

food & beverage

REPORTER

September 2025

EXPERT INSIGHT:

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From the editor

The world was promised a turning point. By 2024, governments pledged to deliver a binding global treaty on plastics—one that would address the crisis from start to finish, from design and production through to waste management and recycling. But as we sit in mid-2025, that promise has fractured.

Talks in Geneva collapsed under the weight of petrochemical interests, with producing nations rejecting mandatory production limits and settling instead for voluntary measures. The result? Plastic production is projected to reach an astonishing 1.2 billion tonnes by 2060, while less than 10% of plastic today is recycled. Recycling is left carrying the blame for a crisis it did not cause—expected to fix the system, yet too often denied the support it needs to thrive. This is the broken promise of the plastics age.

And it is precisely why the work of South Africa's recycling pioneers has never been more urgent. **Extrupet** stands as proof that with vision, investment, and commitment, plastics recycling can succeed—even against the odds. But without bold and decisive policy, even the strongest champions risk being drowned in the tide of cheap virgin plastics and global inaction.

In this issue, Food & Beverage Reporter speaks with **Chandru Wadhvani** of Extrupet, who shares powerful insights on why plastics recycling must remain at the forefront of the environmental agenda. His words are both a warning and a call to action: if global leaders have faltered, then it is up to industry, innovators, and nations like ours to show that change is not only possible—it is essential.

This month, we also celebrate another powerful force shaping the sector: women. As part of Women's Month, the Beer Association of South Africa (BASA) profiled three remarkable leaders—brewer **Megan Gemel**, township distributor **Pulane Koster**, and Heineken South Africa Quality Manager **Makgosi Booyesen**—who are challenging stereotypes and reshaping what leadership in the food and beverage industry looks like.

Equally, innovation continues to redefine what excellence means in production. In an era where food and beverage producers are under relentless pressure to deliver both quality and efficiency, precision analytical tools have become indispensable. **Anton Paar's latest DMA series**, anchored in innovation and robust design, sets a new global standard in density and concentration measurement—empowering producers to achieve accuracy, consistency, and confidence in every batch.

At the same time, the industry is being reshaped in laboratories, where the future of food takes its earliest form. **Lab-scale food processing** plays a central role in R&D, allowing researchers to test new formulations, refine processes, and push the boundaries of product development long before innovations reach commercial scale. In a market driven by changing consumer demands, this work is critical to keeping the food and beverage sector agile, responsive, and competitive. To see how VEGA is meeting this challenge, [click here](#).

From tackling plastic pollution, to breaking barriers in leadership, to driving innovation in both production and R&D, this issue is a reminder that progress is never built on promises alone. It is built by people, by pioneers, and by technologies bold enough to move the industry forward.

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www.fbreporter.co.za



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Editorial and advertising deadline 6 October 2025
Contact: editor@fbreporter.co.za



Anuga Organic 2025 to showcase global sustainability trends

Anuga Organic 2025 will once again serve as a global hub for the organic food sector, spotlighting sustainability, transparency, and innovative product development.

The trade fair, running from 4 to 8 October in Cologne, Germany, will present a diverse range of organic products including regional specialties, fairly traded goods, and vegan foods – a key growth driver.

According to knowledge partner Innova Market Insights, nearly 60% of all new global organic launches come from Western Europe, followed by North America (16%). The fastest-growing markets are Eastern Europe (+17%) and Africa (+14%).

Categories in highest demand include baby and toddler food (16% market share), sauces and spices (10%) and bakery products (9%).

Globally, 43% of consumers said organic certification strongly influenced their purchasing decisions, with combined claims such as “organic and vegan,” “organic and gluten-free,” and “organic and additive-free” proving especially popular.

The event offers both producers and exporters extensive opportunities to tap into rising global demand for sustainable and ethically produced foods.

RCL Foods lifts revenue, earnings despite sugar headwinds

South African food producer RCL Foods (JSE: RCL) has posted a 28.5% rise in full-year revenue for 2025, with stronger performances in its groceries and baking units offsetting weakness in sugar.

