

Go Gluten Free: Gluten-free beer made easy with the help of enzymes

Annually, we consume around 200 billion hectoliters (one hectoliter is equal to 100 liters) of beer a year globally.¹ The global brewing landscape is dominated by the large multinational producers, however the intake of the traditional mass produced lager beer has been declining steadily over recent years. According to Euromonitor International, standard lager in 2013 in developed markets posted a 3% decline in volume sales, and a stagnant performance over 2014–2018 is anticipated.²

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– from 398 to 869 – between 2007 and 2012.**

It is no secret that the last several years have seen an explosion in the number of microbreweries driven by the preference for more artisanal or specialist beers. For instance in the US, the number of breweries has more than doubled – from 398 to 869 – between 2007 and 2012.³ Having grown tired of more conventional tastes, higher income beer lovers have demonstrated their willingness to pay extra for new styles, flavors and indeed the lifestyle that these grassroots companies are promoting through their beverages. That beer tastes are diversifying is the key trend relevant for global breweries. So how can the big brewers continue to engage with consumers and create diverse beers that appeal to the masses?



One approach could be to follow trends seen in the wider food and beverage sector. ‘Free-from’ is a good example with consumers looking to purchase foods that have no salt, no fat, no artificial ingredients and that are free from potential allergens such as lactose and gluten.

In 2013, gluten was the fifth most common search term people were looking for information on Google when typing the words ‘what is...’.

Why gluten-free?

Along with nuts, dairy and shellfish, gluten sensitivity is a common concern for many individuals around the world. It affects up to 1% of Americans but because of the rare occurrence of symptoms, it is believed only 5–10% of cases are diagnosed. Many other people may simply choose to reduce their gluten intake without having a diagnosed sensitivity due to the perceived health and wellness benefits, or due to following the latest diet regime such as The Paleo Diet.⁴ A famous example of this is tennis player Novak Djokovic, who had his greatest single season in 2011, yet remarkably less than two years earlier he could barely complete a tournament. In his book ‘Serve to Win,’ he explains how a gluten-free diet helped him get to the top of this highly competitive sport. This trend is also important for the retail sector as ‘gluten-free’ was listed in 4th place on the list of 12 Hottest Food Trends for 2014, according to the National Restaurants Association.⁵ Online analytics also show increased consumer interest in gluten intake. In one of the biggest search engines in the world, the search term ‘gluten-free’ reached breakout proportions experiencing a growth in popularity greater than 5000%. Also, in 2013, gluten was the fifth most common search term people were looking for information on Google when typing the words ‘what is...’.⁶

¹ <http://www.statista.com/statistics/270275/worldwide-beer-production>

² <http://blog.euromonitor.com/2014/06/flavouredmixed-lager-helps-to-slow-beers-overall-volume-decline.html>

³ http://www.thenewstribune.com/2014/07/01/3270257_beer-bonanza-breweries-in-the.html

⁴ <http://thepaleodiet.com>

⁵ <http://www.forbes.com/pictures/feki45edkig/4-gluten-free-2>

⁶ <http://newsfeed.time.com/2013/12/17/google-what-is-searches>

In the first half of 2014 over 10% of food and drink products launched globally were gluten-free. In contrast, less than 1% of beer launches contained a gluten-free claim.

Manufacturers are clearly responding to this consumer desire as in the first half of 2014 over 10% of food and drink products launched globally were gluten-free. In contrast, less than 1% of beer launches contained a gluten-free claim. So how can beer manufacturers close this gap?

How to make gluten-free beer

There are different ways to make a gluten-free or gluten-reduced beer. One approach is to make beer using cereals such as millet, rice, sorghum, buckwheat or corn that contain no gluten, however these beverage styles form a minority of the beer market and the taste of the beer – if you take the reference of regular lager – is greatly impacted. What consumers want is a gluten-reduced beer made with gluten-containing wheat, rye or barley that tastes great.

