analysis of the food profile, and the values underlying it, of the population of interest.

Increased intolerance or consumption tendency

Consumers' habits have changed considerably in recent years, many consumers are looking for a healthier, nutritious diet, beneficial to the body, but only these elements count in the continuous growth of the segment of gluten-free products, or are there also gluten-free products. What we can say with certainty is that there has been a considerable increase in the number of diagnoses and the general awareness of consumers suffering from gluten intolerance, but there is no very precise demarcation between those who fall into a spectrum. Many people follow a gluten-free diet as part of a healthy lifestyle.

Allergen-free products know an upward trend, valid worldwide, in the current period. The increase in the number of people with intolerance or allergies has determined a caution on the part of consumers in choosing products. Gluten-free products remain most popular in Europe, North America and Canada, while the dairy-free category is led by North America. In the East, demand for gluten-free, trans-free and caffeine-free products is growing in Southeast Asia (www.pewresearch.org).

Nowadays, a gluten-free lifestyle has become one of the most popular diet trends. One in five people reduce or eliminate gluten, a protein found in wheat, barley or rye, from their diet, according to a 2015 Gallup poll. Avoiding gluten is essential for people with celiac disease. Rothburn et al. (2022) assess the differences between gluten free and gluten containing products with regards to the implications this might have on oral (and wider) health,

emphasises the 'health halo' phenomena, where foods for special diets are regarded by consumers as healthy when in fact they are not. Gluten-free manufacturers are using a 'health halo'; promoting foods using emotive words to market their products as 'good for you', despite high sugar and energy contents.

A lot of the individuals who choose a gluten-free diet do so for a number of reasons, these include: reducing inflammation and bloating; the belief that gluten-free products are healthier; seeking less artificial, and more natural, ingredients; perceived weight loss purposes; to improve sportive performance; improving skin conditions and for stabilising your mood, especially with ADHD.

This shows that choose over gluten free foods is down to the perceived benefits of it. There are certainly some real benefits to consuming a gluten-free diet, but there are also disadvantages too.

Either way, the gluten-free trend isn't stopping any time soon, which makes it a great trend to harness.

Choosing plant-based foods

Consumers prefer to choose foods that are healthier and easier to digest, and this can be seen through an increase in flexitarians (those who prefer plant-based meals with the occasional inclusion of meat) and a greater demand for natural, organic, simple and less processed in both developed and developing markets.

The new generation of consumers prefers to choose healthy foods, with a clean label, obtained from basic ingredients. While members of previous generations might have defined "healthy" as low in fat or high in fiber, millennials might define health from a healthier perspective. They want products that are natural, organic and sustainable; and is also interested in how their food was sourced or grown, and sustainability is a priority when buying food. So of particular interest here are the "millennial food sophisticates" who are looking for foods that are minimally processed and more natural or organic. Millennials are constantly getting new information about food from social networks and friends, because they rely heavily on websites, bloggers, and social media fitness professionals for health information. Anytime they try a snack based solely on an online rating,

review, or social media post. Perhaps this has led to an increase in the number of products labelled as vegetarian by 25% and vegan by 257% (A Global Middle Class Is More Promise than Reality | Pew Research Center; FReSH).

Plant-based food sales have surged in the past years and will only increase as products improve. And vegans and vegetarians aren't the only ones propelling the plant-based food trend. Not too long ago, the vast majority of non-meat alternatives had fillers made from wheat. Now, these companies are looking at going gluten-free because a lot of people who live gluten-free also end up going dairy-free.

This is because consumers who are recently diagnosed with celiac disease have villi that have been damaged in their small intestine, and that makes it more difficult to digest often-inflammatory food groups such as dairy as they try to heal.

Methods of obtaining gluten-free products

Conventional alternative flours are used for two different reasons: first, to reduce or eliminate the use of wheat for economic reasons in underdeveloped regions or countries, and second, to modify the nutritional characteristics of a product by enriching it with proteins, vitamins or minerals, especially for celiac disease patients.

Consumers appear to be wary of accepting new food technologies due to perceived risks and lack of benefits. In general, the "information deficit" approach has not overcome aversion to new technologies applied to food concepts (Cox et al., 2007).

The formulation of gluten-free bakery products is still a challenge for baking technologies.

