

MORE THAN JUST

KETCHUP

WHITE PAPER BY



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The history of ketchup

Almost everyone knows ketchup and uses it often, but where did this sweet red sauce actually come from and has it always been as we know it today? The sauce that is a component of virtually every refrigerator and that the majority of the world's population often eats with pleasure.

Most likely, it originated from a dark fermented fish sauce that was brought to southeast China by Vietnamese traders. The Chinese word for this fish sauce was kê-tsiap, meaning brine from pickled fish. When the British started going on trading expeditions in China in the late 1700s, they discovered this sauce and brought it back to Europe, where it was named Ketchup. One thing is certain, though. It was not ketchup as we know it today, but a generic term for sauces based on vinegar.

The evolution of ketchup

Tomatoes had already made their way to Europe from Central America several hundred years earlier, but it wasn't until the mid-19th century, when work on refining ketchup had been going on for several years, that the idea of adding tomatoes came about. With the addition of tomatoes, it began to resemble the kind of ketchup we know today. However, the challenges were still big. As the tomato harvest was limited to a small part of the year, the preservation of ketchup was a big problem. The shelf life was simply too poor, and could not possibly last until the next tomato harvest came. It was only when ripe red tomatoes, which contain more of the natural preservative pectin, were used, along with an increased amount of vinegar, that ketchup began to last longer. This combination of tomatoes, vinegar and other spices, which made the ketchup preservative-free, is the ketchup we all know today.

The spread of ketchup

When ketchup was successfully produced using pectin as a preservative instead of artificial agents, its popularity really took off. However, it was not just the ordinary tomato ketchup- many different sauces based on the same principle were developed, which can be seen in various supermarkets, where not only ketchup, but similar sauces occupy many shelf meters, giving the consumer a wide choice depending on taste and liking.

Ketchup is now widespread throughout most of the world, though with the largest share in the northern hemisphere. From North America to Europe to Russia, ketchup is a very strong product, whereas in Africa its distribution is very low. In between are Latin America and the Asian continent, where penetration is increasing.

Market trends in ketchup

On a worldwide basis, ketchup has a CAGR (compound annual growth rate) of just over 5%, with the North American market taking up a significant proportion of global market revenues. This is linked to the proliferation of QSR (Quick service restaurants) and fast food. Less time spent preparing food and more time spent on convenience may affect the growth of ketchup on a global basis.

The most growing market is undoubtedly the Asia-Pacific market. This comes from the increased consumption of fast food, which is linked to greater Westernization, but the Latin American market is also developing strongly, reflecting increased incomes, particularly for consumers in larger cities. The Middle East market has looked promising for many years, and as many countries in the region continue to increase economic development, the fast food industry is also growing steadily in this region.

In short, the spread of ketchup is very much linked to the spread of fast food, which in turn is dependent on economic development, and it is expected that this trend will remain and that the market for ketchup and other red sauces will grow steadily over the next few years.

Similarly, the ever-increasing population has a major impact on the growth of the ketchup market. Especially in developing countries, where the influence of the Western world and its eating habits is strong, there could be an explosive increase in the market for ketchup over the next five to ten years.

The impact of fast food and take-away on the ketchup market has been seen recently, with volumes increasing to the point where several producers are struggling to keep up with demand. In particular, the small ketchup packets, which are very common with take-away, have placed great demands on producers, who were simply unable to keep up. This scenario has been seen over the last year as the Covid pandemic has changed people's eating habits from eating in restaurants to using take-away significantly more.

However, there are also some trends moving in the other direction. As generally the Western world is much more concerned about the health and quality of the products used in cooking than before, the well-known ketchup brands are under pressure. Where the market used to be dominated by the big well-known brands, smaller companies with different values for their products are now seen everywhere. Exactly the values that are now trending in the western world with sustainability, health and people generally being much pickier about the products they use.

The challenges of ketchup production

With ketchup being such a well-known and well-liked product, we also see a very conservative approach to the production of ketchup. While there is much research into different flavor variations, as well as sugar-free products, organic raw materials and so on, there is great reluctance within the various producers to change production methods, as there is a fear that consumers will not welcome changes to the product, they know so well and enjoy so much.