Headline earnings per share (HEPS) from continuing operations rose to 156.3 cents for the year ended June, while group earnings before interest, tax, depreciation and amortisation (EBITDA) advanced 11.4% to R2.6 billion (US\$148 million), supported by cost-saving initiatives. On an underlying basis, excluding once-off items, EBITDA from continuing operations was up 7.9% year-on-year to R2.39 billion. Group revenue grew 1.8% to R26.5 billion (US\$1.5 billion), with groceries and baking the primary drivers.

Groceries revenue gained 1.8%, aided by a stronger product mix in pet food and a focus on premium brands. Baking revenue also rose 1.8%, with bread, buns and rolls contributing to a 55% jump in EBITDA and modest volume growth of 1.3%.

By contrast, the sugar business faced a tougher second half, as imports surged and consumer demand



softened. EBITDA in sugar declined 22% to R1.09 billion (US\$61.5 million), with underlying earnings down 24% to R963 million (US\$54.3 million).

CEO Paul Cruickshank said the group remained committed to organic growth through innovation while being open to strategic acquisitions. He warned that consumer demand would likely stay muted despite easing inflation, while sugar markets continued to face global and local pricing pressure.



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Cold chain ‘at the heart of Africa’s food security,’ says Minister Steenhuisen

South Africa’s Minister of Agriculture John Steenhuisen has called for urgent investment in Africa’s cold chain infrastructure, describing it as “the artery through which Africa’s food system flows.”

Speaking at the Global Cold Chain Alliance (GCCA) Africa Conference in Durban on 21 August, Steenhuisen stressed that robust cold chains were critical to reducing food waste, creating jobs, and improving competitiveness in global markets.

“Without it, farmers lose, consumers suffer, and economies falter. With it, we can feed more people, create more jobs, and compete more confidently on the world stage,” he told delegates.

The minister highlighted rural areas as a key priority, noting that cold chain access could transform subsistence farmers into market-linked producers. “This is not charity. This is smart economics. Rural cold chain access is rural development in action,” he said.

Paul Matthew, GCCA Director for Africa, welcomed the remarks, saying they reinforced the alliance’s ongoing advocacy for stronger temperature-controlled logistics on the continent.



The two-day conference drew 120 industry leaders to discuss themes including smart technologies, trade and investment, and energy resilience in temperature-controlled supply chains.

South Africa set for record-breaking canola harvest

South Africa is on track to deliver its largest canola crop on record this year, with yields expected to climb 10–15% above last year’s historic high.

The Agricultural Business Chamber of South Africa confirmed that favourable weather conditions – including cooler temperatures and steady rainfall – have paved the way for another bumper season, with harvesting set for October and November.

“This harvest is more than just a record – it’s a sign of the sector’s resilience, sustainability, and potential,” said Morne Botes, Commercial Director at Southern Oil.

Canola seeds, which yield 42–44% oil and 56% protein meal, supply both the food retail and animal feed industries. Refined oil is used in cooking oils, sauces and dressings, while the protein meal is an important component in dairy and poultry feed.

Botes noted that investments in high-efficiency crushers had given local processors a competitive edge, reducing waste and strengthening South Africa’s agri-processing footprint globally.



Beyond its economic value, canola also supports sustainable farming through crop rotation, soil enrichment, and zero-waste processing, making it a cornerstone of circular agriculture.

With rising demand for traceable and locally produced ingredients, the crop is increasingly central to South Africa’s agricultural strategy. “Canola is not only delivering record yields, but also reshaping the future of South African farming,” Botes said.



