

NOVEMBER 2018 - JANUARY 2019 Vol. 6 • No. 4

FOOD



MANUFACTURING AFRICA

Journal for food and beverage manufacturers



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inspiring more...*

symrise



**Starches and co-texturisers:
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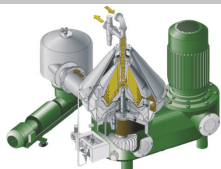
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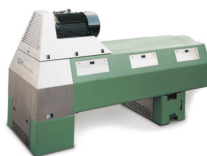
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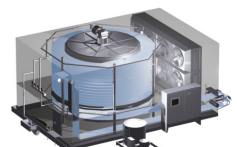
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Reap rewards in Africa

THE AFRICAN CONTINENT has millions of expectant consumers-in-waiting. To access this source of ready cash food and beverage companies must formulate competitive strategies and team up with the right local partners. Geographic opportunities on the continent can be found across several markets. South Africa remains the gateway to Africa, but unlocking the route to market in other countries will pay dividends for the food and beverage sector in the long run.

Lifting the lid on some key statistics shows the potential and growth of the consumer sector is expected to drive industry advancement. Multinational companies are already taking the leap with organic growth in key African markets.

The continent's population is expected to reach two billion by 2050, accounting for 24 per cent of the world's population. According to United Nations' data, almost 60 per cent of Africa's population will live in cities by 2050. McKinsey's recent 'Consumer Sector in 2030' report anticipates middle class spending globally will almost treble by 2030 and consumer spending will rise to USD one trillion by 2020.

Africa's large, youthful population; upward urban growth trajectory; socially-connected mobile users and untapped agricultural resources are propelling the African economy into the future. What remains certain is the need for greater

regional food security will spur future development, enhancing Africa's position as a burgeoning global supplier. Multinationals looking for new sources of growth will find an attractive and receptive market in Africa, where a large portion of disposable income is currently spent on primary and secondary food products and beverages.

The African continent is open for business!

On this very positive note, I would like to thank all our readers, advertisers and contributors for their support throughout the year. We look forward to bringing you relevant and up to date information in 2019!

Happy reading,

Maryke



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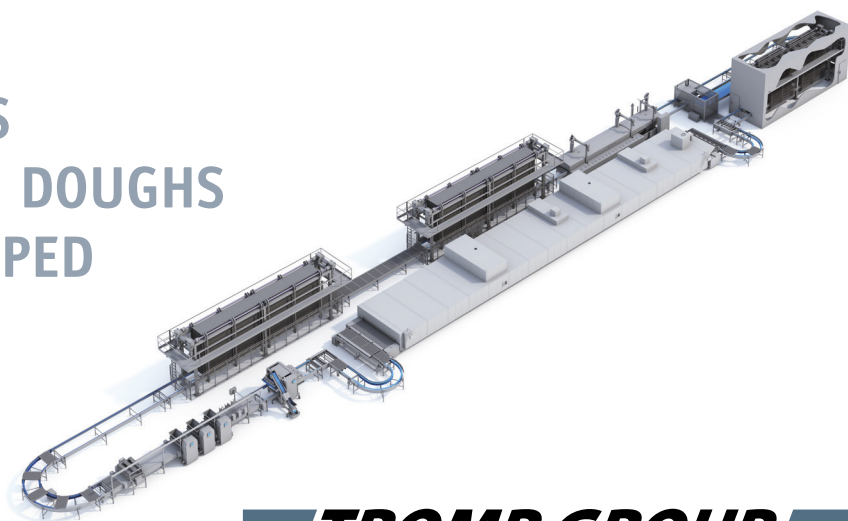


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Food and drink in focus

THE MUCH ANTICIPATED

food & drink technology Africa (fdt Africa) will return to Johannesburg next year. It brings with it the full lab-to-table value chain in the food, beverage and packaging industry to sub-Saharan Africa. Presented by leading international trade fair organiser, Messe Muenchen South

Africa, the trade fair will be staged at the Gallagher Convention Centre in Midrand, South Africa from 9 to 11 July 2019. The event will be co-located with IFAT Africa - the premier environmental technology trade fair for water, sewage, refuse and recycling, and analytica Lab Africa, the international trade fair for laboratory testing, analysis, biotechnology and diagnostics.

fdt Africa covers the entire food and beverage process chain – from raw materials and processing through to packaging and logistics. Delegates can explore lab equipment, analysers and services, coupled to water and waste processing and treatment technologies. Co-location of these three events maximises overlaps and synergies between the three sectors, giving an expected 6 000 visitors access to the latest technologies across the entire value chain. This includes solutions to key industry concerns such as quality assurance, packaging, environmental issues and waste management.



A speaker at the 2018 event



What gives food its flavour?

Researchers at the Technical University of Munich (TUM), the Leibniz-Institute for Food Systems Biology and the University of Bodenheim in Germany developed a new methodical approach. It allows faster identification of flavour-giving protein fragments in foods such as cheese or yoghurt, resulting in optimised production processes.

In addition to volatile aroma compounds, non-volatile substances significantly contribute to the characteristic taste profile of, for instance, fermented food. These include fragments of long protein molecules that are produced during microbial or enzymatic conversion (fermentation) of milk or grain protein. It is still unclear which of the more than one thousand different protein fragments in fermented milk products are responsible for its flavour.

The team of scientists led by Thomas Hofmann, head of the chair of food chemistry and molecular sensory science at TUM, has developed an analytical approach to address this problem. Researchers combined existing methods of proteome research with methods of sensory research to efficiently and quickly identify decisive flavour-giving protein fragments from the totality of all fragments. 'We coined the term sensoproteomics for this type of procedure,' explains Andreas Dunkel from the Leibniz-Institute for Food Systems Biology, the lead researcher.

The team tested the effectiveness of the newly developed procedure for the first time on two different varieties of cream cheese with different degrees of bitterness. The objective was to identify specific protein fragments responsible for a bitter off-flavour in cheese that occurs under certain production conditions. Researchers started their work with an extensive review of the literature. They concluded that a total of approximately 1 600 different protein fragments contained in dairy products could theoretically be responsible for the bitterness. Subsequent liquid chromatography-coupled mass spectrometer investigations assisted by in-silico methods reduced the number of potential protein fragments to 340. Comparative spectrometric, sensory and quantitative analyses reduced the number of fragments responsible for the bitter cheese flavour to 17. Prof. Hofmann concludes, 'The sensoproteomics approach will in the future contribute to the rapid and efficient identification of flavour-giving protein fragments in a wide range of foods using high-throughput methods – a significant help in optimising the taste of products.'

SAB and AB INBEV support business growth



Retailers celebrate success at the SAB InBev HQ in Johannesburg, South Africa

MORE THAN 500 liquor retailers, based in South Africa, Tanzania and Ghana, completed an intensive AB InBev Retailer Development Programme (RDP) aimed at improving the chances of their businesses experiencing financial success in the mid- to long-term. In South Africa, 155 liquor retailers based in Gauteng's Thembisa, Sebokeng and Mamelodi completed the business skills training programme and graduated, along with 200 retailers from Tanzania and 200 in Ghana. 'In South Africa small business failure rate is almost 80 per cent due to a range of issues including the lack of support and resources they have available to them in managing and growing their business,' says David Hauxwell, SAB VP procurement and sustainability.

'It's important that we take a holistic approach to improving lives through business by creating new entrepreneurs and empowering existing business owners so that they operate sustainable entities. RDP training involves a combination of facilitator classroom sessions, in-store coaching and visits to the retailer's business premises, as a comprehensive approach to developing retailer business and entrepreneurial capability. The extensive network of retailers with whom AB InBev works across markets occupy the perfect position within society to be leading role models in the drive to reduce the harm caused by the misuse of alcohol and to encourage more responsible alcohol consumption habits amongst community members,' Hauxwell notes. SAB undertook an intensive deep-dive research amongst retailers in South Africa, Ghana and Tanzania, to understand their needs as business owners and to identify the gaps and opportunities. Training was then tailored according to this. An intensive selection process to participate in the RDP identifies those retailers with an 'entrepreneurial mind-set' and who are growth-driven. Participating retailers are based in locations where training opportunities are scarce. AB InBev intends rolling the RDP out to additional retailers across South Africa, Tanzania and Ghana in 2019, and across other key AB InBev African markets.

Emirates SkyCargo opens new trade lane



SANTIAGO WILL BE Emirates SkyCargo's sixth destination in South America following Rio de Janeiro, Sao Paulo, Viracopos, Buenos Aires and Ciudad del Este. The air cargo carrier offers customers up to 15 tonnes of cargo capacity on its Boeing 777-200LR aircraft.

The new service offers one of the fastest flight connections for cargo from Chile to destinations in East Asia including Shanghai, Middle East and Russia through Dubai. With rapid flight time, it also offers a suite of specialised transportation solutions for perishable cargo called Emirates Fresh. Its state of the art cargo terminals in Dubai have extensive cool chain facilities including dedicated temperature controlled storage areas and equipment such as cool dollies and thermal blankets to ensure cargo is well protected against thermal radiation. The main import commodities into Santiago are expected to be e-commerce shipments from East Asia.

