

# GLUTEN-FREE FOOD MARKET DEVELOPMENT: REZEKNE CITY AND REGION EXAMPLE

Lienite Litavniece

*Rezekne Higher Education institution, Latvia*

**Abstract.** Gluten-free food market development is directly affected by the demand made up by celiac patients and people with allergies to wheat or gluten. Available statistics and scientific studies show that the number of people with these health problems in the world is growing. It changes the demand for food products market. Article aims to explore the gluten-free food market demand and opportunities in Rezekne region. Based on the available information, the author made a determination of gluten-free food market size. As a result the potential size of the market of Rezekne city and region could be around 0.2% of the total population in the surveyed area. Gluten-free food costs four to six times more, so the income level has a significant impact on the demand. The author calculated a market basket, if it contained gluten-free food. It has been calculated that the value of the food basket containing gluten-free products would increase by about 50%, determining the financial capacity as the main factor in the volume of demand.

**Keywords:** demand, gluten free food, gluten free food market, Rezekne city.

## Introduction

Statistical data on the state of public health confirms the growth in demand for products that are produced without the use of certain raw materials. Different types of allergies (on dairy products, eggs, etc.), illness (celiac disease, etc.), or belief (vegetarians, organically grown products users, etc.) contribute to the development of new markets for food production and processing industries. Special requirements of the appropriate food are expensive and the solvency of the population is an important criterion for assessing the opportunities for business development in the relevant areas of economic activity.

Gluten-free food supply in different countries and cities is different. It is affected not only by gluten-free food manufacturers or sellers' proximity, but also by market demand.

There is a relatively small range of gluten-free food offer in Rezekne.

The aim of this article is to explore the opportunities of gluten-free food market development in Rezekne city and its region.

### Research objectives:

- To analyze relevant theoretical literature;
- To investigate and assess the gluten-free food market demand in Rezekne city and region;
- To identify gluten-free food market demand influencing factors.

**Methods of research:** logical constructive; synthesis and analysis, monographic.

**Limitations of the research:** the reasons for celiac and allergic rapid expansion are not studied.

## Results of the research

Gluten-free food market is closely related to public health, primarily because the market demand is

made up by people who have been diagnosed with an allergy to wheat (allergy occurs the body's immune system in response to increased wheat protein) or celiac disease.

Celiac disease is an autoimmune digestive disease that damages the villi of the small intestine and interferes with absorption of nutrients from food. Essentially the body is attacking itself every time a person with celiac consumes gluten (Rubio-Tapia, Hill etc.2013).

The main type of treatment for celiac patients is strict gluten-free diet compliance. Gluten-free diet means not using products containing gluten in the diet.

Gluten-free foods are (Codex standart 1979):

a) consisting of or made only from one or more ingredients which do not contain wheat (i.e., all Triticum species, such as durum wheat, spelt, and kamut), rye, barley, oats or their crossbred varieties, and the gluten level does not exceed 20 mg/kg in total, based on the food as sold or distributed to the consumer, and/or

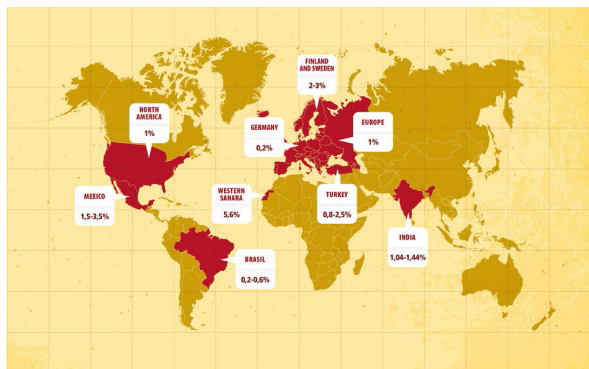
b) consisting of one or more ingredients from wheat (i.e., all Triticum species, such as durum wheat, spelt, and kamut), rye, barley, oats or their crossbred varieties, which have been specially processed to remove gluten, and the gluten level does not exceed 20 mg/kg in total, based on the food as sold or distributed to the consumer.

Gluten-free food target market is for people who have certain types of health problems.

From the point of view of an economic theory, the market may be only if there is demand. Celiac disease and allergic disease prevalence contributes to gluten-free food products market.