Paarl's Roberto Agrela crowned SA's new Boerewors Champion

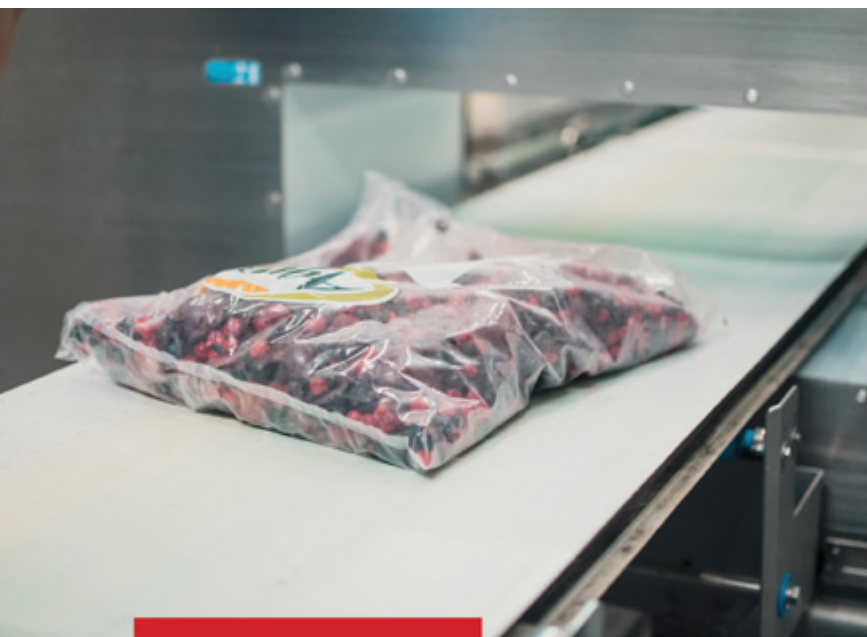
South Africa has a new boerewors king. Roberto-Rui Agrela, a 33-year-old car salesman from Paarl, took the top spot at the 33rd Shoprite and Checkers Championship Boerewors finale in Cape Town on 23 August.

Agrela beat more than 2,350 entrants to claim the title, impressing judges from the South African Chefs Association with his recipe and braaing skills.

"It was my first time entering, and I never thought my passion for braai would bring me here," he said. "It just shows you need to stay true to yourself, keep believing, and always stay humble."

Along with the bragging rights, Agrela drove away in a Toyota Fortuner 2.4 GD-6 RB AT and R20,000 in cash. Second place went to Roland Blaauw (47) from Wellington, while third place was claimed by Ladysmith entrepreneur Asheel Beharie (40), highlighting the diversity of this year's finalists.

The annual competition remains a cornerstone of South Africa's culinary calendar, celebrating the nation's favourite flame-grilled delicacy.



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Stellenbosch dominates Standard Bank Chenin Blanc Top Ten



The winners of the 2025 Standard Bank Chenin Blanc Top Ten Challenge have been announced, with Stellenbosch once again leading the pack.

Four of the ten winning wines hail from the region, including three from Stellenrust – the most consistent winner in the competition's 12-year history. All winning wines are from the 2024 vintage. For the first time, the full selection will be available nationwide through Tops! at SPAR stores from 30 September, in addition to being sold directly by producers.

Each winning producer receives R25,000 to invest in community upliftment initiatives for wine workers, bringing Standard Bank's total contribution to nearly R3 million.

Ken Forrester, chair of the Chenin Blanc Association, said the awards reaffirmed Chenin's role as South Africa's "flagbearer grape," with international demand rising as consumers increasingly turn to white wines.

South Africa and France account for more than 80% of global Chenin vineyards. According to Inter Loire,

136 million bottles were sold worldwide last year, with volumes up 7% over the past five years despite broader wine market declines.

2025 Chenin Blanc Top Ten winners:

- Alvi's Drift 221 Chenin Blanc 2024
- Chamonix Old Vine Steen 2024
- Du Toitskloof Pierre Du Mont 2024
- Joostenberg Die Agteros Chenin Blanc 2024
- Ken Forrester The FMC 2024
- Roodekrantz Die Kliphuis 2024
- Stellenrust Stellenbosch Manor Barrel Fermented Chenin Blanc 2024
- Stellenrust Stellenbosch Manor Chenin Blanc 2024
- Stellenrust B28 Chenin Blanc 2024
- Stettyn Shackleton Old Vines Chenin Blanc 2024

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Hinds Spices puts a fresh spin on salads with easy-to-make dry dressing mix

Hinds has a long tradition of salad dressing innovation illustrated with the launch of its new dry salad dressing mix as an alternative to ready-made bottled dressings. The range offers retailers an affordable entry-point product that attracts trial, drives frequency of purchase, and broadens the shopper base in the salad dressing category.

With five versatile flavours: All-in-One, French Style, Greek Style, Garlic & Herb, and Smokey, households can mix only what they need, cutting food waste and ensuring flavour freshness every time.