In 2017, Emirates SkyCargo moved a total of 48 000 tonnes of cargo to and from South America helping local businesses connect with customers across a network spanning over 155 cities across six continents. Emirates SkyCargo is the world's largest international cargo airline operating a modern fleet of 268 aircraft including 14 freighters- 13 Boeing 777-Fs and one B747F.

Total plant management service launched

THE NEW SERVICE starts with a detailed audit of all equipment and systems across a customer's value chain. Analysis, combined with Tetra Pak's benchmark data on food manufacturing, enables specialists to identify opportunities and implement improvements across the customer's entire operation. All Tetra Pak Plant Secure contracts come with targets around operational expenditure reduction and capital expenditure optimisation. Dennis Jonsson, president and CEO of Tetra Pak Group explains, 'Our investment in Industry 4.0 technologies such as artificial intelligence, automation and data velocity enables us to better support customers in the digital era.'

'Tetra Pak Plant Secure is a great example of how we use new technology to broaden our perspective and deliver bottom-line benefits for our customers.' Pilot projects have been carried out in the Americas and in Europe, delivering results that are above customer expectations. An Americas-based dairy producer has reduced operational costs by more than 10 per cent in the first year of implementation and the project continues to deliver further savings. Tetra Pak Plant Secure is being rolled out to all food and beverage companies around the world.



SEED VISIONARY'S BIG PLANS FOR GROWTH

THE NEW SERVICE SeedVision, a joint venture between AGT Foods Africa and S&W, has announced the appointment of Willa Rossouw as commercial manager, SeedVision, to head the production and sale of sunflower, grain sorghum and forage sorghum into Africa, Middle East and Europe. 'I am excited at the opportunity to turn SeedVision into one of the leading seed companies in the world,' he says. 'With the backing of two powerhouses in AGT Foods Africa and S&W, I am confident we will take production of these very important crops to a new level.'



'It is fantastic to be able to grow our farming and production in Southern Africa. AGT will utilise its seed cleaning and warehousing facilities in Krugersdorp, South Africa and production facilities in South Africa, Zambia and Tanzania, which are to be expanded throughout the continent soon'. AGT Foods Africa is a subsidiary of AGT Food and Ingredients, a Canadian-based supplier of value-added pulses, staple foods and food ingredients.



THE FOOD AND Agriculture Organization of the United Nations indicates that 815 million people in the world go to bed hungry, while 1.9 billion people are overweight. Achieving a world with zero hunger by 2030 is not only possible, it is the theme of 2018's FAO World Food Day, celebrated annually on 16 October. ISO has more than 1 600 International standards for the food production sector that directly help to end world hunger by creating confidence in food products, improving agricultural methods and promoting sustainable and ethical purchasing. These include nearly 850 standards from one of ISO's most established technical committees, ISO/TC 34, food products, that encompass everything from animal welfare to food products, such as cereals and milk, and ingredients testing.

It is also responsible for the recently updated ISO 22000 series on food safety management that covers standards related to food manufacturing, farming, packaging, catering and animal foodstuffs and feed production. The key to sustainable food systems is ensuring the livelihoods of everyone in the food supply chain. ISO is currently working on several standards that do just that. A case in point, the upcoming ISO 34101 series on sustainable and traceable cocoa beans is intended to facilitate effective agricultural practices that also protect the environment and improve the social conditions of the 14 million smallholder cocoa farmers in developing countries. In the pipeline is technical specification ISO/TS 26030, a food-sector application of ISO 26000, one of the world's most referenced International Standards for social responsibility. It will give guidance on how to integrate the core issues of social responsibility into the food chain and will contribute to many of the United Nations Sustainable Development Goals by providing recommendations to businesses on how they can operate in an ethical, transparent and sustainable way.

Fry's makes waves in valuable global markets

THE FRY FAMILY Food Co., a South African-based business is showing impressive global growth with its range of chilled plant-based products. The Fry Family Food Co. has been making meat-free products for almost three decades, selling more than 30 million units worldwide. While it has enjoyed success in various Australian



and European markets, enormous growth in global demand for meat-free alternatives has seen the company's international market demand increase dramatically. The company is increasing distribution of their portfolio to more than 8 000 supermarkets, specialty and chain stores in 30 countries, putting them on track to achieving its mission of inspiring

people to follow a more plant-based lifestyle. 'Reflecting rapid demand growth in the United States and sustained interest from international markets. We've taken steps to significantly increase our production capacity,' explains Fry's export director Shaun Richardson.

'These additions make it possible to support international launches, building on our recent introduction of our products to Sainsbury's and Costco. The brand's products rolled out in over 500 Sainsbury's stores from 11 October. Eight chilled products were launched initially, with a further selection of frozen products making their way to the shelves in November. Tammy Fry, international marketing director notes, 'These are exciting times – the popularity of veganism seems to be unstoppable, and demand for delicious new alternatives is greater than ever.'

Polystyrene Association expands its reach

DANONE SA HAS become the latest producer of High Impact Polystyrene (HIPS) to join the Polystyrene Association of South Africa. The association has had success with getting the manufacturers of Expanded Polystyrene (EPS) on board as members. They have been supportive of various recycling projects aimed at keeping polystyrene packaging out of the country's landfills. Adri Spangenberg, the association's CEO, says Danone SA is a major manufacturer of HIPS used primarily in the company's yoghurt tubs.

'It has set an excellent example for other

producers to follow with regard to its commitment to extended producer responsibility.' In view of the recent developments of government's Section 28 call for the development of Industry Waste Management Plans, HIPS' producers are encouraged to sign up with the association. There have been a number of end markets specifically using recycled yoghurt tubs made from HIPS. The tubs are marked with a number '6' polymer identification code.

The Tutu Desk initiative is one example of an end market that uses a blend of polymers to produce simple, portable and robust lap desks for school children. These desks offer a stable writing platform. Last year, more than 5 449 tonnes of polystyrene was successfully recycled in South Africa through the association's recycling projects.

Will EU Agricultural Safeguard place unnecessary burden on consumers?

The Association of Meat Importers and Exporters (AIME) has raised concerns regarding the latest gazetted Agricultural Safeguard levy of 35.3 per cent imposed on bone-in chicken cuts in South Africa.

Europe, the country's largest trading partner and a particularly important importer of many of agricultural products, sees the safeguard as a considerable blow to the preferential nature of their trade relations with South Africa. 'Considering the current economic climate in South Africa, this could not come at a worse time,' says Paul Matthew, CEO Designate from AMIE.

'The Southern African Customs Union (SACU), in its misguided attempt to protect its domestic poultry industry, has once again imposed a tariff on imports which will be passed to local consumers.' Matthew suggests that it contradicts article 34.2 of the Economic Partnership Agreement (EPA) between South Africa and the EU, which clearly states that trade actions imposed in terms of this agreement must have risen during the tenure of the agreement.

This is clearly not the case, as the alleged hardships caused to SA poultry pre-date the implementation of the EPA agreement. South Africa has thus violated these terms and is in serious breach of an international agreement.

Figures published by major players in the local poultry sector reflect a highly profitable industry, generating huge shareholder returns and hardly in need of protection.

South Africa could also be liable, in that that it has not adhered to the tariff implementation terms of the EPA, which clearly states that before any implementation of such a safeguard, the proposed trade measures must be referred to a joint EU/SACU Trade and Development Council for discussion. This step in the process was totally ignored and omitted according to Matthew's knowledge.



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It surrounds, delights, feeds and inspires us with a wealth of taste and boundless creativity. Consumers love the 'taste' of nature – with an equally diverse and precise understanding of what it means to them.

The food and beverage manufacturing industry is entering a new era. It is evolving and picking up speed as consumers dive deeper into their understanding of how naturalness impacts them with every purchase.

Symrise's Code of Nature campaign offers customers and consumers a taste of nature by using novel ingredients in customised products in a transparent manner.

'When choosing and buying food and beverages, consumers demand a natural approach as pure and rich as possible. Consumers want to know exactly which ingredients go into their food and where these ingredients come from. They want products from farmers that care about ethical production coupled to sustainability,' explains Rudy McLean, managing director of Symrise South Africa.

The industry is constantly aspiring to the natural cultivation of plants on healthy soil. Protecting animals also plays a decisive role. Consumers want food and beverages to be gently prepared and stored to keep its original taste and nutritional value. If consumers can actually see that something is made with honesty and integrity, it lives up to their expectations and perceptions.

Naturalness in these many individual facets is sprouting on all continents – this is a truly global phenomenon.

Rapid changes within the world of naturalness and the ethical consumer pose huge challenges and opportunities for the food and beverage industry. Companies want to offer consumers products they recognise and accept as truly natural. They must be in the position to adapt rapidly as innovators. For international players, staying on top will require swiftly changing the operating field and making the shift towards consumers' preference for real food.

