# Competence in corn

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Corn plays an important role in the international food processing industry, as a raw material for snacks and staple foods and Bühler has been an expert in corn processing technology for many years.

In addition to the conventional processing of corn into maize grits, semolina or corn flour, Bühler has also developed special processes to meet local or regional requirements.

For many of us, snacking has become part of our daily lives. Whereas, in the past, we used to snack on not-so-healthy treats such as chocolate or cookies, the growing "snackification" trend has brought a change in our eating habits.

For many, snacking no longer represents eating between meals but instead snacks have become mini-meals.

Corn is one of the raw materials used for manufacturing extruded snacks. However, in many countries, corn is also the number one staple food. More corn is grown throughout the world than any other grain crop. Every year, more than 1 billion tonnes of corn are harvested and 70 percent of this is processed into animal feed. The remaining 30 percent, around 175 million tonnes, is used for manufacturing food and in industrial applications such as starch used in the production of paper and chemicals.

## Bühler: The corn specialist

Bühler has decades of experience with corn and covers all stages of the corn processing chain. In conventional corn processing operations, optimal results are achieved from the combined outcome of each step.

During raw material intake and cleaning, impurities such as small stones, sand, and defective grains are removed. If there is an aflatoxin contamination, Bühler's optical sorting machine can detect and remove infested grains with great precision.

During degermination, bran and germ are efficiently removed from endosperm before subsequent grinding. With efficient grinding processes, end products can be adjusted to the required granulation. Conditioning and flaking are optional stages in the production of pre-cooked food.

## Local corn specialties

Bühler's corn solutions set the standard for efficiently processing raw material, corn, with maximum yield, consistently high-quality end products as well, prolonged shelf life and higher food safety.

Each individual process stage is fully integrated into the production line, from the raw material to the end product.

Bühler not only delivers the traditional integrated processing solutions for grinding corn into top quality semolina and flour, but has also adapted conventional processes for manufacturing local corn specialties, such as arepa flour, tortilla (nixtamalised) flour and African maize meal.

## Environmentally friendly process

In Central and South America, nixtamalised corn flour is used to produce tortillas, tortilla chips and other snacks. In the traditional corn nixtamalization process, corn is cooked in limewater for several hours before being ground. This process gives the finished tortillas and tortilla chips their characteristic taste.

A large amount of water is used in the traditional nixtamalization cooking process such as 1,500 litres to process 1,000 kilogrammes of corn. The addition of lime contaminates the cooking water and requires expensive reprocessing plants to purify the wastewater. Therefore, the operating and investment costs for wastewater treatment are extremely high.

## Environmentally friendly solution

Bühler's innovative process for manufacturing nixtamalised corn flour is marketed under the name "Prime Masa Nixtamal" and is similar to the flaking process of cereals. Cleaned and degerminated corn is stored ready for processing. The maize grits are then treated with limewater and further steamed at the central Nixtamal process step. After steaming, maize grits pass through a flaker and then to a drier and cooler. Finally, the dried and cooled flakes are ground into fine corn flour.

The advantages of Bühler's new process for manufacturing tortilla flour are obvious. Instead of 1,500 litres of water, used to process 1,000 kilogrammes of corn into nixtamalised corn flour, Bühler's new nixtamal process requires just 150 litres. So water consumption is reduced by 90 percent. In addition, the steaming process is shorter than the traditional cooking process, which means that energy consumption is reduced by 27 percent. Compared to the traditional nixtamalization cooking process, overall operating costs drop by about 30 percent.

## No wastewater, same flavor

The biggest advantage of Bühler's Nixtamal Process is that drastically less wastewater is produced.

Less wastewater means no more need for expensive wastewater treatment plants to be built and maintained.

More importantly though, the new process does not alter the flavor of the tortillas or tortilla chips. Numerous tests and tastings with specialists and consumers gave a clear result: no difference is perceived between tortillas produced using conventional methods and those produced using Prime Masa.

## Snackification

Snacking has become a way of life. Not so long ago, people used to sit down to three regular meals a day. A snack was enjoyed when hunger called between meals.

However, in recent years, our eating habits have evolved enormously, particularly during the week. We fit our meals into our schedules rather than planning around our meals. Lunch is nibbled on during meetings and the evening meal is quickly gobbled down between other activities. Even breakfast is grabbed on the way to work. Meal times have been replaced by snacks.

But in all lifestyle changes, it is essential that we look after our health. Snacking should not just be practical, but also serve our physical well-being. With the latest "snackification" trend, the focus is on healthy eating, rather than mindlessly snacking.