

Sustainability in fats, oils and gum

Confectionery Production dives into the world of fats, oils and gums to examine how innovative ingredients are reshaping the confectionery industry and helping to meet demand – from plant-based alternatives to sustainability-focused solutions. **Daisy Phillipson** reports

In the dynamic world of confectionery production, the landscape of integral ingredients such as fats, oils, and gums is evolving. Making savvy choices within this realm is paramount, as consumers become increasingly aware of healthier choices – for themselves and for the planet. But amid the cost of living crisis, cost effectiveness while maintaining the same product quality when using healthier or more sustainable ingredients is also top of the agenda.

Speaking to *Confectionery Production*, Sue Allis, global technical lead at ingredients specialist Thew Arnott, identifies a number of trends emerging in the chocolate and confectionery segment right now. These include veganism, new textures and experiences, healthy indulgence and multi sensory treats. “Of course, the clean label movement continues

but is evolving into ‘clear’ labelling,” adds Allis.

“Clear labelling refers to complete transparency about what is contained in the product. These consumer preferences are prompting manufacturers to explore label-friendly and natural emulsifiers derived from plant sources.” The same can be applied to all ingredients used in confectionery production today. Alongside its diverse range of plant-based emulsifiers, Thew Arnott offers various glazing and polishing agents, including vegan, organic and clean label options.

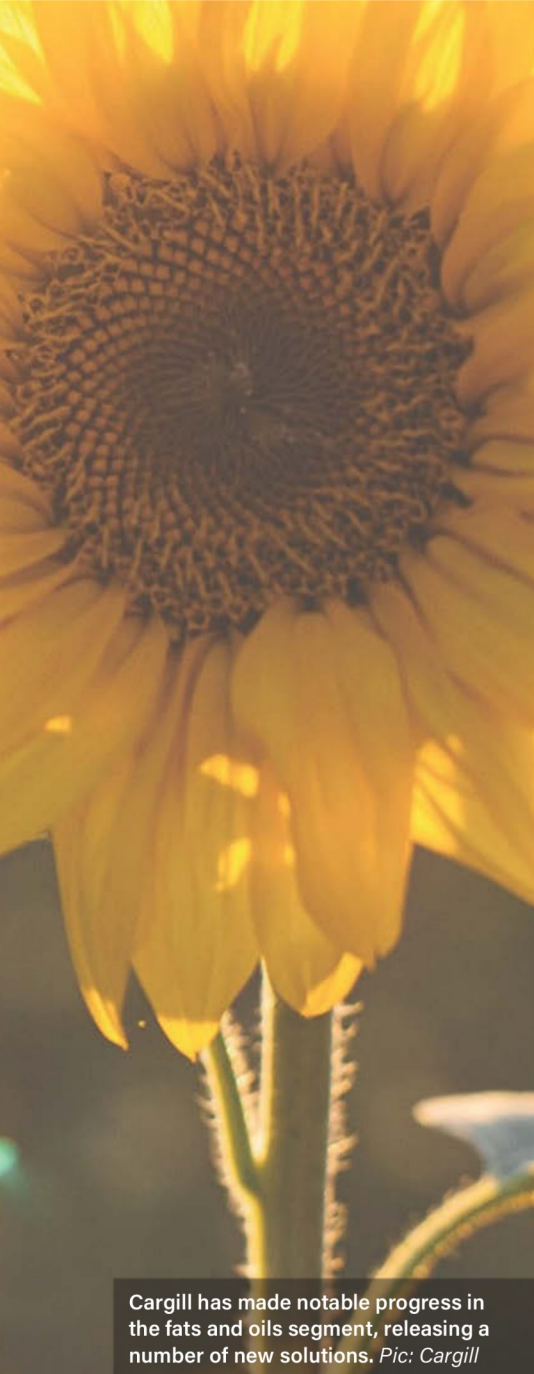
Powered by plants

Ingredients business Puratos highlights the surging demand for plant-based bakery products, as identified in its Taste Tomorrow consumer research involving a survey of 20,000 people in 50 countries, as

well as AI-powered online data science. The company found a significant 56 per cent of consumers actively seek vegan options, with strong momentum observed in regions such as the Middle East (74 per cent), Africa (74 per cent), South America (70 per cent) and the Asia Pacific (68 per cent).