THE ANSWER...

With Code of Nature, Symrise is providing the answer to these changing consumer needs,

the consumer dilemma and resulting industry shifts. It forms an all-embracing concept and philosophy for addressing people's desire for a real and natural experience. It takes a whole variety of facets into consideration. Consumers receive the real taste of nature they trust, with taste solutions adapted to their desires.

By combining its multi-faceted expertise, Symrise creates a natural and authentic taste, often amplifying the vital character of food. This is possible because Symrise understands the intrinsic value of working within nature. All employees understand and follow a strong moral and ethical code: working without changing or harming nature and leaving it intact. These guiding principles lead the way to an understanding that determines the actions of Symrise, to understand nature and treat it respectfully. This enables the company to uniquely address consumer

DID YOU KNOW?

The **Symrise Group** formed in 2003 through a merger between the **German companies Haarmann & Reimer and Dragoco**. The company's roots date back to **1874 and 1919**, when these **two companies were founded**.



understanding of naturalness from all angles by pulling together the seemingly different and disparate elements of nature, technology and people.

It is bringing all facets of naturalness together and giving consumers the ultimate taste experience delivered as natural, honest real food which they accept and love. In short Code of Nature forms the high ground where taste and nature come together – nature as pure as it can be with sustainably sourced, ethically produced and wholesomely prepared natural ingredients. This is the essence of what Symrise is trying to achieve and work towards.

Code of Nature forms a framework that pulls together the diverse natural expertise of Symrise. It goes beyond a mere portfolio of natural products. It enables a unique code of nature for each individual customer and solution. It connects the dots of the long scientific heritage of Symrise, with deep consumer understanding, sustainable backward integration and regulatory consultancy capability. This dedicated approach combines the work of Symrise experts with long-standing certified partners, respecting nature and using gentle technology and processes to amplify it.

‘Code of Nature goes beyond grey system theory. It is everyday practice at Symrise,’ McLean concludes. •

NATURAL INGREDIENTS’ FOUR PILLARS

BEST NATURAL

Using pure and rich natural ingredients sourced from people and places known and trusted by Symrise. The result of long-standing partnerships for high impact natural taste.

TECHNOLOGY

Unique technologies create minimally processed and close to nature solutions. Based on understanding nature in every detail. Products are carefully delivered using sensitive processes during extraction and in separation technologies, fermentation etc.

TRANSPARENCY

Setting best-in-class standards as a transparent partner for naturalness by going beyond regulations and current market standards.

CONSUMER VALUE

Enabling clean and clear labelling that consumers understand and trust such as ‘food in food’.

Symrise – www.symrise.com



Don't get stalled by compliance complexity

Food manufacturers are facing tough challenges. To meet the Food & Drug Administration's requirements for recordkeeping and lot-traceability, food manufacturers must track and identify all ingredients in each product. This runs from initial ingredients purchases through manufacture to finished goods, shipment and final customer delivery.

MANUFACTURERS ARE FORCED to accelerate time-to-market despite being faced with constant changes in tastes and trends in a regulated industry. These demands and constraints drive food manufacturers to look to software systems to facilitate business process re-engineering to help eliminate non-value-added processes, increase productivity and comply with governmental regulations.

To meet stringent requirements of the Food Safety Modernization Act and Safe Quality Food Standards, companies must identify and trace every single ingredient consumed in the manufacturing process, from receipt through to processing, packaging, and shipping to the customer. How can today's manufacturer avoid the complexity of regulatory compliance that can ultimately stall their growth? The answer is simple: With the right enterprise resource planning software solution.



recent orders for repeat customer orders, which process hundreds or thousands of orders per day by fax or phone.

• **Electronic data interchange (EDI)**

Exchange business transactions automatically and electronically in standardised formats between trading partners.

• **Compliance**

Manage regulatory requirements including HACCP, GMP and SQF with fully integrated processes based on raw materials receiving, production, packaging or shipping steps. Provides electronic signatures with transaction audit traceability.

• **Load planning**

Manage your delivery schedule, loading processes and service promises. It aims to improve your picking, planning, scheduling and delivery of orders.

• **Recipe controls**

Recipe management solution helps organisations manage recipes, ingredients and products while supporting them through all stages of the development process.

• **Forecasting**

Inventory optimisation (IO), together with inventory forecasting, families and groupings and Requirements Planning provides the tools and processes to optimise stock levels, ensuring stock is in the right place at the right time, and reduces obsolescence.

• **Production and Shop Floor Reporting**

Anticipate and reduce bottlenecks, improve control of production processes, and increase visibility to respond quickly to demands. Capture real-time shop floor information, increasing efficiency and reducing operating costs.

• **Dashboards and KPIs**

Deliver reporting tools and a business intelligence platform that provides access to relevant, real-time data across your organisation.

“Manage regulatory requirements including HACCP, GMP and SQF with fully integrated processes based on raw materials receiving, production, packaging or shipping steps”

and supplier management, and other best practices. For transparency, quality functions should provide seamless integration with supply chain management functions. This offers manufacturers a complete view of their quality performance.

Syspro meets the requirements of the food and beverage industry by providing highly tailored and conjurable enterprise resource planning (ERP) software that can help address key business needs. Syspro has been selected by companies across the globe to address common business issues through the system's industry-specific functionality.

• **Traceability**

Complete tracking functionality affords extensive visibility up or down the supply chain, thereby providing the means to expedite recalls, should the need arise.

• **Order Templates**

Provides several sales order processing options, including order templates and

Managing production quality is essential to food and beverage manufacturers. ERP systems must provide capability to track real-time data on all aspects of manufacturing and supply during production, and archive data for future reference. Quality management enables food and beverage manufacturers to track inspection results, nonconformance

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Understanding *dairy solids reduction*

Reducing the dairy solids content of products holds a variety of advantages for food and beverage manufacturers. It also brings several challenges. **Constantin Drapatz** examines these obstacles and how they can be overcome without compromising the budget.

SOLIDS SUCH AS protein and milk powders can enhance nutritional content and sensory attributes of dairy products and add to their appeal. In a consumer landscape, with fast-shifting priorities and ever-present volatility in the raw materials market, there's a need for manufacturers in sub-Saharan Africa to explore alternatives.

CHALLENGES OF DAIRY SOLIDS REDUCTION

As with any formulation changes, challenges exist with reducing solids in dairy products. Any new ingredient that is introduced must be affordable. This makes it cost-effective for manufacturers and, further down the supply chain, for consumers.

The sensory appeal of dairy products is critical to its commercial success. Manufacturers may discover ingredient replacements that hit targets, boost nutritional profiles and reduce costs. If consumers do not get the texture, eating experience and flavours they expect from a dairy product, chances of uptake and repurchase are compromised.

COST PRESSURES FROM THE MACRO ENVIRONMENT

One of the main driving forces behind dairy product manufacturers seeking alternatives to additional milk solids is cost. There is always risk involved when relying on raw materials for food and beverage production, as the industry has witnessed in recent years.

Producer milk prices in South Africa for example rose from around ZAR4.25 per litre in January 2016 to ZAR5 per litre in January 2018. External economic pressures are also impacting manufacturers and consumers. VAT in South Africa rose from 14 to 15 per cent in April 2018 and the region is reported to be facing the largest ever fuel price hike in history.

In Nigeria in October, inflation stood at 11.28 per cent, up from 11.23 per cent in August amid rising food prices. In short, as marketplace volatility is beyond the control of manufacturers, mitigating risks that price changes bring and maintaining the flexibility to pass on cost savings to consumers are key priorities.

PRIORITISING CONSUMER NEEDS

Clean label and healthy food and drinks are also top-priority among South African consumers. Research shows that 60 per cent believe manufacturers should make their main area of focus reducing undesirable ingredients in products.

This comes ahead of reducing over-processing (55 per cent) and cutting packaging waste (47 per cent). The same research found that 80 per cent of Kenyan consumers and 50 per cent of South African consumers would pay or consider paying more for products with a higher nutritional value.

MODIFIED STARCHES - AN AFFORDABLE DAIRY SOLIDS ALTERNATIVE

Modified starches represent a particularly affordable and functional alternative to dairy solids while maintaining sensory appeal. Ranges such as Ingredion's National Frigex™ starches provide a solution - their neutral taste profile ensures they won't mask the flavours of other ingredients. This is particularly important in applications such as puddings and cream fillings.

Thermflo®, a modified food starch designed for neutral and low-pH food systems, provides exceptional tolerance to heat and shear, as well as texture stability over shelf life. It also brings excellent functionality in fruit fillings, puddings, custard and cream pie fillings.

CO-TEXTURISERS - THE TAILORED SOLUTION

These ingredients can be another affordable solution and present opportunities to create signature textures, develop unique and memorable eating experiences for consumers and differentiate products.

Ingredion's Novation® Indulge 1720 clean label co-texturiser was designed to enable cost savings in yoghurts and sour cream. An effective substitute for protein and fat, it can stabilise ingredient costs and replace gelatine for a cleaner label, while maintaining product quality.