Traditionally, producing a high-quality, great tasting beer with reduced gluten was a tricky undertaking for brewers. However, by adding enzymes (such as DSM's Brewers Clarex) that breakdown the gluten protein at the start of the fermentation process brewers can easily create gluten-free beers using gluten-containing grains. Brewers also know that their customers want beer that looks crisp and refreshing, so a beverage that is clear and shows the bubbles gently rising to the top is still an essential feature. As Brewers Clarex also prevents beer haze brewers can create sparkling, gluten-free beers using gluten-containing grains, in an efficient process already tried and tested by global breweries that is better for the environment and saves money.



What this means for manufacturers

The ability to diversify product lines whilst increasing cost-efficiencies may be especially timely for the large beer producers, with light beer sales in decline for years and a prediction that domestic light beer sales in the U.S. will hit a 10-year low in 2015.⁷ Most analysts believe this recent downslide is the result of the interest in craft beers.

Beer drinkers looking for diversity in the form of specialist craft beers tend to be male with almost half (48%) being millennials, the generation born between the early 1980s and early 2000s.



So what can beer lovers and the big beer producers expect in the coming years? Like many FMCG brands, brewers will need to look to the younger generations to understand what breakthrough innovations are driving sales and importantly brand loyalty. Datamonitor has found that beer drinkers looking for diversity in the form of specialist craft beers tend to be male with almost half (48%) being millennials, the generation born between the early 1980s and early 2000s.⁸ This younger male may respond well to marketing campaigns linking their favorite after work, or after sport drink with making smarter, healthier dietary choices in a way that the light beer campaigns of the 80s and 90s were not able to achieve.

Another relatively untapped market is women.⁹ Presently, the vast majority (70%) of regular craft beer drinkers are men. However, this gender skew will shift as craft brewers seek to broaden craft beer consumption occasions, particularly during meals. The flavor-focused appeal of craft beer, in addition

⁷ Shanken News Daily

⁸ <http://millennialmarketing.com/2014/01/the-millennial-consumer-craves-craft-beer>

⁹ <http://brookstonbeerbulletin.com/new-survey-shows-big-beer-brands-arent-reaching-women>

to the growing number of female craft brewers, will also attract more women to the segment.¹⁰ This segment is also perfectly placed to be the driving force behind a crisp, great tasting, gluten-free beer as women traditionally set the dietary scene in the household.

Fokke van den Berg, global marketing manager for DSM's Brewing enzymes states:

'The low gluten or gluten-free category is still young and in development. We think there is a great opportunity for beer producers to investigate what this trend can mean for their product differentiation moving forward. Targeting new consumer groups, with different lifestyles as well as looking at geographies will be their best way forward in finding new growth opportunities. Our enzymes can help differentiate there.'



So, for all those who see gluten-free as a passing health or weight-loss fad, there are others who see it as the future, maybe even a lifestyle. With an increasing incidence of gluten sensitivity coupled with the hyper-aware consumer looking for better ways of eating and drinking, there will most likely be payoffs for those companies that can carefully leverage health and wellness messaging for a gluten-free product range. And, doing this in a non-traditional product category, such as beer, brings a whole new meaning to 'fixing a drink'. Peace of mind - Be ready for the future when gluten-free become the norm.

Haze-free beer that more people can enjoy

- Brewers Clarex enable the removal of gluten from wheat, rye or barley beer. If all beer in the world was brewed with Brewers Clarex, at least 2,200 tons of gluten would be removed every year. This is equivalent to the gluten content of one billion slices of bread.

Go Gluten Free is the second paper in DSM's – *Add a little, Do a lot* series investigating the benefits of enzymes; highlighting DSM's ongoing commitment to help make the food and beverage industry greener, healthier and more prosperous. The data presented are based on calculations comparing beer brewing with and without Brewers Clarex.