To leverage one of 2024’s biggest trends, Puratos recommends re-imagining bakery bestsellers in a 100 per cent vegan format. The firm offers plant-based alternatives for the full range of essential ingredients, including speciality fats, egg replacements, whippable toppings, milk-like chocolate, cream and fat-based fillings, and dairy alternatives.

These ingredients are said to deliver on taste and convenience but also provide additional benefits, including a reduction in the environmental footprint of the products they’re used in. In the context of fats and



Cargill has made notable progress in the fats and oils segment, releasing a number of new solutions. Pic: Cargill

With sustainability also in mind, a study by Terra Institute found Beleaf PlantBetter reduces carbon emissions by 50 per cent compared to standard dairy butter. Additionally, it is composed of easily recognisable ingredients from all natural sources, making it a clean label solution.

Cost effective without compromise

Amid rising prices, saving costs and getting the most out of ingredients is of vital importance. In the world of chocolate, raw materials costs continue to fluctuate, with February seeing global cocoa prices reach the highest levels since the 1970s, at \$5,874 (£4,655) a tonne, only for them to rise astronomically to \$10,000 in the past few weeks. As stated by plant-based fats and oils group AAK, chocolate manufacturers are tasked with delivering indulgence at affordable price points while ensuring product quality remains stable.

To overcome challenges and meet demand, AAK developed Illexao, a range of fat blends that create a 'super compound'. Described as a high-end chocolate alternative that can closely mimic the sensory properties and quality of chocolate, super compound allows manufacturers to customise meltdown, texture and snap, as well as add new ingredients and functionalities, all while delivering a lower price relative to real chocolate.

Last year, AAK extended its offerings by launching Cebes Choco 15, a patented, plant-based cocoa butter substitute (CBS)

compound that allows up to 15 per cent of cocoa ingredients for superior chocolate flavour. While CBS compounds can reduce formulation costs, the company notes how many options on the market present issues with bloom and sensory qualities if the amount of cocoa ingredients exceeds five per cent.

Cebes Choco 15 supports a long shelf life and avoids bloom even in high-cocoa recipes, ensuring products retain a glossy appearance, remain hard and stable at room temperature, and are pleasant to the touch. It is also free from trans-fatty acids (TFA), enables cost-efficient processing with no tempering process required, and maintains a fast setting time.

"Cost is becoming an increasingly important factor for consumers, but taste remains the primary criterion for chocolate confectionery purchasing decisions," comments Luis Parra, AAK's global director of chocolate and confectionery Fats, reflecting on the market.

"As such, they will still enjoy small luxuries and emphasise value for money over the lowest price. We believe AAK will create more value for both customers and consumers by providing them with the right mixture of affordability and quality without the trade-offs."

Functional and sustainable

In the context of functionality and improving processes for confectionery manufacturers, Alland & Robert recently ▶

oils, an integral component for many bakery products, Puratos developed Mimetic, a plant-based butter alternative that is said to mimic butter in pastry products. According to a Life Cycle Assessment, Mimetic's environmental impact was found to be three times lower than that of dairy butter.

For its part, ingredients group Bunge recently introduced Beleaf PlantBetter, a plant-based alternative to dairy butter. The product similarly provides manufacturers with a cost-effective solution, while achieving the aeration, volume and taste required for baked goods such as croissants and cakes. A blend of primarily coconut, cocoa butter, rapeseed and lecithins, it is said to have the same melting characteristics as dairy fat and is initially designed for bakery applications, with future plans to extend to other dairy and confectionery applications.

Puratos has highlighted a major demand for plant-based bakery products.

Pic: Puratos



OILS FATS AND GUM

launched its Beyond Acacia range of high-density acacia gum granules. As stated by the natural gums company, the range preserves the functional properties of acacia gum and, once dissolved, the quality is identical to that of regular and instant varieties. With Beyond Acacia, the volume of acacia gum required to obtain a net weight of 100 grams is found to be 32 per cent lower than with instant versions.

These characteristics offer a host of benefits for industrial operators using acacia gum in their products in various applications, including confectionery. One area Alland & Robert has continued to excel in is its commitment to sustainability and ethical standards, leading to the firm earning the Fair For Life certification for its natural tree extrudates.