STARCHES AND CO-TEXTURISERS - A WINNING COMBINATION

Modified starches can be used in



"...80 per cent of Kenyan consumers and 50 per cent of South African consumers would pay or consider paying more for products with a higher nutritional value."

combination with co-texturisers to design a product's texture. National Frigex™ starches work in unison with N-Dulge® C1 and N-Dulge® C2 co-texturisers to preserve product quality following protein and fat reduction. This can deliver vital cost savings for dairy product manufacturers.

In summary, sub-Saharan Africa's dairy food and beverage manufacturers face the challenge in 2018 and beyond of considering whether cost-effective reformulation will help them achieve their targets.

While ingredient options are wider than ever before, reformulation is only viable if it mitigates the negative effects of market volatility, is affordable and results in a product with appealing sensory qualities that satisfies consumer demand and inspires repurchase. •

¹Dairy Market Trends Report, South African Dairy Milk Producers' Organisation, May 2018. Section 1.4, Fig.7. Source: <https://www.mpo.co.za/wp-content/uploads/2018/06/Dairy-market-trend-May-18.pdf>

²Source: <https://tradingeconomics.com/nigeria/inflation-cpi>

³Food That Just Clicks - EMEA Consumer Research Into Food and Tech Trends, MMR on behalf of Ingredion, September 2017. Source: https://go.ingredion.com/food-that-just-clicks?utm_campaign=foodthatjustclicks&utm_source=pr&utm_medium=pressrelease.

CONSTANTIN DRAPATZ is the business development manager for Africa at Ingredion.

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DAIRY TRENDS REPORT**

6 WAYS TO GET AHEAD OF THE MARKET

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Healthy, tasty unrefined avocado oil

Inspired by virgin olive oil extraction technology, cold pressed extraction could replace traditional methods for avocado oil, to produce a purpose-ready oils for the edible oil market. **By Giacomo Costagli**



THE MOST COMMONLY used method to obtain oil from avocados is through organic solvent extraction. Fruit pulp is dried by warm air and hexane solvent extraction is used with a yield of up to 95 per cent. The resulting oil is brownish with a high pigment content, which needs to be refined for application.

In locations where solvent extraction is not available, a mechanical method is used. Fruit is first peeled and destoned, and pulp is mashed before being dried. The resulting paste is heated with hot water and chalk and/or sodium chloride, and pressed or skimmed off (by natural decantation) or centrifugation.

Centrifugation or pressing yield, is reduced by 60 to 80 per cent compared with the aforementioned solvent method. These traditional processes generally result in poor-quality oil that must be refined first before it can be used. It therefore comprises a poor cost/benefit ratio.

COLD PRESSED EXTRACTION

Applying an extraction process adapted from conventional treatment for olive oil with proper adjustments, resulted in a private New Zealand company and partner Alfa Laval obtaining unrefined avocado oil that retains its flavour and fruity taste. It offers a yield variable between 75 and 85 per cent depending on fruit characteristics.

Whole fruits are washed in a two-stage washing system and then elevated into a

destoning machine, where pips and between 90 to 95 per cent of skin are separated from the pulp.

Pulp and remaining skin are then pumped into a disc crusher for further refining if necessary, depending on the ripeness degree of the fruit. The disc crusher is important in cutting filaments that remain in the paste and simultaneously minimising emulsion.

Avocado mash is pumped into the section equipped with malaxers (kneading machines). Each machine consists of a stainless-steel tank with a central screw stirring the mash slowly and continuously at a monitored temperature.

The effect of the kneading machine on avocado paste is similar to what would happen with olive paste: small oil drops released during fruit milling merge into large drops (coalescence phenomena). These are easily separated by centrifugal extraction. The definition of optimal malaxing time and temperature is important to reach the best compromise between quality and quantity of extracted avocado oil. In the case of avocado mash, malaxing time should not exceed 90 minutes and temperature should be below 45°C.

Coalescence and oil extraction are not the only reasons for crushing and malaxing processes. As with extra virgin olive oil extraction, total phenol content and aromatic fraction are strongly affected by parameter adjusting and design of equipment.

After malaxation, separation of oil from

solid and liquid phases are done using a decanter centrifuge. Mash from the malaxer is fed into the machine where oil, vegetation water and solids (exhausted pulp and residual skin) are separated.

Extraction should be carried out in two or three phases in a continuous system. An automatic device that guarantees easy adjustable parameters during processing enables optimisation of yield and quality with water and energy consumption at minimum levels. The oil phase is collected separately under the decanter and pumped out to a disc stack purifier centrifuge. In the case of extraction in three phases, water is pumped to the disc stack concentrator centrifuge.

Avocado oil flowing from the decanter will still have a certain amount of water and solids. Similarly, vegetation water from the decanter will still contain a small quantity of residual oil. The system consists of a disc stack centrifuge for final avocado oil purification to remove residual water and solids. A second disc stack centrifuge should be used to recover residual avocado oil from vegetation water flowing from the decanter working in three phases.

The oil that comes out from the disc stack purifier centrifuge is an extra virgin high quality avocado oil. After simple filtration, it is suitable to be bottled and consumed. In some cases, dewaxing by winterisation may also be required before bottling.

KEY FACTORS FOR TOP QUALITY PRODUCTION

The production of top quality oil for a culinary-dressing purpose is a reality. Attention must be paid to multiple factors to ensure results. Amongst these, three are considered most important.

The first aspect is the agroecology and



Pulp is mashed before being dried

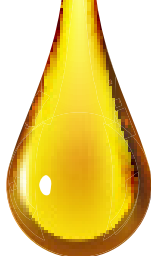
Balancing food safety, economy and performance



Solutions for reducing 3MCPD esters and glycidyl esters from palm oil processes

Alfa Laval has developed innovative solutions that minimize the formation of 3MCPDE and GE. These solutions help producers optimize palm oil processes, enhance plant flexibility to be able to adapt to changing needs and future regulations as well as ensure operating reliability and maximum uptime. All this adds value to your business while, at the same time, helps safeguard food safety.





climate of the fruit's area of cultivation, designated to high quality oil production. To obtain oil with the highest ratio of monounsaturated fatty acids with respect to saturated ones, avocados must be grown in areas where temperatures in the winter are not too high. A similar relation between fatty acids composition and climate has been observed and investigated for olive oil. Additional research should be conducted to gain insights specific to avocado oil.

The second important factor is logistics of harvesting and identifying when would be the right moment to process oil. The dry matter content of fruit and firmness of pulp are important agronomical parameters that affect the proper equilibrium between yield and level of oil quality. Avocados should only be processed at the right time.

The third important factor to consider is the choice of the right process technology. With the right equipment, the proper process will turn high quality fruit into high-quality oil.

AN IMPROVED COST/BENEFIT RATIO

A combination of proper cultivation climate, ripeness and process technology delivers high quality unrefined avocado oil with less than 0.5 per cent free fatty acids (as per cent of oleic acid) and less than two meq/kg peroxide value.

Marie Wong and colleagues from Massey University of Auckland in New Zealand investigated the quality of avocado oil obtained by the cold pressed method from the Hass variety. The oil has an avocado flavour, with grassy and butter/mushroom-like flavours. The fatty acid profile is very similar to olive oil with 76 per cent of monounsaturated (oleic and palmitoleic acids), 12 per cent polyunsaturated (linoleic and linolenic acids) and 12 per cent saturates (palmitic and stearic acids). High percentage of monounsaturated fatty acid brings a high smoke point (more than 250°C) making it good oil for frying.

Positive attributes of extra virgin avocado oil are not limited to fatty acid composition. Researchers also report there is a high content of valuable antioxidants in the oil. The main one is alpha-tocopherol, which is present at levels of 70 to 190mg/kg oil. Beta-, gamma-, and delta-tocopherols are only present in minor amounts (less than 10mg/kg oil). Other non-lipid components present in the oil include chlorophylls (11 to 19mg/kg oil), phytosterols (2.23 to 4.48mg/g oil) and carotenoids (1.0 to 3.5mg/kg oil) with lutein as the most representative.

High monounsaturated fatty acids, antioxidants and other non-lipid content make unrefined avocado oil a food comparable to high-quality extra virgin olive oil.

Avocado production is continuously growing as awareness of its healthy effects spreads among consumers, and consequently raises its consumption. The discovery and application of cold pressing as an extraction method has led to the introduction of a completely new food oil - avocado. Its role in cooking and its health-related benefits must still be fully explored.

Investigation in these areas to correlate agronomical and technological factors for extra virgin avocado oil is strongly recommended. It offers a wide range of potential flavours and characteristics for avocado products and an opportunistic market for manufacturers.

GIACOMO COSTAGLI is the regional sales director, olive oil, business unit food system at Alfa Laval Spa.

Alfa Laval - www.alfalaval.co.za



Protein for weight loss success

While losing weight or body fat is never easy, many consumers who achieve success often find that keeping the weight off over time is more challenging.