For additional information on DSM's Insight Series please contact:

Info.food@dsm.com

Find out more about the sustainability and health benefits of our ingredients [click here](#)

¹⁰ Datamonitor Survey 2013

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Appendix

Appendix A: Data Source: Google Trends¹¹

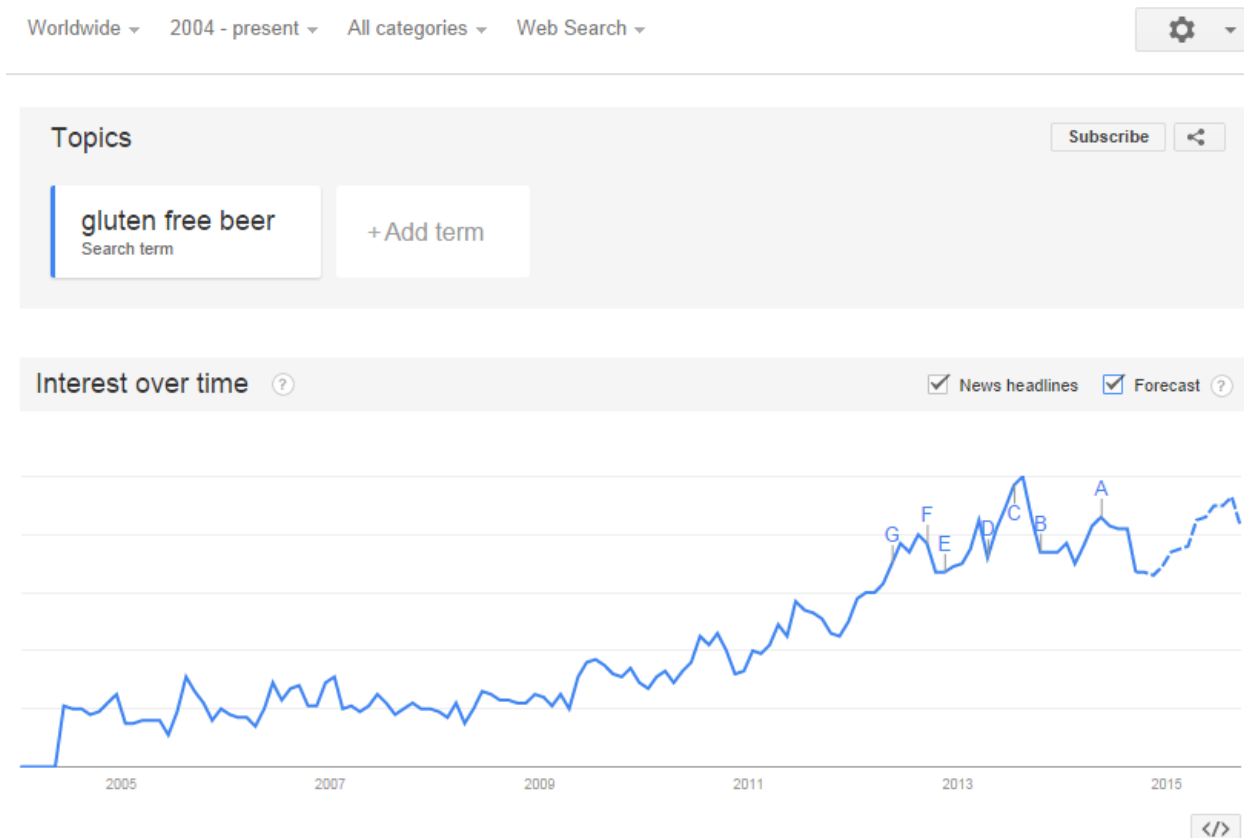


Figure A-1: Forecast showing how popular the term 'gluten-free beer' is expected to be in the near future

How forecasts are determined: To predict the popularity of a term in the future, Trends looks at how many people searched for that term in the past. In January 2011, the number of searches for the term "gluten-free beer" was 32. This data is normalized and presented on a scale from 0-100. These searches are relative to the total number of searches done on Google over time. By August 2015, the number of searches is expected to increase by 3 times and reach 98 indicating growing interest for gluten-free beers.

