



Vanguard of the meat industry

By Dr. Stefan Hayward and Dr. Francois Mellett

The processed meat sector has recently been served multiple blows from the imposition of stricter sodium reduction regulation, a reduction in the meat content under the APS Act as well as load shedding.

This has led to a reduction in the efficacy of salt preservation, an increase in water content, and subsequent water activity, as well as a significant impact on temperature control across various stages, including ingredient preparation, processing, transport, wholesale, and retail sectors.

Consequently, the shelf-life of processed meat products has been severely affected, resulting in higher wastage, increased levels of microbial contamination, and the potential risk of food poisoning.

The conventional preservatives used in South Africa, such as nitrites, nitrates, benzoates, sorbates, and sulphites, are insufficient in protecting pre-packaged processed meats under the current constraints.

While recent developments in the application of food acids have contributed to improved food safety and shelf-life extension under optimal cold chain conditions, these are not effective in cases of an interrupted cold chain. The break in cold chain, due to load shedding, is responsible for up to 75% reduction in shelf-life. The entire process therefore needs to be reconsidered.

In response to these challenges, a team of scientists from Synercore's meat division in collaboration with Flavorpack, led by Dr. Francois Mellett, proactively embarked on developing a range of products for the meat processing industry.

The team began by identifying bulking agents and ingredients that could contribute to the microbial load of cured meat products, thus impacting the final product's water activity and initial microbial load. Thereafter, they evaluated and selected various natural antimicrobial substances and ingredients, incorporating them into products suitable for all cured or smoked meat products.

Synercore is renowned for its scientific approach and practical solutions to shelf-life challenges in the broader

food industry, while Flavorpack focuses on natural extract addition directly in the products or as a surface treatment at the final product packing stage.

The new research drew on the strengths of both companies, adhering to simple rules aimed at preventing unnecessary product contamination during processing, after processing, and at the packing stage.

By carefully selecting additives, optimising the levels of addition, and analysing interactions between ingredients, the team successfully developed three core products: a traditional universal cure with MSG, a cure blend without MSG, and a product to control microbiological growth with naturally occurring ingredients.

These cure blends are suitable for all cured meat products, including whole muscle products such as bacon, gammon, kassler, beef tongue, and reconstituted hams, as well as all comminuted cured products like viennas, polonies, and russians. Additionally, the team developed an additional shelf-life extender (Stay Fresh) that can be added to the two cures, as an additive to emulsions, or as a surface treatment at the final packing stage.

All ingredients used are Codex approved in the General Standards of Food Additives, with South African legislation acknowledging the expertise of Codex, but still relying on traditional preservatives. Developing these products required a comprehensive re-evaluation of all aspects of food formulation, with interactions between ingredients being key components within a multidisciplinary team.

The resulting products are safer, healthier, and have lower sodium content than before, thus addressing the issue of removing common salt, the oldest preservative globally, and the lack of proper temperature maintenance. With globally acceptable ingredients, food safety is enhanced, and shelf-life is extended, resulting in cost-effective changes applied at the pre-packing level, not post-packing.

The team is currently focusing on extending the shelf-life of meat products that do not contain nitrite. The current shelf-life extenders, as well as other products developed by Synercore for the Meat Industry, are available commercially from Flavorpack.

Find out more at: www.synercore.co.za / www.flavorpack.co.za