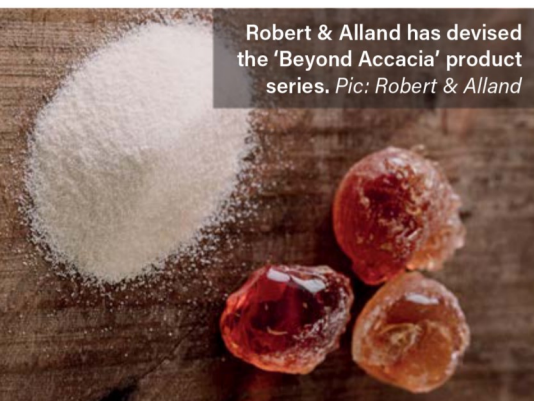


Bunge recently introduced Beleaf PlantBetter, a plant-based alternative to dairy butter. Pic: Bunge



AAK developed Illexao, a range of fat blends that create a 'super compound'. Pic: AAK

Regarding Beyond Acacia, the range's improved solubility and dispersion capacity enables users to reduce energy consumption during the industrial process, while the production phase requires less time and energy to complete. According to Alland & Robert, Beyond Acacia enables direct and indirect greenhouse gas emissions to be reduced by more than 51 per cent, helping the industry to meet its sustainability goals.



Robert & Alland has devised the 'Beyond Accacia' product series. Pic: Robert & Alland

Achieving global goals

Alongside planetary health, physical wellbeing is front of mind. Industrially produced trans-fatty acids (iTFA) have been under the microscope in recent years due to their associations with increased risk of heart disease and the fact they have no known nutritional benefits. The World Health Organisation's (WHO) target is to have iTFA fully eliminated from the global food supply.

Helping to meet this goal is Cargill. At the start of 2024, the food group achieved its 2021 pledge and announced it had become the first global supplier whose entire worldwide edible fats and oils portfolio meets the WHO's best practice standard on iTFAs, limiting iTFA content to no more than two grams per 100 grams of fats and oils, including in countries where there is currently no legislative mandate.

Thanks to early innovation, millions of dollars of investments in capital expenses

and resources, and thousands of R&D hours, the business has removed more than 1.5 billion pounds of products containing iTFAs from the global food supply.

"Taking this industry-leading step, even in countries without current iTFA legislation, helps ensure consistency in their supply chain for larger food manufacturers, while offering Cargill's breadth of innovation and experience to smaller manufacturers," says Natasha Orlova, Cargill vice president for edible oils and managing director for North America.

Alternatives in edible fats

Another edible fat that has been placed under increasing scrutiny is palm oil due to its contributions to deforestation and social injustices. As a result, many manufacturers of chocolate products are looking for alternative formulations, notes edible oil and fat specialist Nutriswiss. The company has recently investigated some novel tools and methods that help to replace palm fat with organic-certified vegetable alternatives such as shea, cocoa butter or coconut oil.

"Although some organic-certified solutions are available in the form of modified oils and fats, pure substitutions generally involve a loss of flavour and there are issues with eutectic behaviour – especially with cocoa butter and coconut," explains Frank Möllering, research and development manager at Nutriswiss. "There is light at the end of the tunnel, though, and flexibility to be gained in the organic sector."

Möllering goes on to highlight organic-certified structured triglycerides (TAGs) as a solution that offers a broad

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Luis Parra, AAK's Global

range of opportunities when it comes to the development and formulation of confectionery, bakery, fillings and chocolate-hazelnut spreads. “With the help of various steps within an innovative process sequence, the triglycerides can be restructured. This results in different physical properties that enhance the crystallisation behaviour and ensure the desired soft and creamy mouthfeel.”

The Nutriswiss team is able to create customised recipes that optimise the final product and take the manufacturing process into account. TAGs can be used, for example, as filling fats for bars and chocolates. Ingredients such as nuts, nut oils and milk fat can be incorporated, and despite their delicate melting behaviour, the resulting fat creations are said to have good temperature stability and prevent migration and fat bloom.

“For creamy chocolate fillings in



Nutriswiss has devised customised recipes that optimise final products. Pic: Nutriswiss

croissants, for spreads and to garnish biscuits, variants based on cocoa or shea butter with sunflower oil, for example, can also be prepared without tempering,” adds Möllering. “Finally, in bakery applications, chocolate-covered biscuits can be made with a TAG-based glaze that shows good drying and tightening behaviour and doesn't smear on contact.”