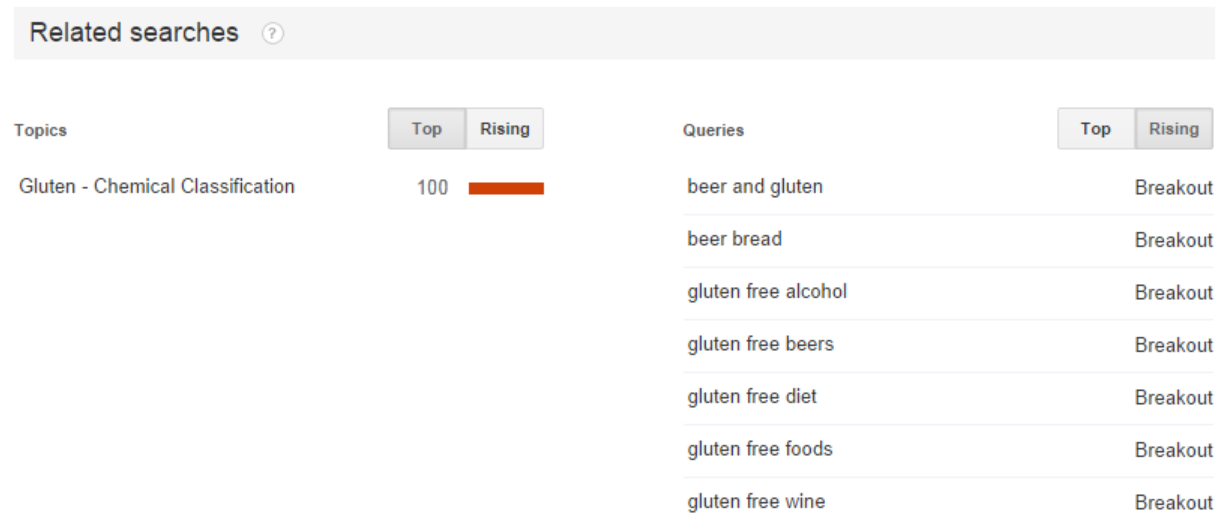


Figure A-2: Terms which have grown significantly in popularity over a given time period

Rising searches are searches that have grown significantly in popularity over a given time period when compared to a preceding time period. As the data suggests, queries related to gluten-free and more specifically gluten-free beers has reached breakout proportions implying that the search term experienced growth greater than 5000%.