There is no accurate statistical information on the number of patients with celiac disease in the world. According to statistics and relevant industry surveys it is assumed that approximately 1% of the world's population has celiac disease (Fasano,

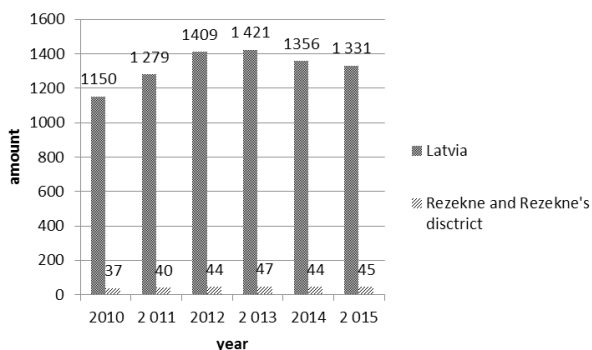
2014). For all that there are no records of these patients, scientists using statistical modeling and forecasting methods consider that the actual number of patients with celiac disease is higher and varies by country of the world (Picture 1.).



Picture 1. The epidemiology and geography of modern celiac disease (Catasi 2014)

Picture 1. shows that in Brazil and Germany the number of celiac patients is less than 1%, but in some countries - Mexico, India, Finland and Sweden, Western Sahara is more than 1%. According to scientists, this number is related to Both Genetic and Environmental Factors affecting differences in the prevalence of celiac disease. Studies show that in Europe, the USA and elsewhere celiac disease has increased as much as four times in the last 30 years.

In general, also in Latvia there is no accurate statistical information on the number of patients with celiac disease to help pinpoint the target market size and forecast the demand. Benefit is given to celiac patients under 24 years of age in Latvia. Thus, the information from the State Social Insurance Agency can be considered as the only official information that reflects the number of celiac patients under age of 24 years (Picture 2).



Picture 2. Number of celiac beneficiaries in Latvia, Rezekne and region 2010 -2015. (developed by the author at the SSIA data)

Number of celiac of beneficiaries in Latvia changes every year, and in the period from 2010 to 2015 it has increased by approximately 13.6%. Celiac beneficiary number in Rezekne and Rezekne region increased by around 17%(45 people) in 2015 compared to 2010. This is the evidence of gluten-free food market relevance in this region. Celiac disease increase in the surveyed area is larger than that in Latvia

In order to determine the approximate size of the target market of Rezekne city and Rezekne region, the author carried out the calculations based on the available information.

Celiac beneficiary number of Rezekne city and Rezeknes county accounts for about 0.08% of all loyal citizens.

Scientists of The National Institute for Health and Care Excellence (2009) consider that between 4.5 and 12% of people who have the first degree relatives with celiac disease also suffer from the disease. This claim can be used to try to determine the gluten-free food products target market size of the studied territory. According to the Civil law 207. point the first-degree relatives are parents, grandparents, children, grandchildren, etc. Taking into account that the information available to the author is on people under 24 years of age, it was assumed that each beneficiary celiac disease attacks about 5 first-degree relatives. The result is that the number of patients with celiac disease to the existing 45 will increase by 10 to 27 people, creating a total number of celiac patients from 0.1 up to 0.13%.

The second group of individuals, who make up the demand for gluten-free foods are the people who suffer from the modern urban world disease - allergy, and its prevalence, is increasing. There are no accurate statistics on the number of people who are allergic. Medical-related scientific research carried out calculations which show that at least 8% of the world's population has one of the allergies. Based on this assumption, the approximate number of people who have an allergy in the surveyed area is 4587 people. There are no accurate statistics on the prevalence of certain types of allergies. Since the European Union regulation sets out 14 food allergens, but still there are many and various household allergies. In this study, the author will assume that the number of people with allergies to wheat and gluten accounts for about 1% of the 4587 people.

The result is that the potential demand for gluten-free foods in the surveyed area could build 0.17% to 0.2% of the number of people.

Gluten-free foods cost four to six times more compared to ordinary food (Missbach, 2015; Giménez-Bastida, 2015). The author thinks that gluten-free food prices are influenced by:

- Raw material types. Most manufacturers use natural raw materials (from ecological

farms; do not use genetically modified organisms), respectively, are relatively more expensive inputs.

- The regulatory requirements. The legislation sets out the requirements that must be obeyed by gluten-free food manufacturers in various technological production stages. Observance of specified costs (e.g., control, gluten-containing product separation, etc.), that raises the cost of the final product.
- There are no substitutes. Gluten-free food products target market is for people who have celiac disease or an allergy to gluten. Gluten-free foods are not substitutes.

