



# Pulse rising

## Technology adaptations in the pulses in the industry

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**T**he demand for pulse-based products is rising all over the world. With a growth forecast of more than 21 percent for alternative proteins, it is one of the fastest growing markets in the food industry. As promising next-generation ingredients, pulses have great potential for responding to these trends. Beans, peas, lentils, and chickpeas are very healthy and environmentally friendly. With more than 80 million tonnes produced globally every year, pulses are readily available and therefore are destined to play an even more prominent role in future food formulations. With the changing times and advancements in the development of pulses market, it is imperative that further research be carried out to discover more novel ways of utilising this highly versatile food ingredient.

Pulses are edible seeds from the legume family that are high in fiber and protein. The many varieties differ in size, shape, and composition. Traditionally pulses have been consumed whole, split or baked in nourishing dishes. Innovations in healthy

alternative foods have paved the way for more usage of pulses as an ingredient in many consumer foods. The most popular ones are ingredient products such as pulse flour and pulses protein concentrates/isolates, which are all increasing the popularity and demand for pulses. The newest trend is the use of pulse protein to produce meat and dairy alternatives. Pulses are now thought to be a superfood that can help to meet the challenge of feeding the world's population in a sustainable way by 2050. In order to meet global food requirements, the processing of pulses is evolving and traditional cleaning and dehulling facilities are being modernised like never before. Let's delve into the details of the technology adaptations and changes happening in the pulses industry.

### **The first step: Getting the pulses cleaned**

Harvested pulses are generally cleaned by mechanical machines. Added value for end products has forced the industry to make its cleaning facilities more efficient, with minimum good product wastage and maximum impurity separation becoming the norm. Fabricated cleaning units with round screeners are

constantly being upgraded with multiple-stage specific cleaning facilities comprising pre- and fine cleaning along with destoner and gravity separator machines. We are also seeing consolidation in the industry towards higher capacities, mainly with the objective of optimised production costs and commercial viability.

### **Dehulling of pulses: a critical process step that defines the yield**

Dehulling of pulses is also on the path to modernisation, with dust-free and well-designed processing facilities. Dehulling is at the very heart of milling and defines its yield. Conventional pulse dehulling systems, where the plant and machinery are fabricated on site or built with less precision, prove to be highly labor-intensive, with inefficient plant utilisation, unacceptable quality, and poor hygiene. All these contribute to low productivity and low profitability. Pulse dehulling facilities that offer more options for adjustments based on different raw materials and intelligent tracking of process are fast replacing the conventional process. The new developments ensure that the highest yield is maintained in the process and product information is tracked and monitored to allow the operator to make quick adjustments.

### **Taking color sorting to the next level**

Everyone deserves access to safe food. Sorting technologies have evolved to suit ever-growing market challenges. Smart sorting maximises the transparency of the sorting process with data capture and visualisation

Plant-based burger, only one of the many varieties



PulsRoll Roll Dehuller from Bühler



Mercury MES plant control system for mill performance data capture

and helps to transform the plant digitally. It also helps in maintaining the highest food safety standards.

New features, software solutions, and frequent upgrades help the SORTEX machine become a state-of-the-art piece of equipment in every plant. A new suite of algorithms and advanced learning techniques has been developed to take the ability to remove foreign matter and subtle defects to the next level while increasing the product yield. The all-new calibration and product tracking algorithms ensure that machine performance is consistently high.

Smart milling is the future

In line with Industry 4.0 standards, pulses mill can also control and observe machine performance from anywhere. Automation and intelligent features allow data capture and online monitoring of the process. These features help to make manpower-dependent processes like pulse dehulling much simpler and easier to carry out. Automation is critical when there is a need for higher capacity in processing facilities.

### Top ingredients

The use of all types of pulse-based ingredients in food and feed offers great potential. Whether such ingredients are used solely or mixed with other cereal ingredients, the key will be to find the right proportions to satisfy local consumer preferences, especially in terms of taste. Healthy, sustainable, versatile, and convenient, pulses are the perfect answer to every food trend. When processed into functional ingredients, they can enrich the nutritional value of common foods like bread, pasta and snacks with fiber, protein, and several micronutrients. As there is always room for innovation and product development, the processing of pulses into ingredients will continue to prove highly important and is set to maintain the dynamism, variety, and excitement of the shopping experience for decades to come.

### Alternative protein: the highest value driver

It is estimated that by 2050 an extra 265 million tonnes of protein will be needed to meet the demands of the world's population. As such, finding new protein sources is essential. From pulses, soy and oilseed, to upcycling side-streams or newer ingredients like microalgae or insects, the market is exploring new ways to develop sustainable alternatives. More and more consumers are now demanding environmentally friendly products

such as meat and fish substitutes. With over 80 million tons produced globally, pulses are essential in ensuring sustainable protein security. Pioneering processing technology makes it possible to examine the potential of pulses as a sustainable protein source. Integrated processing solutions such as protein separation, extrusion, or texturing of protein-rich pulse flours into textured vegetable protein (TVP) products are making the pulse value chain even more lucrative. From bean to burger, the pulse journey is more exciting now than ever.

### Bühler in the pulses industry

There are more than 20 varieties of pulses, and the processing requirements for all of them are diverse and complex. Bühler has been able to close the gap in the value chain by helping processors around the world to adopt hygienic, sustainable, and profitable methods of processing pulses. With an increasing number of consumers seeking more choices in healthy, convenient, and tasty food products, the future of pulses looks very promising. Bühler recognises the enormous value of pulses and has developed a broad portfolio of complete solutions in this segment, from processes such as cleaning, splitting, dehulling, and grinding to protein extraction and value-added finished products such as meat and dairy alternatives, snacks and pasta. Bühler now has more than 100 pulse processing facilities spread across the globe, where a variety of pulses is processed using the most advanced solutions.

With its three Food Application Centres in India, Switzerland, and North America specialising in pulses, Bühler supports its customers in developing the most suitable process for the profitable utilisation of pulses. In response to the growing demand for pulse protein extraction, our facilities in Switzerland will be expanded later this year to include a Protein Application Centre equipped with the latest technologies from us and our partners, enabling us to conduct customer trials for protein concentrates and protein isolates. This makes Bühler the go-to partner for catering to the demands of a rapidly growing food market. With the advent of these novel solutions, billions of people now rely on Bühler technologies to cover their basic needs for food and mobility every day. Basking in this global relevance, we are in a unique position to turn one of our global challenges into a sustainable and expanding business.

[www.buhlergroup.com/pulses](http://www.buhlergroup.com/pulses)