¹¹ www.google.com/trends

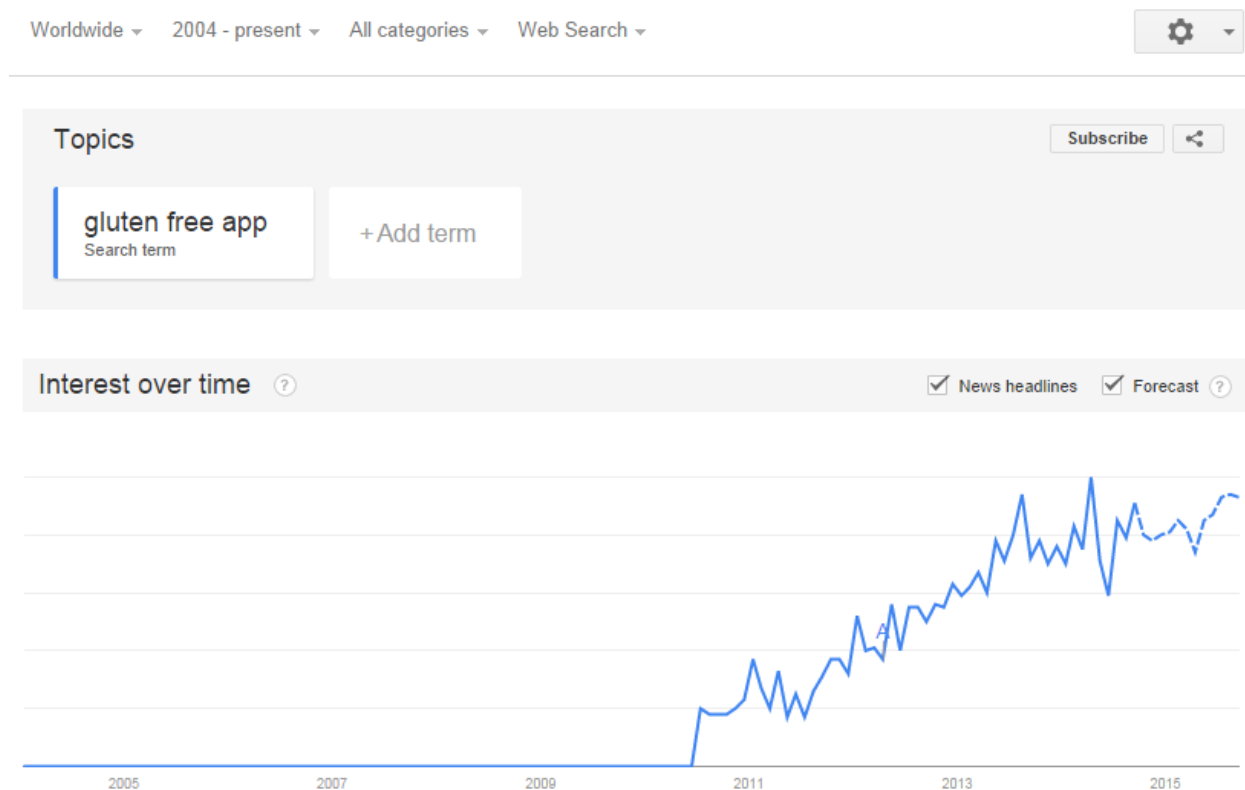


Figure A-3: Forecast showing how popular the term 'gluten-free app' is expected to be in the near future

With the advent of smartphones, users are now more actively looking for applications to scan through the ingredients of food and beverages to check for gluten or look for gluten-free recipes. While in May 2010 the number of searches for gluten-free apps was 0, by October 2015 it is expected to reach 100 on a scale on 0-100.

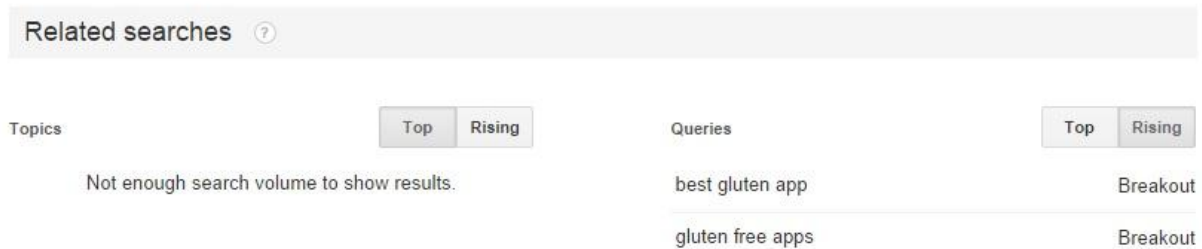


Figure A-4: Rising popularity of gluten-free apps

The terms “best gluten app” and “gluten-free apps” also grew by 5000% in popularity over time.