The author carried out a household consumption basket analysis, adapting it to gluten-free food consumption basket. According to statistics, food and non-alcoholic drinks in household consumption basket make about 28%. The calculations are made assuming that the adoption of gluten-free foods pays four to six times more expensive.

*Table 1 . Household consumption expenditure on food per household member per month (EUR) 2013 annual data (calculations made by the author)*

	Standard food	Gluten free food	
		4 times expensive	6 times expensive
Expenditure on food and non-alcoholic beverages	84.84	144.72	184.64
Food	79.11	-	-
..bread and cereal products	11.76	47.04	70.56
..meat	19.47	-	-
..fish	3.96	-	-
..milk, cheese and eggs	15.23	-	-
..oil and fats	3.00	-	-
..fruit and berries,	6.37	-	-
...vegetables	11.11	-	-
.... potatoes	2.08	-	-
..sugar, honey, jam, chocolate and other sweets	5.91	23.64	35.46
..other foods	2.29	9.16	13.74
Soft drinks	5.73	-	-
coffee, tea and cocoa	3.30	-	-
..mineral water, soft drinks, fruit and vegetable juice	2.43	-	-

The latest available figures show that in 2013 the expenditure on food per household member amounted to 79.11 EUR. Calculation is performed only in those food groups – bread and cereal products, other sweets, other foods, which directly have possible gluten-containing products. In the case of strict gluten-free diet one should focus on the product composition, as a result, relatively more expensive products must be selected. But despite this, the author did not take into account in her calculations. The result is that the expenditure per household member per month is increasing from 41% to 54%.

Author's calculations show that by taking into account only the three food items, the monetary value has increased by an average of 50%.

Potential customers' financial capabilities significantly influence gluten-free food market demand. Latvian celiac patients under 24 years of age are given allowance of 106 EUR, relatively in Czech Republic the allowance is 120 EUR and 137 EUR in Denmark (in both countries paid up to 18 years of age). In Europe the biggest support for celiac disease patients is in Norway, where the allowance amount is from 126 to 243 EUR and there is no age limit.

Author's calculations show that the value of food basket is from 26% to 42% higher than the national allowance granted to the celiac patients. State aid is not intended for people who are allergic to wheat or gluten. This means that the opportunity to follow gluten-free diet is dependent on the severity of the disease and financial possibilities of these people.

## Conclusions

1. Planned market demand determination is crucial to the number of potential customers and their financial capabilities.
2. There is no precise information about the number of people with celiac disease and an allergy to wheat or gluten in Rezekne city and region, but according to the author's calculations, their number could be 0.2% of the total number of people in the surveyed area. Taking into account the celiac and allergy prevalence trends, it can be asserted that the demand for gluten-free foods is growing.
3. Gluten-free food prices are on average four to six times higher than ordinary products. Researched area is located in Latgale, which is one of the regions with the worst socio-economic indicators in Latvia. This means that the product price significantly impacts on demand. In the author's view, preference will be given to relatively less expensive gluten-free products. It is an opportunity for local producers to develop gluten-free food market supply, which would be less expensive than goods that are imported.

4. To coincide gluten-free food market offer with the market demand the following should be taken into account:
  - To reduce the number of middlemen to get more inexpensive end product as far as possible;
  - To create gluten-free food production facilities on site to ensure local demand with high quality and relatively cheaper products.