Dry mixes are a smart innovation for today's consumer and for retailers. For consumers, the product is affordable, convenient, and easy to store. For retailers, it's a simple way to add excitement and variety to the salad dressing aisle, while tapping into consumer demand for healthier, customisable mealtime solutions.



A little more than a morning pick-me-up – Nespresso launches new Functional Coffee Range in SA

Coffee is a personal journey that should fit seamlessly into your daily grind. Many of us can't even get the day started without it – so we might as well make it part of our wellness journey and do it with more intention and purpose.

According to statistics from a recent study, South Africa's health and wellness market reached US\$26.64bn (R466bn), with expectations for it to hit US\$42bn (R738.9bn) by 2033. This is part of a global shift toward more intentional, health-focused living.

With wellness top of mind for a growing number of coffee drinkers, Nespresso is personalising the journey with a new focus on energy, intention, and balance.

The coffee brand has launched its new Functional Coffee Range, a collection of five thoughtfully crafted blends with ingredients designed to support modern lifestyles with the aid of Ginseng, Vitamin B, and extra caffeine.

Crafted for coffee lovers who seek more from their brew without changing how they enjoy it, the new range features three distinct routes, each with coffees that celebrate their own purposeful ingredients:

- Stormio Go & Melozio Go: With extra caffeine and a bold, roasted profile, this blend supports those get-up-and-go mornings or long stretches of focus.
- Vivida B12 & Active B6: A smooth and uplifting option providing a source of B vitamins, designed to complement busy days and keep you feeling at pace.
- Ginseng Delight: Blended with ginseng and soft, comforting notes, this is the perfect cup to ease into a slower moment or wind down gently.

"These additions are subtle yet purposeful. There are no powders, no blends to mix, just your favourite Nespresso coffee, elevated," notes Nobre. "Whether you're easing into a yoga flow, prepping for a packed calendar, or taking a quiet moment before the day begins, it's time to put a little extra thought behind every sip," Nobre concludes.





STROH 80 returns to South Africa with limited edition drop of 80 bottles

In a move set to spark interest among premium spirit collectors and high-proof enthusiasts, Edward Snell & Co. is reintroducing the globally renowned STROH 80 to the South African market, with a highly limited release of just 80 bottles.

Once a well-known favourite in the local market during the late '90s and early 2000s, STROH 80 returns to South Africa in limited quantities, celebrating its Austrian heritage, high-strength craftsmanship, and niche collector appeal. This limited drop is poised to drive collector demand, premium presence, and a powerful sense of nostalgia.

"STROH 80 has long held legendary status among those who know it," says Nicole De Waal, Portfolio Manager at Edward Snell & Co. "Bringing it back as a strictly limited release allows us to honour that legacy while tapping into high consumer demand for rare, heritage-driven spirits. It's a product that sells itself, bold, iconic, and backed by a loyal following."

"There's a generation who grew up with STROH 80 and a new wave who've only heard whispers about it. This relaunch honours both the OGs and the curious newcomers," she says. "With just 80 bottles in the country, this isn't just a drink. It's a power move. An icon. A throwback with enduring appeal" The campaign to promote STROH 80 will include strategic partnerships across lifestyle and trade channels with influencer partnerships to deliver on strong storytelling traction.

Savanna's new 500ml can is a cultural stamp

Summer is back and so is that deep local love for being outside. From golden hour rooftops to bush getaways, Mzansi knows how to make the most of every moment under the sun and now, we're doing it with even more crispness in hand.

Savanna Premium Cider is proud to introduce its boldest drop yet, the Savanna Dry 500ml can. With that signature iconic crisp and dry taste but just more of it. In a premium, portable format that fits perfectly into the rhythm of a real South African summer. The new 500ml can brings elevated convenience to the table. It is lightweight, travel-friendly and made to chill fast. It's the ultimate companion for the spontaneous, stylish outdoor missions that define South Ahh's summer culture.

Crafted from juicy apples, expertly fermented until dry and cold filtered for that unmistakably crisp finish, every sip of Savanna Dry is layered with a uniquely crafted toasted oak essence, delivering that crisp, dry taste Mzansi loves. Best served ice cold with a lemon in the opening.