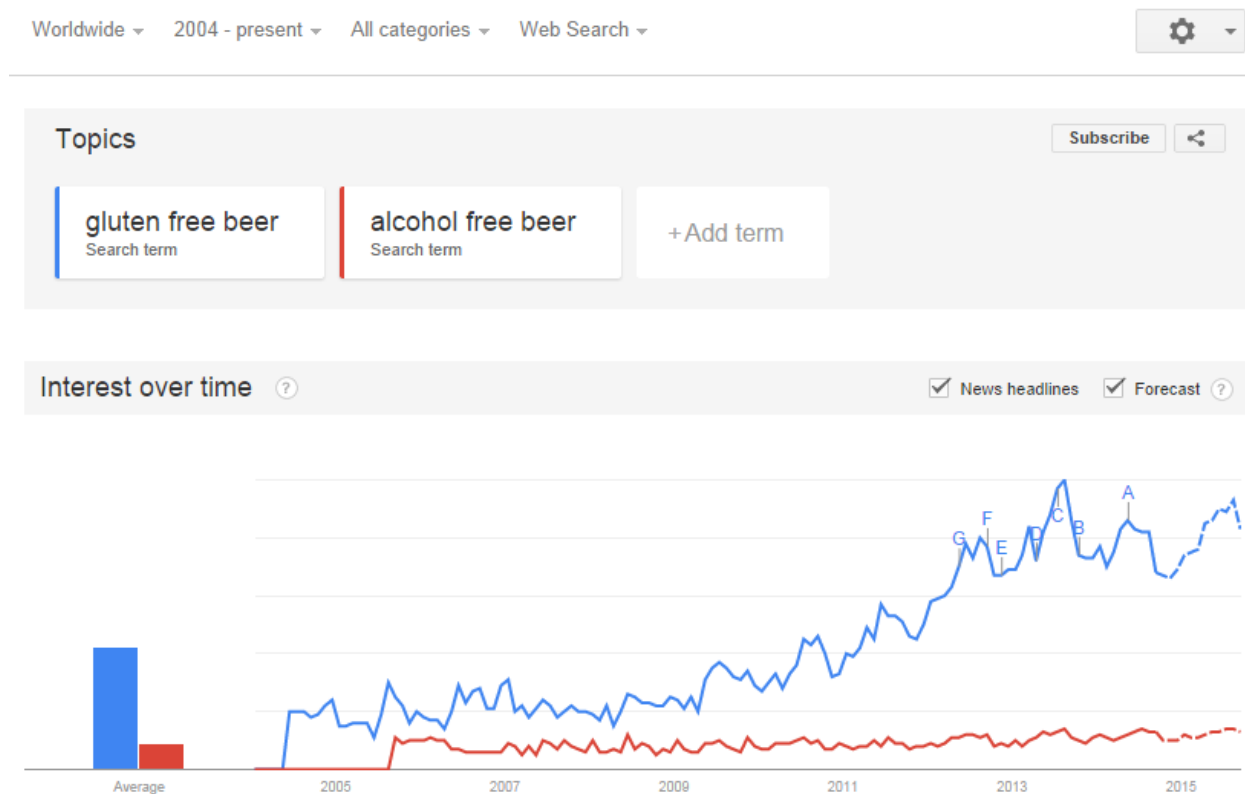


Figure A-5: Difference between growing popularity of gluten-free and alcohol free beer

When comparing the trends for gluten-free beer and alcohol free beer, by July 2015 the search volume for gluten-free beer will be 6 times more than that of alcohol free beers.

Appendix B: Twitter Analytics



Figure B-1: Comparison of number of tweets for gluten-free and alcohol free beer¹²

On an average, the number of tweets for 1 month for gluten-free beer is 3 times more than alcohol free beers and hence more number of reaches and impressions. Reach is the number of unique followers that a user has (and so, the unique people that a tweet could potentially get to). Impressions also take into account the number of times a user posts (and so, how many times followers would see these posts).

