



Soya – King of the crop!

Soybeans, also known as soya, are a type of legume cultivated for its edible seeds and rank among the five oldest cultivated crops. While soybeans are native to Northeast China, Chinese traders introduced this crop to Sub-Saharan Africa in the 19th century.

In South Africa commercial cultivation was already underway by 1903 and it is currently considered as one of the most economically significant crops, with Southern Africa contributing approximately 39% of the African continent's annual production.

Globally, soybeans are a popular commodity due to their versatility, serving purposes that range from nitrogen fixation as a rotational crop, to industrial applications as well as various uses in the food and beverage sector.

However, despite its excellent nutritional value, soybeans are primarily produced for animal feed, oil, and non-food products like biodiesel, with only 6% of the soy produced being intended for human consumption. In the food and beverage sector, soya is utilised as an emulsifier, a protein alternative to meat and dairy, a protein supplement to grain cereals, a source of oil, an ingredient in various sauces, as well as soya flour used in the manufacturing of baked goods.

Not surprisingly, the growth in global demand for soya is mirrored in South Africa, with soybean production reaching 2.6 million metric tons in the 2022/23 crop, yielding a 23% increase from the previous year.

However, although the intended use in human nutrition remains the lowest when considering global trends, its use is steadily increasing in the sector yielding a significant increase in the cost per truckload

over the past 10 years. While the baking industry remains the primary user, the biggest increase in the use of soya has been observed in school nutrition programs where it is used as a key ingredient in low-cost cereals, as well as in the health-conscious consumer market.

To meet the rising demand for soy products, various soya product-producing companies have been established in South Africa. Impilo, established in 2004 and recently acquired by Synercore Food Holdings, is one of South Africa's leading soya ingredient manufacturers, specialising primarily in the supply of soya flour to cereal manufacturers and bakeries.

Soy flour can be categorised into two main types namely "Enzyme active", where the soybeans are milled as a raw product, maintaining native enzymes activity, and "Enzyme inactive", where the beans are subjected to high temperatures prior to milling rendering the native enzymes inactive.

Enzyme active full-fat soya is added to bread formulations at a dosage up to 0.5%. The lipoxygenase enzyme within the flour functions as a natural bleaching agent, resulting in a whiter crumb. The lipoxygenase also has an impact on the gluten network, which leads to increased dough strength. A strong dough is required to avoid the possible collapse of the bread during proofing. Enzyme inactive soya

flour is predominantly used as a protein-rich ingredient in various food applications including protein substitutes, plant-based beverages, or as a thickening agent in soups and sauces.

Recent trends in health-consciousness and veganism resulted in a shift to predominantly plant-based diets, leading to an increase in the availability and use of plant-based proteins. While plants are generally not considered good sources of complete protein, soy- and quinoa proteins contain all nine essential amino acids in sufficient amounts making it comparable to meat. However, soya contains approximately 61% more protein than quinoa and therefore makes it an excellent alternative for individuals who follow vegetarian or vegan diets as well as in state feeding schemes where meat is considered to be too costly.

In the food industry, where soya has multiple applications, significant emphasis has been on genetically modified (GM) soya vs. non-genetically modified (non-GM) soya. Many consumers reject the consumption of GM foods due to the perception that these items are unnatural and unhealthy.

Although GM soya is one of the most genetically modified plants in the world, GM soya is mostly used for animal feed while non-GM soya is predominantly meant for human consumption. At farm level, cultivation of non-GM soya requires more effort to ensure the desired outcomes without compromising the quality. Consequently, farming non-GM can be costly, resulting in a higher market price. This price is also influenced by availability and market conditions.

To cater for the evolving market demands and to emphasise Impilo's commitment to offering choices in response to the growing consumer preference for non-GM products, 22% of the company's procurement is comprised of non-GM varieties.

Soybeans are procured from various South African farmers and supplemented by imports from Zambia or Malawi in the case of a shortfall. Contracts for non-GM soy are established with specific farmers before the planting season, fostering longstanding relationships. To maintain the integrity of non-GM soybeans, farm tests are conducted by third-party contractors before harvest, and each delivery undergoes additional quality testing at Impilo. Stringent protocols prevent cross-contamination during processing, with non-GM soya products stored, cleaned, and processed separately.

Impilo's soya products adhere to the highest standards, with full FSSC 22000 Certification ensuring product quality and safety during the storing and manufacturing process. While maintaining excellent quality standards, Impilo also ensures the milling process achieves the desired physical characteristics of excellent soya flour without losing fat or producing a larger than desired particle size which could limit optimal water absorption.

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and applications. Furthermore, only approximately 5-6% waste, comprising of soya hulls and impurities, is generated during manufacturing. However, this waste serves a valuable purpose as animal feed making the soya flour manufacturing process 100% utilisable.

As soybeans continue to play a crucial role in both global and local economies, Impilo's emphasis on quality, sustainability, and meeting consumer preferences will continue to drive innovation and growth in the soy industry.

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