This poses a major challenge for producers, who find it difficult to optimize production methods, which can lead to better profits.

The production of ketchup and its costs are mainly linked to raw materials, with tomato concentrate representing the largest financial part of the production costs.

And here we see the conflict between the large established brands, which have followed the same recipe for many years, where the recognition factor is high, and then to the small new brands, which are much more daring in terms of production methods and recipes.

As ketchup and similar red sauces are all produced with heat input, as the product has to be cooked, the scope for optimization is limited. The heating process itself cannot be accelerated, as either more heat or faster cooking can significantly change the taste and texture, which is obviously not the desired result. One option is cooking under vacuum, but this entails the problem that the

flavorings have to be captured, condensed and then reintroduced into the product. This is all something that is already being worked on extensively, but how can we optimize in a way that does not compromise quality and meets consumer expectations of the product?

By reducing the amount of expensive tomato concentrate used to produce ketchup, profits could be significantly increased, allowing producers to achieve a significant increase in earnings.

Traditional production methods in ketchup production have limited scope for this, as it involves a different approach to the treatment of the raw materials in the process itself. The main challenges in this respect lie in the heat treatment of the product.

By treating tomato concentrate, sugar, vinegar and spices in a much gentler way, the amount of tomato concentrate can be lowered without losing the good and familiar taste of ketchup. This is where the actual heat treatment of the product comes in. This must be done with a steady increase, without overheating individual parts of the product whilst risking that other parts of the product do not get the necessary heat. In other words: the heat treatment needs to be homogeneous. If this is not possible, you have to compromise to achieve the desired shelf life and therefore overheat the product to make sure that everything has got the necessary heat, all at the risk of destroying parts of the product. This part of the process is extremely important as the need for chemical preservatives must be avoided.

As mentioned above, the heating process must work optimally, and therefore other ideas must be considered with the heating itself. What we want is a stable heat supply of the whole product, while treating it as gently as possible.

Flexibility is the key to success

Another challenge of ketchup production is to have the optimal production of ketchup whilst maintaining a high degree of flexibility. Consumer trends change a lot, which places great demands on the adaptability of production facilities, thereby changing production to adapt to customer demands and needs. As stated earlier, ketchup is no longer a stand-alone product in supermarkets, but has been joined by countless other red sauces made with ketchup in mind, as well as the many different variations of ketchup itself. It can therefore be seen that the former importance of stable mass production with a high throughput has changed to a production where flexibility is more important, as smaller quantities of the same type of sauce are now often produced, but up to several different sauces on the same production site.

What ProXES can offer

At ProXES, we have worked hard in precisely optimizing ketchup production, to be able to offer modern production equipment that meets the increased focus on better and more optimal production, with greater profitability for the producer. At ProXES, we have complete production lines ready to meet the challenges of increased profitability and flexibility, so that production can be quickly adapted to the constant changes in consumer demands, thus following the trend of the times. Contact us today and let's talk more ketchup and sauces!



WE ACCELERATE YOUR IDEAS

With three leading brands FrymaKoruma, Stephan and Terlet under one roof, ProXES combines long-standing expertise with a challenger mindset. As an agile partner, we support our customers from first product concept to industrialisation and empower them to bring their ideas to life. Together we set trends: Through sustainable and innovative solutions we drive our customers' success today and help them shape future markets.

In addition to the standalone FrymaKoruma, Stephan and Terlet products, ProXES combines their technologies to create modern process

lines. By using the most advanced automation and service concepts, ProXES facilitates competitive advantages for customers in the food, pharmaceutical, cosmetics and chemical industries. How can we help your business?

FROM INSPIRATION TO FEASIBILITY

Our process technology and training centre is a space to try out new ideas. Here you can develop or improve formulas in a professionally equipped laboratory, test any kind of machine, perform scale-ups and produce test batches. You will receive expert advice and support on all the capabilities of the technical equipment and modifications.

GET IN TOUCH WITH OUR EXPERTS



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