¹² <http://topsy.com/analytics>

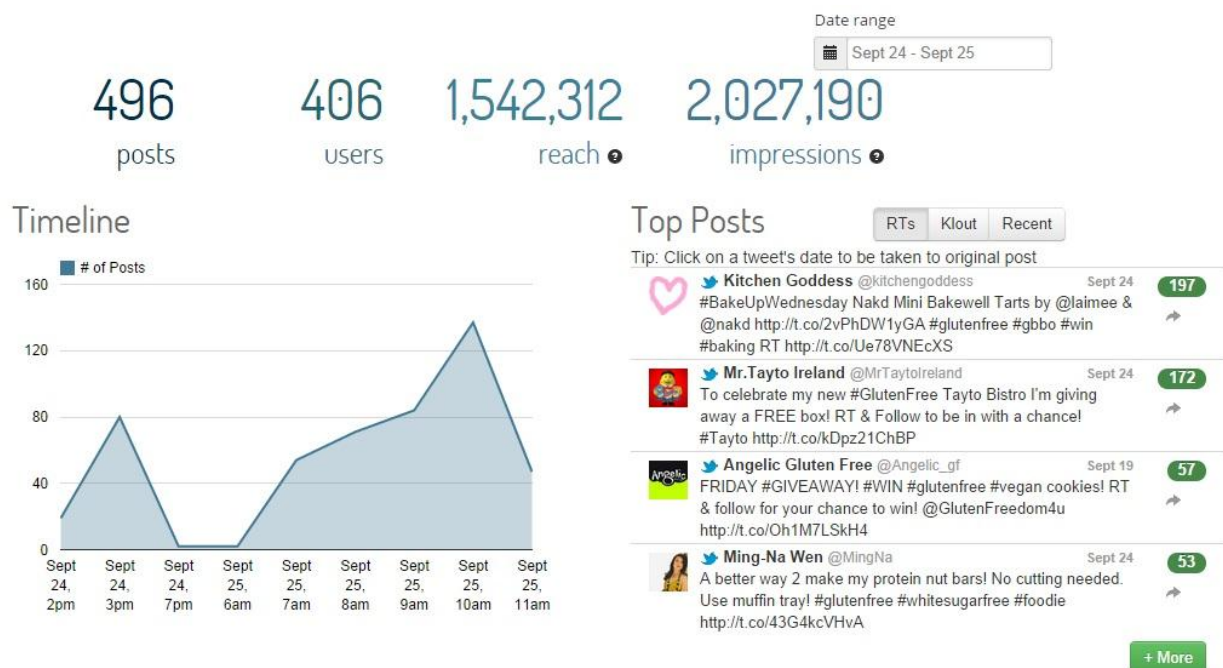


Figure B-2: Reach and impressions for the term “gluten-free” on Twitter for 1 day¹³

The term “gluten-free” had 2 million impressions and a reach of 1 million five hundred thousand in 1 day.

¹³ <http://keyhole.co/>

Appendix C: Estimated future growth of gluten-free market

The gluten-free market overall is expected to grow by more than 10% per year through 2018¹⁴. However the growth is coming not only because more people are being diagnosed with gluten-intolerance conditions, it's also coming from people with no such dietary restrictions, believing it's a healthier choice. In fact, while just 1% of the U.S. population suffers from the disease, nearly one-third of Americans reported making a conscious effort to reduce their intake of gluten last year.

In the first half of 2014 over 10% of food and drink launched globally was for gluten-free while around 2% was for lactose-free products. Less than 1% of beer launches globally contain a gluten-free claim¹⁵.

According to a survey by Datamonitor, those who are influenced by gluten-free claims are healthier eaters, more ethical, experimental and more influenced by natural and organic ingredients than the average global consumer. Consumers in the 50-64 and 25-34 age ranges in North America are also more likely to be influenced by gluten-free marketing. Males are also more influenced by gluten-free marketing and claims than females, in North and South America.