THE ABILITY TO LOSE weight and keep it off is the central focus of a health and wellness-focused collaborative study led by researchers from the University of Colorado Anschutz Medical Campus with support from DuPont Nutrition & Health. The study, published in the June 2018 edition of *Obesity Science & Practice*, evaluates the effectiveness of incorporating soy protein-based foods into a higher protein energy-restricted diet for weight loss, compared to other sources of protein, in adults who are overweight and/or obese. Other studies have demonstrated the success of high protein diets for weight loss. This study examined the effectiveness of a four month energy-restricted, higher protein weight loss intervention followed by an additional eight-month weight maintenance phase.



Results showed that both groups who were prescribed a high protein, energy-restricted diet lost similar and significant amounts of body weight. Much of the weight lost was fat mass. Some participants regained weight during the self-directed, eight-month follow-up period, but there were no significant differences between the dietary treatment groups for any of the outcome measures throughout the 12-month trial.

Both groups lost an average of three to four per cent body fat or over six kilograms of total fat loss during higher protein energy-restricted weight loss phase. The participants maintained four kilograms fat loss through the end of the yearlong intervention. 'Protein is an important part of a weight loss diet,' says Ratna Mukherjee, technical fellow with DuPont Nutrition & Health. 'Lean sources of high quality protein, such as soy, support improvements in body composition with greater loss of fat tissue versus lean tissue.' The food included in the trial, developed by food scientists at DuPont Nutrition & Health, contained 20g of lean, high quality soy protein per serving, and were delivered in the form of a dry-blended beverage, a lean, meat-free, sausage-like soy patty and a nutrition bar. These options were available to subjects during the weight loss and maintenance phases of the study. Results of this trial provide evidence that the consumption of food high in soy protein can be an important part of a weight loss diet, supporting lean mass and fat loss, and is helpful in maintaining those improvements over time.

'A major take home message from this study is that people following a plant-inclusive or plant-based high protein diet can be successful in reducing body weight,' says James O Hill, Ph.D. a leader in weight loss research and the study's senior author. 'This study was more about long-term wellness associated with weight reduction. A major struggle for dieters is maintaining their new weight and all the health benefits that accompany weight loss over time.' Soy protein is a plant-sourced, high-quality protein, comparable in efficacy to other proteins for weight loss among healthy, middle-aged overweight and/or obese adults. Soy protein-containing diets have been shown to support long-term health, mitigating risk factors associated with cardiovascular disease. These findings are especially relevant for dieters who choose to follow dietary advice to increase consumption of plant sources, such as that of the dietary guidelines for Americans or those who strive to adhere to a flexitarian or vegetarian eating pattern.

DuPont Danisco - www.danisco.com
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Expansion on the cards for seed breeding company

Roquette has teamed up with Equinom, an innovative Israeli-based breeding technology company for the development and sourcing of new pea varieties with high protein content.

THE COMPANY IS known for its plant-based ingredients for the food, nutrition and health markets and in the pioneering of new vegetal proteins.

In addition, Roquette and Equinom's current shareholder Fortissimo Capital will jointly invest USD four million in the company to support further developments. This is the first agreement and investment made by Roquette in Israel. Through this collaboration Roquette will be involved in the cutting edge of new non-GMO plant variety development addressing industrial

development of high-protein and high-yield pea varieties with unique characteristics to suit the needs of innovative food developers. The resulting pea varieties could be grown and marketed worldwide. Equinom will use the investment to further develop products essential to new food applications and complementary to animal-based nutrition.

Pascal Leroy, vice president of Roquette's Pea and New Protein business line says, 'This investment represents a great partnership and a major step forward in the implementation of the group's strategy in plant-based proteins. It enables Roquette to position itself as a pioneer in the whole value chain for plant-based proteins. By contributing to develop new responsible and sustainable high-protein pea production, we are demonstrating our goal of offering products increasingly tailored to the needs of the market and to better answer a growing customer and consumer demand.'

We are delighted with the partnership with Equinom, a highly innovative company, which enables us to provide our customers around the world with high-quality plant-based ingredients.'

Yoav Hineman partner at Fortissimo Capital adds, 'The partnership is an important achievement for Equinom, enabling it to leapfrog its high-protein pea programme and commercialise its varieties with the leading global player in the market. Using its proprietary software-based breeding system, the company continues to revolutionise



significant global crops by introducing key traits in record time. Since inception, Equinom introduced varieties in sesame that can be harvested mechanically, protein rich legumes, high-yield quinoa, and is currently targeting additional crops. Fortissimo Capital reiterates its commitment to support Equinom's growth plans.

The investment is part of our strategic effort to identify and invest in market leading food-tech and ag-tech companies around the world.

Commenting on this partnership, Gil Shalev, Equinom founder and CEO adds, 'The agreement with Roquette is a major milestone for Equinom. Its investment in our company is a vote of confidence in our technology and its ability to transform the plant-protein market.'

The agreement will guarantee the full commercialisation of Equinom's high-protein pea varieties. It will also facilitate the introduction of additional plant protein to market and enable Equinom to attain its mission of increasing the production of high-quality, sustainable food ingredients that are changing the types of foods consumed.'

To date, Equinom has signed several breeding contracts with global leaders in the food industry. These include a multi-year contract with Sabra Dipping Company, LLC, a joint venture of PepsiCo and Israel's Strauss Group Ltd., as well as a commercialisation agreement with Mitsui of Japan. •



Dr. Gil Shalev, Equinom CEO

"Equinom, a computational breeding company founded in 2012, is developing a full portfolio of non-GMO legumes that have 50 per cent more protein than varieties currently on the market"

needs and consumer expectations. The company offers an increasingly broad range of high-quality plant-based ingredients, particularly pea proteins, to the food, nutrition and health markets.

Equinom, a computational breeding company founded in 2012, is developing a full portfolio of non-GMO legumes that have 50 per cent more protein than varieties currently on the market, creating the conditions for a future worldwide shift to a plant-based diet. The companies have signed a multi-year agreement for the



Roquette - www.roquette.com

Tech assists booming juice market

Almarai, the leading producer of liquid dairy and juice products in the Middle East, approached the Sidel Group to increase its production capacities around orange juice distributed via cold chain.

SINCE 1977, ALMARAI has grown via strategic investments, becoming the largest producer and distributor of food and drink in the Middle East with market capitalisation exceeding US\$12.5 billion. The company's main objective is its commitment to consumer satisfaction, maintained by the drive for constant innovation. Almarai's production, marketing, and distribution structure enables the daily distribution of products to over 110 000 retail outlets across the six Gulf Cooperation Council (GCC) countries, plus Egypt and Jordan.

Almarai needed to increase production capacity around the single-serve format of its orange juice (200ml) bottled in PET and handled under cold chain distribution. The company decided to install two new Sidel PET complete lines, each one handling 54 000 bottles per hour (bph), in the Al Kharj central processing plant (CPP).

STATE-OF-THE-ART PACKAGING SOLUTIONS FOR TOP EFFICIENCY

Quality is a founding principle at Almarai. The manufacturer and distributor strives to operate to the highest standards of international best practice, starting from the first processing step. The two PET complete lines installed at the Al Kharj production site employs the processing equipment and capabilities of Tetra Pak Processing Systems (TPPS).

This is further testament to a successful cooperation, benefitting from experience and learnings gained in nearly 100 joint complete line projects from around the world. TPPS process equipment captures the natural taste of products and ensures it is safe to drink.

Anurag Sharma, Sidel sales manager in Saudi Arabia, explains, 'The key challenge was to find a solution to ensure greater efficiency to strengthen profitability and optimise total cost of ownership (TCO). To address this within two complete lines, Almarai opted for the Sidel Combi. Integrating blow moulding, filling and capping processes into a single system, the Combi reduces operating costs and

uses up to 30 per cent less floor space compared to traditional standalone equipment. Using fewer component machines, the solution offers up to four per cent higher efficiency levels than standalone machines, on top of lower energy consumption and faster format changeovers. This results in a reduction

"TPPS process equipment captures the natural taste of products and ensures it is safe to drink"

of operating costs by up to 12 per cent - saving labour, raw materials and spare parts.'

The two Combis are equipped with a Sidel SF100 filler, ensuring optimum uptime and the highest productivity. Its dual speed valve allows consistent performance and the best drink quality, especially when handling beverages with pulp. Both magnetic flowmeters and filling valves are equipped with plungers, leading to higher accuracy and more efficient filling and cleaning.

The system allows for no clogging and an easier removal of pulp residual. For greater product safety and ease of operations, the tight enclosure with HEPA filter allows for top hygiene, while cleaning in place (CIP) requires no intervention from operators thanks to the automatic dummy bottles.

Sidel's proven and versatile RollQUATTRO Evo labeller complements the Combi. Primarily using wrap-around Roll-Fed technology to apply either paper or plastic labels with hot glue, it delivers all the flexibility needed to match Almarai's needs when

processing lightweight containers and extremely thin labels at very high speed.