## References

1. Rubio-Tapia, A., Hill D., I. Kelly, C., H. Calderwood, A., A. Murray, J. (2013). ACG Clinical Guidelines: Diagnosis and Management of Celiac Disease. *The American Journal of Gastroenterology*, Vol.108, p.656-676.
2. Codex standard for foods for special dietary use for persons Intolerant to gluten. Codex stan 118 – 1979. <http://www.glutenfreedietitian.com/codex-standard-for-gluten-free-foods/>
3. Catasi, C. (2014). The Global Map of Coeliac Disease. *Journal for health care professionals* Nr. 03, p.2-4
4. Fasano, A. (2014). Introduction to Gluten Spectrum Disorders. In A. Fasano (Ed.), *A Clinical Guide to Gluten-Related Disorder* (pp. 19–24). Philadelphia, PA: Lippincott Williams & Wilkins
5. Giménez-Bastida, J.A., Piskula, M., Zielinski, H. (2015). Recent advances in development of gluten-free buckwheat products. *Trends in food science and technology*. Vol. 44, Issue 1. p.58.-65.
6. Missbach, B., Schwingshack, L., Billmann, A., Mystek, A., Hickelsberger, M., Bauer, G., König, J. (2015). Gluten-free food database: the nutritional quality and cost of packaged gluten-free foods. , *PeerJ*, DOI 10.7717/peerj.1337
7. State Social Insurance Agency unpublished materials
8. National Institute for Health and Clinical Excellence (2009). <http://www.ncbi.nlm.nih.gov/books/NBK11696/>
9. Civil Law (1992). <http://likumi.lv/doc.php?id=225418>
10. Central Statistical office [http://data.csb.gov.lv/pxweb/lv/Sociala/Sociala\\_ikgad\\_mb/MB0040\\_euro.px/table/tableViewLayout1/?rxid=cdbc978c-22b0-416a-aacc-aa650d3e2ce0](http://data.csb.gov.lv/pxweb/lv/Sociala/Sociala_ikgad_mb/MB0040_euro.px/table/tableViewLayout1/?rxid=cdbc978c-22b0-416a-aacc-aa650d3e2ce0)

## LAISVOS MAISTO BE GLIUTENO RINKOS VYSTYMASIS : REZEKNĒS MIESTO IR RAJONO ATVEJIS.

### Santrauka

Statistiniai duomenys apie visuomenės sveikatos būklę patvirtina produktų, kurie gaminami be tam tikrų žaliavų naudojimo, paklausos augimą.

Maisto be gliuteno pasiūla šalyse ir miestuose skiriasi. Ji įtakojama ne tik maisto be gliuteno gamintojų ar pardavėjų geografinio artumo, bet ir paklausos rinkoje. Rezeknėje maisto be gliuteno pasiūla yra gana maža.

Šio straipsnio tikslas yra ištirti maisto be gliuteno produktų rinkos plėtros galimybes Rezeknės mieste ir regione.

Maisto be gliuteno rinka glaudžiai susijusi su visuomenės sveikata visų pirma dėl to, kad rinkos paklausą sudaro žmonių, kuriems diagnozuota alergija kviečiams arba celiakija.

Pagrindinis gydymo būdas celiakija sergantiems pacientams yra griežtos dietos be gliuteno laikymasis, tai reiškia nenaudoti jokių produktų, kurių sudėtyje yra gliuteno. Statistinė informacija ir reikšmingi pramonės tyrimai rodo, kad maždaug vienas procentas pasaulio populiacijos serga celiakija.

Sergančių celiakija skaičius Latvijoje kinta kasmet, laikotarpyje nuo 2010 iki 2015 jis padidėjo 13.6%. Rezeknėje ir Rezeknės regione tuo pačiu laikotarpiu celiakija sergančių padaugėjo apie 17%.

Palyginus su įprastais maisto produktais, maisto produktai be gliuteno kainuoja nuo keturių iki šešių kartų brangiau, tai priklauso nuo žaliavos rūšių. Dauguma gamintojų naudoja natūralias žaliavas, laikosi griežtų reikalavimų, nenaudoja pakaitalų.

Nėra tikslios informacijos apie celiakija sergančių arba kviečiams ar gliuteni alergiškų žmonių Rezeknės mieste ir regione tikslų skaičių, bet autoriaus skaičiavimais jų galėtų būti apie 0.2% visos populiacijos tirtoje teritorijoje.

Maistas be gliuteno yra apie vidutiniškai keturis-šešis kartus brangesnis nei įprasti maisto produktai. Tiriami teritorija yra Latgalėje, viename iš prasčiausių socio-ekonominių rodiklius turinčiame regione Latvijoje. Tai reiškia, kad produktų paklausa tiesiogiai priklauso nuo kainos. Autoriaus nuomone pirmenybė bus teikiama pigesniems produktams be gliuteno. Tai galimybė vietiniams gamintojams plėtoti maisto be gliuteno rinkos pasiūlą, kuri būtų pigesnė nei importuota.

Keywords: demand, gluten free food, gluten free food market, Rezekne city.

## Information about the author:

Position: assistant professor  
 PhD **Lienīte LITAVNIECE**  
 Phone: +371-29298800  
 E-mail: [litavniece@inbox.lv](mailto:litavniece@inbox.lv)