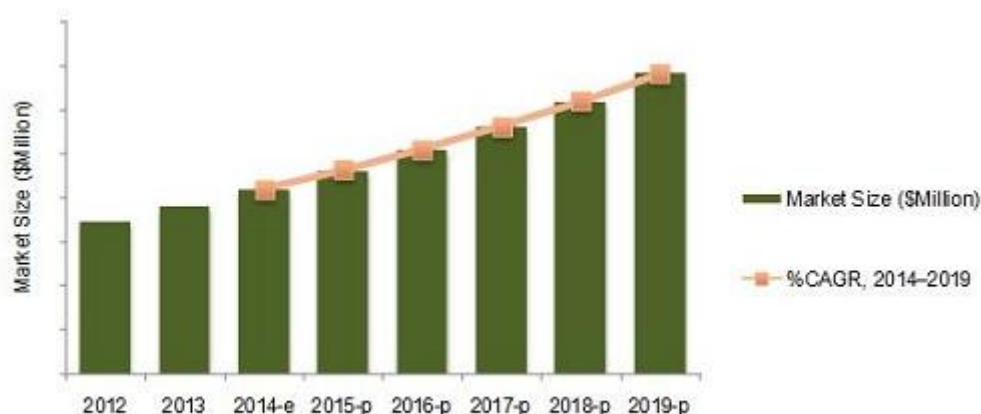


Figure C-1: Annual Gluten-Free Products Market Share Analysis, 2012-2019 (\$Million)¹⁶
E - Estimated; P - Projected

North America is estimated to be the largest market for gluten-free products, followed by Europe and Asia-Pacific, by 2019. The European market is estimated to grow at a CAGR of 10.4% from 2014 to 2019. North America is projected to be the fastest-growing market, followed by Europe and Rest of the World.

The gluten-free products market is projected to reach \$6,839.3 million by 2019¹⁷.

China gluten-free F&B market share

In addition to being the largest market for gluten-free foods & beverages in Asia-Pacific, accounting for an estimated share of over 35% in 2014, China is also forecast as the fastest growing, with the prospect of recording a compounded annual rate of more than 14% during 2014-2020¹⁸.

¹⁴ <http://www.fool.com/investing/general/2014/01/11/can-these-brewers-cash-in-on-the-gluten-free-trend.aspx>

¹⁵ <http://www.foodmanufacture.co.uk/NPD/Beer-and-pizza-the-next-big-free-from-growth-sector>

¹⁶ <http://www.marketsandmarkets.com/Market-Reports/gluten-free-products-market-738.html>

¹⁷ <http://www.marketsandmarkets.com/PressReleases/gluten-free-products.asp>

¹⁸ <http://mordorintelligence.com/product/china-gluten-free-foods-beverages-market-segmented-by-2014-2020/>

Appendix D: Consumer perception and behavior

42% of consumers who say they watch their weight also restrict their intake of gluten containing foods. 14% claim to avoid gluten all of the time. These data suggest that consumers perceive gluten-free products to be "healthier for you" and useful in weight management, despite the lack of scientific evidence¹⁹.

Shopping Behaviors of Gluten-Free Consumers²⁰

- 55% spend 30% or more on their grocery budget for gluten-free foods
- 68% shop at three or more stores per month to find gluten-free foods
- Product selection is the most important factor, followed by low price, convenience, good service, close to where they live, knowledgeable staff to help, friendliness of staff, and close to where they work
- The majority (77%) agreed it was hard to find good tasting gluten-free foods
- More than half (57%) have tried ten or more new gluten-free products in the last year.
- When asked if they could find the same products at all the following stores where would they most prefer to shop for gluten-free foods:
 - 71% grocery store (where I shop for most of my family's groceries)
 - 9% independent natural or health food store
 - 8% mass merchandiser
 - 7% natural food chain (e.g. Whole Foods)
 - 5% club store (i.e. Sam Club)
 - 0.1% drug store

Celebrities who go gluten-free

- Elisabeth Hasselbeck
- Miley Cyrus
- Lady Gaga
- Zooey Deschanel - "The New Girl"
- Emmy Rossum
- Jennifer Esposito
- Keith Obermann - Political commentator

¹⁹ http://www.datamonitor.com/store/product/market_opportunities_in_gluten_free?productid=CM00234-027

²⁰ 2008 Understanding Gluten-Free Shoppers' Survey