END-OF-LINE SYSTEM FOR GREATER FLEXIBILITY AND PACK QUALITY

Benefitting from Sidel Group's expertise as a full solution partner, Almarai went for Gebo Cermex's solutions to optimise its end-of-line performance. Two shrink-wrapping systems have been installed to manage three different pack configurations: 6x4, 2x3 and 2x3 bottles as clusters.

For additional flexibility at a very high speed (67 500bph in overspeed), a shrink-wrapper handles single squared bottles in mass flow, putting them in tray plus film, while the other one manages both single bottles and cluster packs of bottles through special selection fingers with rollers identifying the clusters according to product grouping or batch.

To ensure a consistent and reliable output for greater pack quality - a challenging objective considering the small diameter of the bottle - the machine has been suitably equipped with a 3D inspection camera, detecting missing containers in the tray before shrink-wrapping them. The shrink-wrapper's extractable injection table allows for easy maintenance and stable film handling.

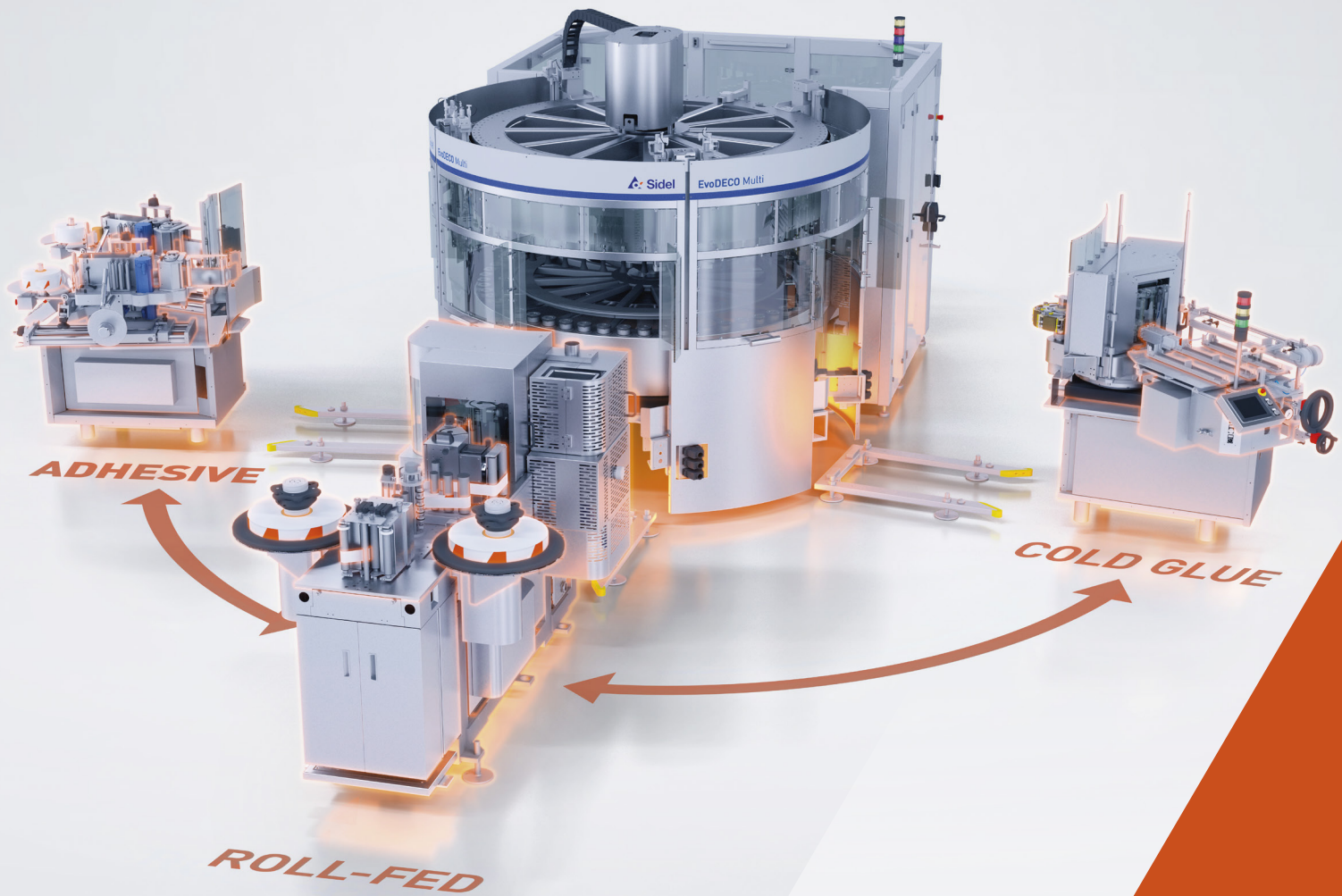
To guarantee greater energy savings



Almarai has installed two sidel PET complete lines, handling up to 54 000 bottles per hour

SIDEL EVODECO LABELLING SOLUTIONS

DESIGNED FOR
TOTAL FLEXIBILITY
OPTIMISED FOR
UNMATCHED PERFORMANCE



The Sidel EvoDECO labelling solutions, available either as a modular, multi-technology or as dedicated-technology equipment, offer customers total flexibility and performance, fulfilling any need to meet today's demands within labelling. They deliver great efficiency and low Total Cost of Ownership with high output, 30% faster changeover time, 40% less maintenance time and 40% less electrical consumption compared to the previous generation. With EvoDECO Multi you can easily change from high-performance cold glue, Pressure Sensitive Labels, or roll-fed, to hot melt modules and quickly ramp-up your production.

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and up to 10 per cent TCO reduction, the shrink-wrapping systems are combined with two Gebo Cermex EvoFlex® palletisers, offering unparalleled flexibility and efficiency even with high-speed applications. The only palletising system with a low-level infeed capable of running at up to 12 layers per minute, EvoFlex offers significant advantages in terms of ergonomics, energy consumption, and safety.

The solution is equipped with AxoSmart, the layer preparation system designed by Gebo Cermex to meet the need for more eco-friendly packaging (lightweight bottles and less secondary packaging) and a wide product portfolio. With a modular design allowing for smooth adaptation to various line speed requirements, AxoSmart offers the potential to handle a high number of pack types in the same cycle, all without compromising on optimal stability and reliability.

OPERATIONAL INTELLIGENCE TO SUPPORT CONTINUOUS IMPROVEMENT

The two PET complete lines installed at the Al Kharj plant feature Sidel Group's EIT® (Efficiency Improvement Tool), a market-leading data acquisition and plant intelligence system. It automatically records 24/7 raw production data, calculates a wide array of KPIs to help measure performance, analyses production issues, detects efficiency loss sources, and performs root cause analyses.

Currently installed in more than 70 countries, it is designed to ultimately decrease unplanned downtime, reduce waste and costs, and increase the plant's output as it gives employees at all levels of the organisation real-time access to relevant and actionable information on production-related issues.

As an additional bonus feature, the EIT version leveraged by Almarai comes with the ECO module, monitoring and measuring energy and utilities consumption at equipment and line level. On top of providing energy cost per produced unit, the system establishes correlations between consumptions trends (including power, water, steam or compressed air) and line events or production phases for improving performance over time.

The two lines started to work in the last quarter of 2017, both beyond 98 per cent efficiency, with products available in the market as of the same period.

Given the remote location where the Al Kharj plant is based, Almarai benefitted from Sidel's fast reaction time and expertise, key for replacing spare parts and solving technical issues.

Based on this positive experience, Almarai recently established monthly technical visits to properly control and monitor the line's performance. •

Sidel - www.sidel.com



PET Line

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Sustainability - a growing concern

Resource efficiency, an ethical supply chain, transparency around ingredients and impact, and reduced waste are all concerns for forward-looking companies.

IN SOUTH AFRICA, resource efficiency has particular resonance as companies grapple with severe water restrictions and the possibility of water shortages due to drought, while the risk of electricity load shedding has recently become more prominent.

“ABB advises F&B manufacturers to begin with a site assessment to identify safety issues, establish baselines for resource use and uncover opportunities for process improvement”

A Grant Thornton survey found that 68 per cent of F&B companies see sustainability as critical to growth. The same number say sustainability is profitable in the long run, while 67 per cent say their customers expect it. Half of respondents also said sustainability was hard to implement.

Sustainability practices can pay off. A literature review of 200 sustainability studies found that 90 per cent indicated lower cost of capital and 88 per cent showed better operational performance for companies demonstrating good environmental, social and governance practices.

STARTING A SUSTAINABILITY INITIATIVE

ABB advises F&B manufacturers to begin with a site assessment to identify safety issues, establish baselines for resource use and uncover opportunities for process improvement. Some specific pieces of equipment can have a substantial impact on plant sustainability..

TRANSFORMERS: GATEKEEPERS OF ELECTRICAL SYSTEMS

All of the plant’s power flows through one or two of these critical devices, which experience losses even when the plant isn’t using much power. No-load losses account for 80 per cent of a transformer’s

losses, which in turn account for up to three per cent of all energy used in the facility. Higher-efficiency transformers reduce those losses and help address power quality problems that can damage downstream equipment. More efficient units even reduce cooling load because less of the energy passing through them is lost as heat.