'Savanna's 500ml can isn't just a cider in a new pack, it's a cultural stamp. A dry, witty, proudly South African one,' says Kayla Hendricks, Marketing Communications Manager at Savanna. 'Whether you're living your best life at a festival or keeping it premium at a curated gathering with friends, it's the kind of drink that moves with you. With the 500ml can, we're unlocking even more ways to enjoy the crisp, dry experience that's made Savanna iconic - on your terms, wherever the vibe calls.'



Durbanville Wine Valley unveils historic Pinotage

A historic new wine has been unveiled by winemakers of the Durbanville Wine Valley. Produced in a limited quantity through the collaboration of the famous wineland region's cellars, the Durbanville Pinotage 2024 is as much milestone of the past as window to the future of cool climate diversity.

The wine was crafted in celebration of three significant milestones: the 200th anniversary of the town of Durbanville, 100 years of Pinotage as a true South African cultivar, and 100 years of Afrikaans as an official language. As such, it harnessed the very best grapes and skills of the Durbanville Wine Valley to create a wine of sublime quality.

Just 1 170 bottles of the Durbanville Pinotage 2024 wine are available, with each bottled exclusively as a 1.5L magnum.

"A wine that bears this level of significance, displaying the highest art of its creators, deserves to be shared generously – and nothing says celebration quite like a magnum," says Durbanville Wine Valley manager Natasha de Villiers.

"The youngest of South Africa's most popular varieties, Pinotage is sometimes overshadowed by its bolder siblings, but this centenary is a reminder that it is a cultivar built for the future – especially in places like Durbanville. The region's cool climate extends stylistic capabilities to making wines both delicate and complex."

More than a champion of Sauvignon Blanc

Once again, the winemakers of the Durbanville Wine Valley came together to showcase the region's collective talent, reaffirming its standing not only as a Sauvignon Blanc stronghold but also as a source of distinguished cool climate red wines. This limited release honours the fruit purity of Pinotage with clarity, elegance and regional identity.

The Durbanville Wine Valley is one of South Africa's oldest wine-producing regions, with farms dating back to 1698. The label design tells the story of Durbanville's land and legacy. Framed in Delft-blue illustration, it features the historic Dutch Reformed Church (construction begun on 1 April 1825), a Cape Dutch homestead found on the family-owned farms, and the iconic outline of Table Mountain as seen from the hills of Durbanville. A garland of pumpkins, wheat and grapes pays tribute to the region's rich agricultural heritage. All wording on the label appears in Afrikaans, marking the centenary of Afrikaans as an official language and reflecting its cultural prominence in Cape Town's northern district.



About the winemaking

The collaboration behind the Durbanville Pinotage 2024 saw the participation of winemaking teams from 11 cellars – each famous in its own right. They included Nitida, Meerendal, Maastricht, Klein Roosboom, Groot Phesantekraal, Durbanville Hills, Diemersdal, De Grendel, D'Aria, Mellish Family Wines and Canto. Some contributed fruit while all were involved in the final barrel selection.

The final blend was entrusted to De Grendel's Morgan Steyn and Charles Hopkins. "It's always a privilege to make this wine," says De Grendel winemaker Morgan Steyn. "It speaks of the unity and camaraderie among producers in the valley, and its contribution to our mutual success." "This wine is very different to what most people might expect of a traditional Pinotage, the key ingredient being the climate. We believe however that this it truly expresses what the future of the cultivar looks like, and it's exciting."

Morgan describes the wine as "a refined expression" that opens with layered aromas of blackcurrant, prune and cherry, lifted by gentle undertones of winter spice. The palate is elegant and well-structured, guided by soft, powdery tannins that provide length and finesse. A lively natural acidity brings vibrancy and definition, allowing the purity of the fruit to shine. This wine offers both freshness and depth, with the potential to develop further complexity over time.

www.durbanvillewine.co.za



Small batches, big impact: VEGA power hygiene and precision in culinary labs

Food processing is no longer just about large-scale production lines and high-speed machinery. In an age where innovation is celebrated, many of the most exciting advancements in food and beverage manufacturing start small, often within laboratory settings, created by culinary scientists.