Gluten is an essential structure-building protein, contributing to the appearance, crumb structure, and consumer acceptability of many baked goods. Therefore, the biggest challenge for food scientists and bakers in the field of gluten-free products is probably the production of high-quality gluten-free bread (Arendt et al., 2008). According to a report by Arendt et al. (2011) it is mentioned that most gluten-free products are of inferior quality and very often, they are crumbly and very dry.

Replacing gluten functionality has been a challenge for food technology. The absence of gluten leads to poor cohesion and elastic dough, which results in a crumbly texture, poor color

and low specific volume in bread. Therefore, in recent years, numerous studies have been attempted to improve the physical properties of gluten-free foods, especially baked and fermented foods, by using the interaction of numerous ingredients and additives that could mimic the properties of gluten (Šmídová et al., 2022; Houben et al., 2012).

Ingredients proposed for obtaining gluten free baked foods include the utilization of different naturally gluten-free flours (amaranth, almond, rice, maize, sorghum, soy, buckwheat) and starches (maize, potato, cassava, rice), dairy ingredients (caseinate, skim milk powder, dry milk, whey), gums and hydrocolloids (guar gums, xanthan gums, alginate, agar, carrageenan, hydroxypropyl methylcellulose, carboxymethyl cellulose), emulsifiers (DATEM, SSL, lecithins), non-gluten proteins from milk, eggs, legumes and pulses, enzymes (cyclodextrin glycosyltransferases, transglutaminase, proteases, glucose oxidase, laccase), and non-starch polysaccharides (inulin, galactooligosaccharides) etc. (Šmídová et al., 2022). Generally, the combinations of ingredients and the optimization of the breadmaking process have resolved the technological problems, yielding gluten free products that met the consumer's expectations concerning texture and appearance of the fresh bread (Matos et al., 2015). Baked products produced using the allergen-free flours thus have a moistness, springiness, rise, texture, and flavor comparable to products containing major food allergens. Baked products according to the disclosure include, but are not limited to, cookies (e.g., chocolate chunk/chip cookies), cakes (e.g., cupcakes), muffins, pancakes, waffles, pizza crust, pie crust, and bread products.

The flours, whole flours, bran products, proteins of vegetables, oilseeds, and other minor edible seeds can be used effectively for nutritional improvement of bakery products. Attempts have been made to enrich bakery products with nutritionally-rich ingredients for their diversification (Peres et al., 2011; Onyango et al., 2011; Rai et al., 2016; Ziobro et al., 2016; Shevkani et al., 2014; Dragomir et al., 2019).

An important aspect of the market is the correct education of the population regarding foods that do not contain gluten. These foods have

physical-chemical and technological characteristics different from those of conventional products that you must take into account when purchasing these products.

Consumer trust in food suppliers is a feature that plays an important role in the modern food marketing system. Consumers' food choices are increasingly influenced by cues of trust, as other levers of trust and direct relationships with producers have disappeared within the globalized food system (www.sgsgroup.ro). Labels and information signalling are thus important search attributes. While trust cues cannot be accurately assessed by consumers, the expectations they generate have an effect on consumer perceived quality and sensory experiences (Fernqvist et al., 2014).

The factors that influence the evolution of trends in the market of gluten free products Are presented in following. An aspect that must be taken into account is the concern for nature, so several concepts have appeared that must be known and taken into account when developing a new product. These concepts are the foundation stone for the following trends that will dictate the gluten free food market and beyond.

Food's carbon footprint, or footprint

Is the greenhouse gas emissions produced by growing, rearing, farming, processing, transporting, storing, cooking and disposing of the food you eat. The unit of measure used is carbon dioxide equivalents (CO₂e) emitted through the food supply chain per year. Some organic companies are already able to claim net zero (carbon) (University of Michigan, 2021).

Eco-convenient gluten free food

The lure of convenience remains strong for many consumers. Some green brands recognize the opportunity of eco-convenience.

Convenience is a major driver of food consumption in cities, as time is a limited resource. As people become more urbanized, their food selection is increasingly driven by what is quick, available and ready to eat. Therefore, highly convenient digital shopping plays an important role, as it makes food accessible anywhere and anytime. Overall, digital platforms have the potential to change consumption behaviors by increasingly providing consumers with consistent and high-quality food, consumption data and speed of

delivery. Also, interest in products with ecological or gluten-free characteristics and certifications has increased in recent decades (Ricci et al., 2018).

Fueled by increasingly capable mobile technologies, consumer choice is also heavily influenced by social media. While technologies enable increased transparency and affordability of food in urbanized areas, the rise of low-price discounters and price transparency can enable access to food in low-income neighbourhoods and communities.