POWER QUALITY’S IMPACT ON ELECTRICAL EQUIPMENT

Utilities and industrial firms use power electronics devices to correct power quality issues and increase the usable capacity of existing power networks. McCain Foods, for example, installed eight capacitor banks in a UK plant that improved power factor on the power distribution system so that a new line could be added without the need to install a new substation. The avoided cost was estimated at UK£250 000.

MOTORS AND DRIVES FOR ENERGY SAVINGS

Motors typically consume half the energy used in F&B facilities. It is essential to size motors properly. Many firms choose a few sizes to serve all the plant’s needs but this is not recommended as in most applications the motor will be either over- or undersized.

For highly variable loads like pumps and fans, variable frequency drives (VFD) allow motors to ramp up and down as needed, drastically reducing the energy they consume. VFD applications can deliver payback in a matter of months. One sausage maker noticed a 50 per cent reduction in energy use when it installed VFDs on motors driving smokehouse fans. The savings paid for the investment in less than a year.

OPERATIONAL BENEFITS

Minimising cavitation, detecting pressure loss and providing required torque or torque limitation. These factors are particularly important for saving water. Heating, cooling, transportation, purification, pressurisation and injection require significant amounts of energy.

To reduce water (and energy) use, F&B



manufacturers should look to re-use water by optimising clean-in-place practices. VFDs can improve water management, too, with pressure and flow optimisation, the ability to detect pressure loss (e.g. from ruptures) and efficient heat removal.

Laser level sensors sense the level of materials of varying density as well as any low dielectric material. For example, liquid in a supply tank might be topped by a layer of foam that would not be detected using conventional devices. Laser level sensors “see” the foam and thus can prevent overfilling and spills, eliminating waste and keeping production running smoothly.

WORKER SAFETY IS A SUSTAINABILITY ISSUE

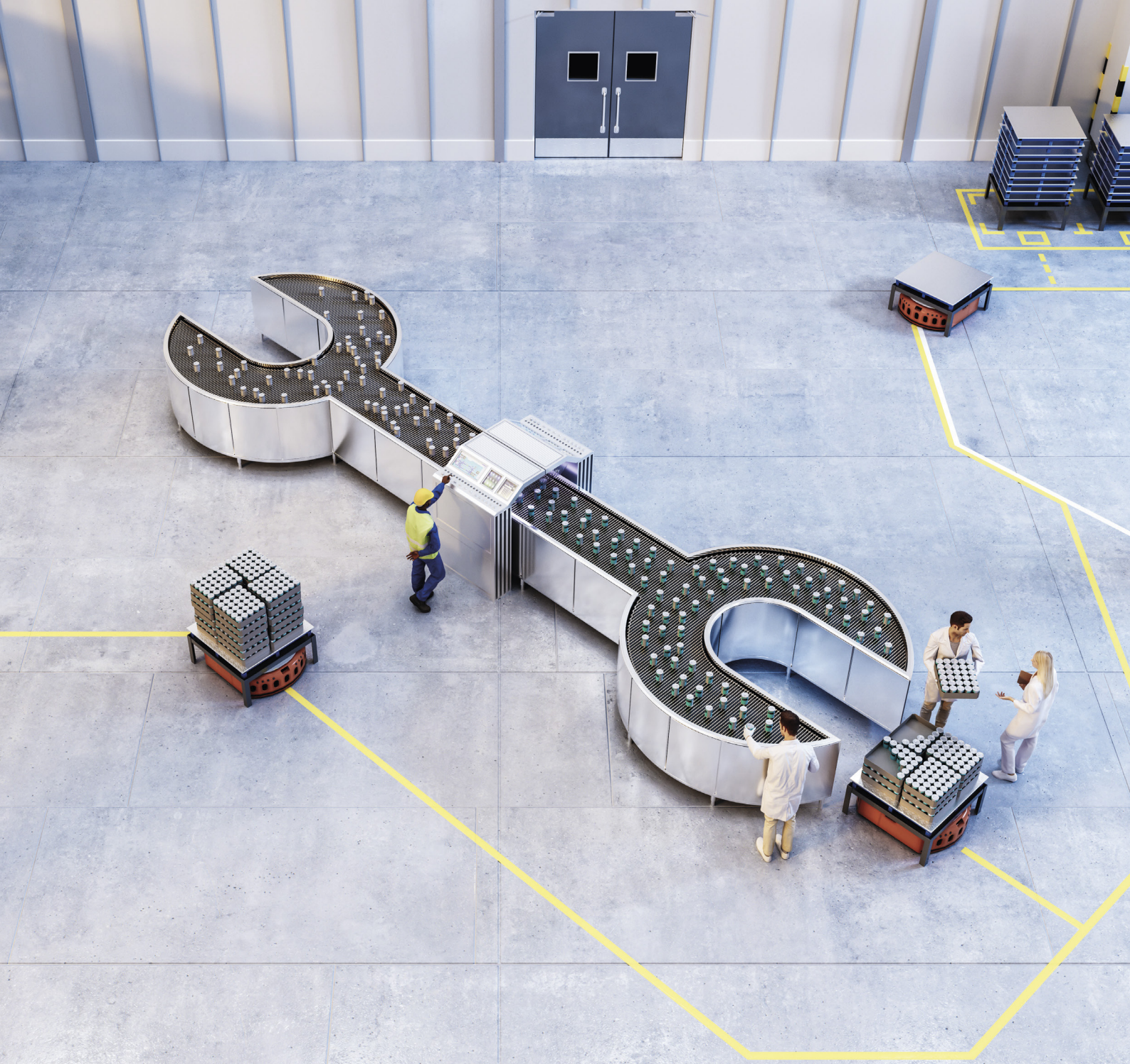
Almost a quarter of all reported industrial dust explosions occur in the food and beverage industry. Equipment that is certified dust ignition proof will not cause a dust explosion even if all the other factors (dust, confinement, oxygen) are present.

Just as it’s important to begin with a site assessment to establish baselines and identify KPIs, it’s also important to measure them going forward. By gathering and analysing data, F&B manufacturers will be able to improve operational sustainability and ensure their long-term success. •

¹“Why sustainability makes business sense in 6 survey findings,” Grant Thornton web site, January 12, 2017.

²“The Comprehensive Business Case for Sustainability,” Harvard Business Review, October 21, 2016.

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BEVERAGES

All the flavour, without the calories

As consumers work to cut calories from their diets, they are turning to flavoured waters to keep them refreshed versus traditional alternatives.

IN 2016 ALONE, over 800 flavoured products were launched globally, offering consumers more choice in hydration options.

PureCircle stevia has enabled developers to meet consumer demands by providing zero-calorie sweetness that compliments and enhances these beverages. Instead of adding sugar or a non-natural option, developers can turn to these ingredients to offer flavourful sweetness without extra calories.

KEY BENEFITS:

PureCircle pioneers stevia solutions that allow deeper sugar reduction levels without compromising taste

- Some PureCircle products have synergies with other stevia, sugar, HFCS and polyols
- Flavour modifies acid perception and mouthfeel
- The range of flavours enhance fruity, tropical and citrus flavours
- Ingredients reduce the perception of lingering sweetness
- Can provide upfront sweetness

that is required for many flavoured water applications.

STABILITY

- Stevia leaf extracts are stable in beverages with a low pH < 3.0
- Stable under normal thermal processing conditions
- Severe conditions (low pH < 3.0 and extremely high temperatures) can result in minor interconversion of glycosides.

MOUTHFEEL

- For texture, bulking and mouthfeel: hydrocolloids, fibers, maltodextrins and polyols can also be used
- Texturing agents (gums, pectins, etc.) can be used to modify sweetness and flavour release.

TROUBLESHOOTING

- Achieving desired sweetness levels with Reb A alone may be difficult in some beverages
- The use of PureCircle Sigma Beverage allows for greater sugar reductions with

cleaner taste but combinations of steviol glycosides work best for complex and robust flavour profiles

- Blending small amounts of caloric or non-caloric sweetener provides improved sweetness profiles
- Stevia shows excellent synergy with fructose and sucrose
- Acid blends (e.g. citric acid, malic acid or lactic) can contribute to a better sweetness and flavour profile
- Salts can help achieve improved flavour profile (Na salts) and reduce bitter lingering
- Blending stevia sweeteners enables better preservation of flavour and acid, and creates more sugar-like tastes. •



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Less waste, more profit

How will your manufacturing plant grab a slice of the food industry's lucrative, US\$313 billion pie? **Charlie Ahern** explains how manufacturers can boost profits in today's competitive food and drink industry.

DURING THE PAST decade, the food and beverage manufacturing sector has grown to bring 30 per cent more value than it did in the noughties. Africa's food and beverage market is valued at USD 313 billion and is projected to reach USD one trillion by 2030, but generating profits in this industry is not without its challenges.