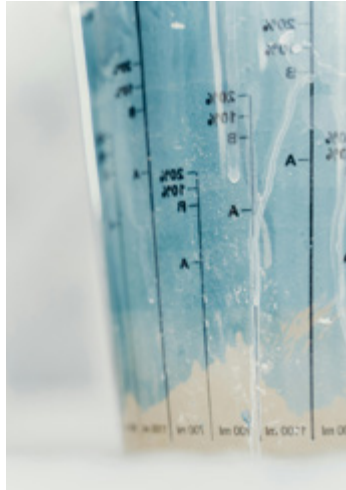
These controlled environments are the birthplace of new recipes, functional ingredients, and process improvements that eventually shape what lands on our shelves and in our homes. At this critical stage of development, hygiene, precision, and product integrity are non-negotiable, and this is where VEGA's measurement technology shines.

Lab-scale production in food innovation

Laboratory-scale food processing plays a central role in R&D for the food and beverage industry. It allows researchers to test new formulations, refine



preservation techniques, develop sustainable packaging processes and simulate industrial conditions, all within a controlled, small-batch environment. The insights gained from lab trials inform key decisions before moving to pilot or full-scale production. This makes accurate and hygienic monitoring of every step essential, not only to ensure safety and compliance, but also to guarantee that product characteristics remain consistent when scaled.



they're designed to withstand high-pressure cleaning, steam sterilisation, and aggressive cleaning agents, ensuring full compliance with industry standards like 3A, EHEDG, and FDA requirements.

“Laboratory-scale food processing plays a central role in R&D for the food and beverage industry. It allows researchers to test new formulations, refine preservation techniques, develop sustainable packaging processes and simulate industrial conditions, all within a controlled, small-batch environment”

A hygienic approach from the ground up

Food safety begins with cleanliness, and in laboratory settings where test batches can be as small as a few litres, even microscopic contamination can have serious consequences. Sensors and instrumentation used in this environment are required to meet strict hygienic standards and be designed for CIP (clean-in-place) and SIP (sterilise-in-place) procedures. VEGA's sensor technology is built with this in mind.

For example, the VEGABAR pressure transmitter series features flush-mounted diaphragms that eliminate crevices where product residues could accumulate. These transmitters are made from food-grade materials, such as stainless steel or ceramic, and

Reliable level measurement—even in challenging media

One of the biggest challenges in lab-scale food processing is handling diverse and complex ingredients. Whether working with viscous syrups, foaming dairy products or fine powders, precise level measurement is vital to process efficiency and batch integrity.

The VEGAPULS 6X radar sensor is a top choice in this regard. It offers non-contact, continuous level



measurement, which eliminates the risk of product contamination while ensuring consistent results, even when installed on small tanks or containers. Thanks to its high dynamic range and compact design, the VEGAPULS 6X delivers accurate readings regardless of media type, temperature fluctuations or condensation within the vessel.

This reliability makes it ideal for tasks like monitoring raw ingredient levels during mixing, tracking fermenting volumes in probiotic foods or controlling fill levels in dosing containers. Plus, its hygienic housing and easy-to-clean design make it a seamless fit for lab environments where cleanliness and space efficiency matter.

“With digital communication protocols like IO-Link and Bluetooth, VEGA instrumentation allows operators to access sensor diagnostics, monitor real-time trends and ensure full traceability of every batch”

Smart diagnostics and full traceability

VEGA sensors are more than just hardware; they're part of a smart, connected ecosystem. With digital communication protocols like IO-Link and Bluetooth, VEGA instrumentation allows operators to access sensor diagnostics, monitor real-time trends and ensure full traceability of every batch.

For food manufacturers, this kind of data can be a game-changer. It helps track variations in pressure or level that may affect product texture, taste, or stability. It also supports early identification of process anomalies that could lead to quality defects or equipment damage. In short, it helps teams work smarter, not just harder.

One notable solution is the VEGAPOINT series of capacitive point level switches, which are ideal for lab containers or small mixing vessels. The VEGAPOINT 21 and 31 models feature 360° status LEDs that provide immediate, visual feedback on switching states. This makes monitoring easy, even from a distance, which is particularly helpful in busy lab environments with multiple processes running simultaneously.

Supporting innovation through simplicity

One of VEGA's key design philosophies is simplicity without compromise. In laboratory food processing, where time and focus are often spent on scientific variables and formulation testing, the last thing researchers need is complicated instrumentation. VEGA sensors are designed to be intuitive, quick to install and easy to integrate into existing systems. Whether through mobile device configuration via

Bluetooth or plug-and-play compatibility with lab automation software, setup is fast and user-friendly.