Meeting consumer demand for the substitution of palm fat is no mean feat, but Nutriswiss is able to offer its experience and expertise to help manufacturers achieve objectives. In a world where consumer preferences evolve rapidly and societal and environmental concerns loom large, the role of the right solutions provider cannot be overstated.

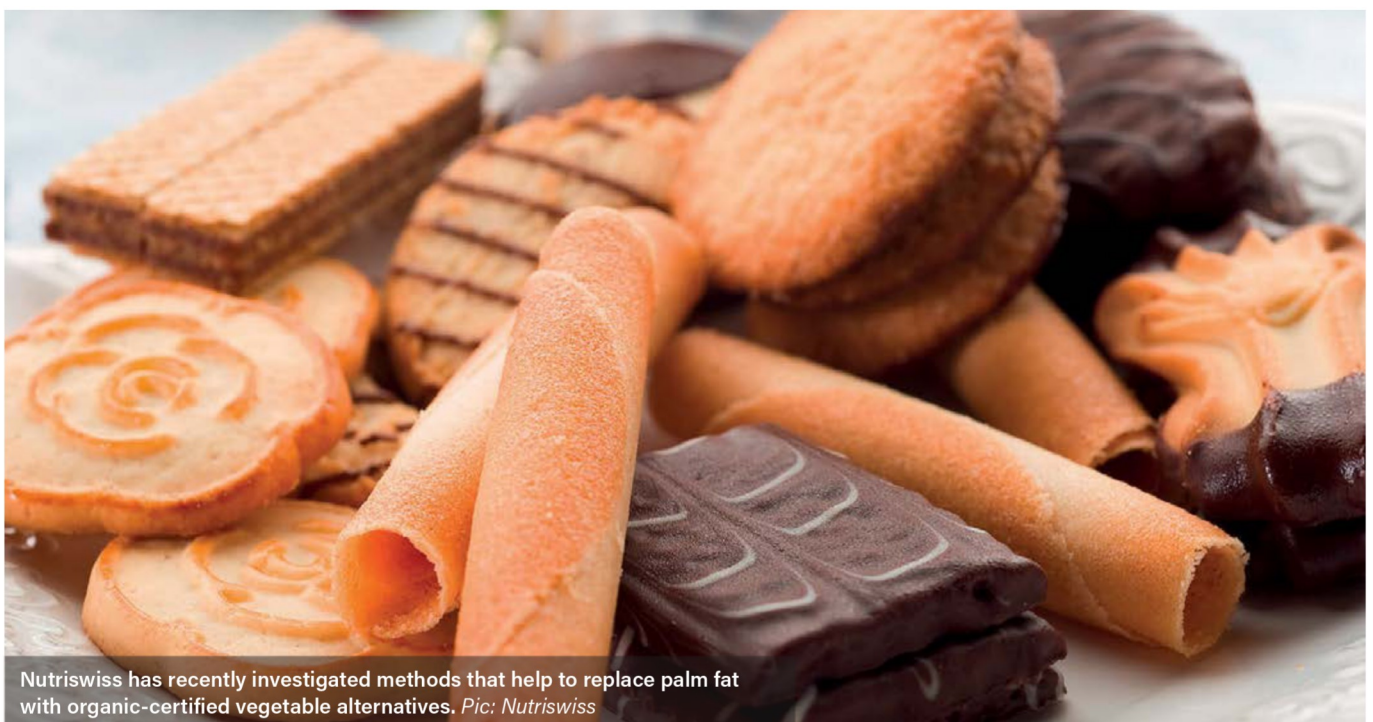
Whether it's fats and oils or gum bases, finding a partner with the expertise to tailor solutions to individual requirements is paramount. Cafosa, for instance, not only

Cargill has removed more than 1.5 billion pounds of products containing ITFA acids from global supply chains.

Pic: Cargill



offers gum base and powdered options but also provides a suite of services, from product development to marketing support. Similarly, the aforementioned companies each bring unique offerings to the table, addressing emerging trends while allowing manufacturers to comply with regulations and embrace sustainability. ♦



Nutriswiss has recently investigated methods that help to replace palm fat with organic-certified vegetable alternatives. Pic: Nutriswiss