Supermarkets are facing commodity deflation, which complicates revenue growth. Shifting consumer buying habits and growing demand for new flavours and trends are forcing the industry to change the way it processes, manufactures and markets food products. In today's competitive food environment, what can manufacturers do to boost profits?

PACKAGING REDUCTION

A well-known method of boosting profits is to reduce waste by adopting lean manufacturing methodologies. Technologies, such as advanced supervisory control and data acquisition (SCADA) systems enable better monitoring and management of common wastages on the factory floor. These include unnecessary and excess machine motion and non-required waiting time during production.

Due to the perishable nature of many ingredients, some of the priciest wastages are related to overproduction, unnecessary



inventory and product defects. These are often unavoidable, even with advanced technology to monitor production. There are ways to reduce waste from other resources in food manufacturing, including lessening waste related to food packaging.

We've all heard about the problem of excessive packaging on food products - plastics tend to be the prime culprit. According to the Environmental Protection

Agency (EPA), over three quarters of plastic material generated in the US is currently sent to landfill. The finger is often pointed at consumers, urging them to follow recycling recommendations. There are steps food manufacturers can take to alleviate this problem - and boost profits in the process.

By shifting to a more recyclable material like aluminium, manufacturers can take

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PACKAGING

advantage of reimbursement schemes to exchange their unused packaging materials for cash. Aluminium can be melted and reformed repeatedly, some food packaging suppliers can offer financial reimbursement for excess foil packaging supplies. This means any aluminium not used by the manufacturer, can be resold back to the supplier, where recycling will be arranged. Good for the environment, and good for profit.

"...any aluminium not used by the manufacturer, can be resold back to the supplier"

INVEST IN LIFESPAN

Purchasing ingredients and supplies in bulk has long been considered a viable method of saving money for large manufacturers. Not all manufacturers have the inventory space required to store these excess materials – and it's certainly not ideal for manufacturers that rely on perishable products and raw materials. As an alternative, investments should be made to prolong the lifespan of products produced on site.

New packaging methods, such as modified atmosphere packaging (MAP), are enabling this. MAP describes the modification of the air inside packaging. By displacing regular air for low oxygen gases, the potential microbial growth is minimised, therefore prolonging the shelf life of the product. This is particularly advantageous for meat and poultry. Chicken products, as an example, can expand their lifespan by three times using this method.

Skin pack, another method of extending the shelf life of poultry, uses vacuum packing to seal the meat to an aluminium or plastic tray, which is then sealed with plastic wrapping. This method, which was made aluminium-compatible by Advanta earlier this year, eliminates oxygen from the product. It can increase the shelf life of poultry by similar levels as MAP.

Controlled atmosphere packaging (CAP) can also be used to prolong the storing time of products at a manufacturing facility. This method requires the addition of oxygen absorbers to food packaging, to regulate the temperature and humidity of a product. This can be hugely beneficial for manufacturers that need to store food products for longer than initially expected.

Investing in these packaging methods can reduce the likelihood of spoiled inventory, particularly if a product line is not selling as well as expected, or if the product was overproduced. This can also reduce the impact of fines and reject orders from retailers if a batch of products is delivered with a shorter use-by date than agreed.

Food and drink production are the unsung heroes of the manufacturing economy. Bringing a colossal US\$313 billion to the economy each year, it is no surprise the sector is becoming more saturated and competitive than ever before.

Every manufacturer is fighting to grab a slice of the industry's lucrative profits, however increasing costs should not be the first option for manufacturers in this sector. Instead, the industry should assess opportunities to reduce its waste, both for packaging and spoiled products, to reclaim potential profits. •

CHARLIE AHERN is the general manager at food packaging supplier Advanta.

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Legibility provides a clearer perspective

The legibility of information on a product's label is not only a legal requirement, but also empowers consumers to make an informed decision when purchasing a product. **Food Manufacturing Africa** looks at the technical specs and benefits of two superior automated label and coding solutions.

Advanced Dynamics has adopted a fresh approach to secure more business and cement relationships with new and existing customers. The sales director of the UK based company, Tom Smith is excited by the challenge to develop Advanced Dynamics positioning within its target markets. The company's philosophy is simple: 'to be the most proactive and supportive business in the packaging industry.'

Smith believes it is essential to supply first class labelling equipment to establish

close relationships with customers.

'As we move forward we aim to be different. A partnership between the supplier and buyer should be mutually beneficial. For customers looking to find a machinery supplier they can call "a partner" – we are that company. Daily, monthly and annually, Advanced Dynamics focuses on being the most proactive and supportive business in the packaging industry.'

As part of its new strategy, the company is offering a complimentary service contract with every machine supplied.

A recent investment in expanding its facility has enabled the company to significantly extend its stock of machines. The expansion also includes a 200m² visitors centre and demonstration facility. This was designed to showcase, for example, the impressive automated labelling line-up of extensive specialised equipment, which the company offers for a range of sectors.

Advanced Dynamics can also to provide extensive engineering support.

MAXIMUM VERSATILITY AND RELIABILITY

A range of Sacmi's labelling solutions were on display at the Brau Bevale trade fair in Nuremberg, Germany from 13 to 15 November.

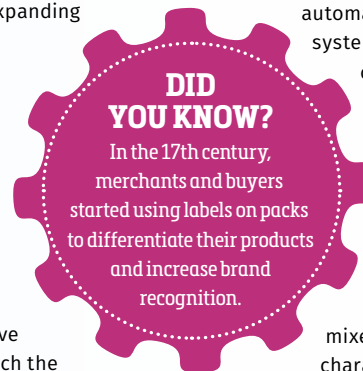
The enormous flexibility and extensive application range of the Opera 400 Modul 33T was demonstrated along with its high speed system, featuring modular plug and play technology.

The LabelCheck-360 is the company's latest evolution developed by its

automation and inspection systems division. The system

comprises light alloy in place of traditional stainless steel and consolidated CVS360-3D software. This allows total quality control of the label presence and absence, its orientation, faulty or mixed applications and colour characteristics. The Opera 400

Modul 33T efficiently identifies all types of defects and operates perfectly in line with the labeller, responding to the producer's needs.



The Opera 400 Modul 33T labeller



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The TNA intelli-date 5

REASSURANCE THROUGH SUPERIOR CODING

Tna has launched its branded intelli-date 5. This high speed thermal transfer overprint (TTO) date coder has integrated print code verification technology and an airless design. The coder is specified for continuous high quality printing on flexible bags.

Part of tna's performance 5.0 ultra high speed production concept, the intelli-date 5 features an ultra fast printhead movement, which increases throughput by up to 25 per cent compared to previous models.

Together with its simple, airless design, the new technology reduces wastage and costs. It also provides the highest equipment reliability and performance at a low total cost of ownership to food manufacturers.

Equipped with intelligent motion

technology and a twin-belt electronic printhead, the tna intelli-date 5 does not require compressed air. Operator intervention is not required to adjust the air pressure - owing to the date coder's airless design. It also provides precise printhead pressure for consistently high quality prints.

The date coder's unique printhead can be changed in less than 30 seconds, maximising production uptime. The system comprises a simple, easy to load cassette, reducing the need for less wearing parts. Additional mechanical devices to control ribbon tension, which facilitates maintenance and eliminates potential failure points are no longer needed. Additional production efficiencies are achieved by the date coder's integrated iAssure technology.

Featuring real-time image processing capabilities, the tna intelli-date 5 automatically detects common print defects. This includes those caused by ribbon creases, overprints or worn print surfaces. Any mismatch between the intended and a captured image will be evaluated on the spot and trigger an alert to minimise waste and reduce downtime.

'Date coders are ideal for a wide range of flexible packaging applications,' says tna's product marketing manager, Anurag Mitra.

The coders are incredibly versatile and assist with regulatory compliance, for instance ingredient lists, nutrition statements, traceability information or use-by dates.

'Whatever the application, accuracy and consistency are key to ensure compliance and avoid products being rejected. Our new tna intelli-date 5 date coder is the ideal solution for any food manufacturer requiring correct and accurate codes to be printed on products at a high speed, time after time.'

The tna intelli-date 5 was specifically designed to integrate seamlessly into tna's robag series of high speed vertical form fill and seal packaging systems. This also includes the ultra high speed tna robag 5 in which the tna intelli-date 5 coder enables speeds of up to 300bpm. In terms of production line efficiencies, the TTO date coder doubles the industry's current average packaging speeds within a single, fully integrated and highly compact packaging solution. •

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- Precisely controlled packing atmosphere
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- 300mm X 300mm
- 300mm x 150mm
- 150mm x 150mm

Comes with waste suction unit

- It needs to have a water chiller for the cooling system (available)
- It needs to have an air compressor to provide air for the pneumatics (available)

Price - Euros (€) 75,000 negotiable + Shipping Costs



Vacuum Meat Marinater/Tumbler

Brand: Ruhle

Model: MKR 130

Capacity - 130L Max filling Capacity - 95L

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