PULSES, SPICES & SESAME SEEDS.
A Bühler publication.

Supporting the International Year of Pulses 2016. Delivering innovative, comprehensive processing solutions for safe and nutritious pulse products.

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New pulse processing technologies meet changing world needs

With the world’s population expected to grow from 7bn to 9bn, it will not be sufficient to just increase the amount of produced food. Food products will have to become more efficient, sustainable, and satisfy new food habits.

Fortunately, pulses have the potential to meet this transformation, although many issues have still to be addressed, including improving processing technologies and greater integration of the value chain.

Perhaps the first thing to appreciate is the attractiveness of pulses. They are highly nutritious, rich in protein, minerals and vitamins and are increasingly recommended by health organisations, as part of a healthy diet and are more efficient to produce than meat.

Regardless of these impressive nutrition and environmental advantages, pulses are often still relegated to a secondary role in the global food landscape.

About 70% of production takes place in developing countries, but more recently, it has been increasing in other parts of the world such as Australia, America and Canada, with large-scale industrialised farms.

Despite this increase, pulses are still mostly used as staple food in some parts of the world, suggesting that there is considerable potential for growth in their consumption.

They can be sold as ingredients for home cooking, or incorporated into manufactured foods, thereby adding to the value chain.

Interestingly, people’s taste varies by region around the world, and the versatility of pulses means they are easily adaptable to different tastes.

The global food industry is becoming ever more aware of the potential offered by pulses to deliver innovative food products, with strong consumer attributes.

New applications are being developed for example, processing of pulses and their fractions into extruded or baked snacks, pasta, noodles, which can be produced in high volume. A significant advantage of this is that new techniques often reduce the amount of waste, adding significantly to the overall efficiency of pulse production.

One example, is the incorporation of hulls of de-skinned pulses into conventional products, supplementing dietary fibres.
Pulses require accurate processing in order to be transformed into nutritious and safe food. After harvesting, they undertake a series of processing steps, depending on the final form required for the particular market.

These process steps ensure that they are free from impurities, uniform in size and colour, nutritional, easy to cook and digest.

The traditional pulse processing, based on many small, inefficient mills is now transitioning to a new form, based on two types of mill: modern high-volume mills, achieving efficiency through economies of scale to address the mass markets, and smaller specialist mills - modern, hygienic and efficient - to satisfy niche markets.

The older mills can be characterised as manually operated with high labour costs, poor energy efficiency, low yields and product wastage. Additionally, they have poor dust extraction and machinery is prone to break down.

Fortunately, all of these issues are addressable, using state-of-the-art technologies.

Modernised mills will be more sustainable (both economically and environmentally), commercially viable and help to generate wealth for their local communities.

In the near future, automation will be increasingly used to ensure consistent quantity and quality of throughput. There will also be technological solutions for reducing processing time, improving hygiene, increasing productivity and enhancing nutrition.

These developments can be classified as improving existing techniques and systems, but there is also considerable effort going into creating true innovation, which will drive revolutionary new solutions into the industry and open up new markets.

The changes in the food market, driven by global population and environmental trends, as well as the advantages of pulse processing, provide the perfect framework for a very successful and impactful International Year of Pulses.

The challenge is now to set high targets for this initiative, and catalyse the forces of the pulse community - private sector, governmental bodies and scientific community - to achieve them. If we can do that, the ultimate goal of worldwide food security within the foreseeable future will come a big step closer to being realised.
High-Performance Extruder POLYtwin™
The POLYtwin™ is a twin-screw extruder solution suitable for various applications. Operates to a high hygienic standard to meet food safety guidelines.

New application:
Extrusion. A technology with high potential.

Traditionally, pulses are still the main staple food source in some parts of the world.
However, with increasing awareness of its nutritional benefits; rich in protein, vitamins and minerals, there are suggestions for potential growth in alternative ways of consuming them.

One such potential, is to process pulses into extruded products; pasta, noodles and healthy snacks, suitable for mass consumption. This process, known as extrusion, significantly improves taste and digestibility – making it more palatable to the general population.

Extrusion combines several intricate process stages that delivers an end product to a specific shape requirement, for example, spaghetti shapes. It mixes, kneads and cooks raw pulses by use of thermal or mechanical energy and uses high pressure to press a malleable mass of pulses into a shaping tool.

The four main parameters to consider are water content, specific mechanical energy, specific thermal energy input and time.

For information on the process or Bühler’s range of extrusion solutions, email us at: pulses-spice.processing@buhlergroup.com.

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Bühler location for pulses, spices and sesame seeds processing capabilities.

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For more information:
Please read our dedicated Pulses, Spices and Sesame Seeds processing brochure, available to download at www.buhlergroup.com/pulses.

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