Wholefood campaign it

Is a reaction to worries over the growing prevalence of ultra-processed foods has promoted a discussion about food integrity, and the complex nutrient matrix of whole foods. For people with gluten intolerance, the danger of consuming ultra-processed foods in excess is extremely high, especially the limited number of ingredients and production costs.

Fair food

The fair trade movement has achieved huge progress in advancing the cause of sustainable and equitable trade. 'Fair' is also one of the four key principles of organic, so expect to see the concept of 'fairness' taking a more central role in organic messaging. The climate crisis is shining a light on the issue of food justice, and demand for fair food is growing quickly.

Traditional food and social eating

In times of uncertainty, consumers gravitate to both familiarity and comfort. Consumers are not only demanding nostalgic foods but also infusing craftsmanship and artisanal approaches into their diets to redefine "comfort."

Sustainable solutions - personal and planetary health is evolving

Consumers want to both eat well and do good - seeking products that nourish their bodies and also actively contribute to a better food system for all. The perfect crossover is ingredients that push toward better well-being and "well-doing" spanning everything from plant-forward initiatives to regenerative agriculture.

Clean label

The level of consumer awareness has increased regarding the clean label on products used daily. This is a key factor in the global food market. Beyond clean label and removing unwanted ingredients, food formulators face the complexity of meeting consumer demand for

ingredients that are perceived as natural. Many brands now use extracts and fermentation products for flavoring. In addition to being natural, the use of these products also offers advantages such as full traceability and transparency of the supply chain. Consumers demand transparency from food producers, being increasingly interested in knowing how a product's ingredients were produced, processed and transported, as well as how natural resources are renewed.

Label transparency is becoming more and more important, and more and more buyers are looking for a certain type of certification. And having a gluten-free certification can help smaller companies stand out when they are looking for more regional and national distribution channels.

Crossed Grain, the European standard for gluten-free product licensing has exceptional recognition and trust among people with celiac disease and gluten intolerance. It is a complex certification that checks and audits all stages of the production, packaging and distribution of gluten-free food, and imposes one of the most rigorous standards in the food industry (www.sgsgroup.ro). Crossed Grain certified products are strictly audited and analysed to demonstrate that they have a maximum gluten content of 20 mg/kg or parts per million (ppm). Laboratory analyses and certification audits look at ingredients as well as production processes, storage, packaging and distribution processes (Reg EU 828/2014).

Gluten-Free diet: The Downsides

While the gluten-free diet "is lifesaving for those with celiac," for those without medical indications, a gluten-free diet is a very healthy diet, because it's low in fiber and often enriched in fat and calories.

It also puts people at risk of nutritional deficiencies, because wheat flour is often fortified with folic acid, B vitamins, and iron. Rice flour, a mainstay of gluten-free foods, is not.

A danger is represented by parents who provide their children with a gluten-free diet without a medical reason. If the child does not have celiac disease or an allergy (to wheat), there is no reason to follow a gluten-free diet". A gluten-free diet without a medical necessity does not lead to a healthy lifestyle, on the contrary it

would. Such a dietary pattern could increase fat and calorie intake, contributing to nutritional deficiencies, especially micronutrients, and sometimes mask celiac symptoms, which could delay proper diagnosis of the condition.

Likewise, "prophylactic" elimination of gluten from the diet of first-degree relatives of people with gluten sensitivity has not been shown to be effective in healthy individuals. The consumption of free from dairy and free from gluten foods is not only limited to nutritional needs but is also gaining importance, due to issues related to intolerance or allergies. Gluten-free food helps to reduce gluten content from the body.

CONCLUSIONS

Our consumer behavior has become much more sophisticated, and the factors that influence consumption trends for gluten free products have become extremely diverse.

The guidelines drawn by the EU policies regarding the increase in the consumption of organic products, responsible consumption, sustainability and ethics in the food chain are already adopted by the average consumer. The increase in disposable income, the improvement in the standard of living, the increase in health expenses and the widespread promotion of organic food, due to its benefits, has determined that the consumer's preference for natural and organic gluten free food is constantly growing. This is also due to the increase in awareness among consumers of maintaining the health of the body through food. Online shopping has taken this aspect to another level. A strong evolutionary trend can be observed in terms of sustainable, equitable and collaborative consumption - involving all actors in the food chain from "fork to fork".

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