This level of flexibility also helps research teams scale more easily. When a process developed in the lab is ready to move to a pilot plant or full production line, the same VEGA sensors can often be used in larger-scale systems with little to no modification, ensuring measurement continuity and reducing engineering costs.



Setting a new standard in food lab instrumentation

Laboratory-based food production might be small in scale, but it's massive in its impact. This is where food trends are tested, where health-forward products are born and where sustainable solutions take shape. It's also where measurement technology plays a quiet but central role. VEGA's instrumentation for pressure, level and point level measurement is purpose-built to meet the demands of hygienic, high-precision environments, delivering the data and dependability needed to bring new food products to market—safely, efficiently, and profitably.

By combining robust hygienic design, digital intelligence and industry-certified reliability, VEGA gives food innovators the tools they need to push boundaries and raise the standard in food safety and quality from the lab to the production floor.

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Going beyond the Matrix

In the 1999 blockbuster fiction film, *The Matrix*, Neo was given the choice between taking the red- or blue pill. The red pill allows him to remain shielded in a simulated reality, known as *The Matrix*, while the blue pill allows him to wake up to the true harsh reality of the real world. Although this film was entirely fictional, it does illustrate the complex role the environment plays in a system.

In food systems, much like Neo, the matrix refers to more than the mixture of ingredients. It is the spatial arrangement of macromolecules (proteins, carbohydrates lipids), and minor compounds in a particular microstructure such as an emulsion, gel or crystalline solid.

The microstructure of the product can therefore be manipulated by the choice of ingredients as well as the processing applied. For example, milk creaming can be reduced by addition of stabilisers or by heat treatment and homogenisation.

However, while stable food products are essential to customer appeal and market success, the food matrix may interfere when samples must be analysed for quality control purposes.

For example, fat extraction is required for iodine value determination and free fatty acid determination while chitin removal is essential for accurate protein determination in insect proteins. In both cases the matrix can interfere with the analysis to yield inaccurate results. Accurate results therefore rely on an in-depth understanding of the food product, the analyte of interest as well as the analytical method applied.

Validation involves testing for accuracy, precision, repeatability, reproducibility, recovery, and limits of

“To minimise errors caused by matrix effects, laboratories must perform thorough method validation before using a procedure for routine analysis”

detection, all within the specific product type. A method that performs well on a pure standard solution may fail when applied to a complex food sample containing emulsifiers, colorants, or stabilisers. Sample preparation is therefore often the most critical step. Depending on the matrix, this may include filtration, centrifugation, enzymatic digestion, defatting, or dilution. With extraction the goal is to isolate the analyte from interfering components while preserving its chemical integrity.

For example, proteins and lipids contribute to the functional and sensory attributes of a product. For emulsification of proteins in a cream liqueur, the ratio of fat to protein is essential for stability. However, as with milk, fat-in-water emulsions produce liquids which reflect light to yield an opaque liquid when diluted with water.



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“Modern analytical tools are helping laboratories to work around the worst matrix problems. Techniques such as liquid- and gas chromatography coupled with tandem mass spectrometry and (LC-MS/MS and GC-MS/MS, respectively) can detect trace compounds even in challenging samples, thanks to their high sensitivity and selectivity”

Because this matrix interference will result in an overestimation of the protein content, the protein content of a fat-in-water emulsion can therefore not be accurately determined using analysis methods which rely on spectrophotometry.

This issue can be overcome by first removing the fat, although this may result in protein precipitation yielding false negative results. Methods which rely on determination of nitrogen content, including Kjeldahl

and Dumas, is therefore the preferred method for protein determination in such products. However, if the matrix contains non-protein sources of nitrogen, even these methods can yield inaccurate results. Knowledge of the analysis method can therefore guide the analyst in selecting the correct analysis method. On the other hand, the same knowledge could also be applied to adulterated products as was the case in the 2008 milk scandal.

Here the protein determination method was exploited by adulterating infant formula with cheap nitrogen-containing melamine to increase the apparent protein content. As a direct result, suppliers now require melamine declarations and various laboratories provide melamine testing services using advanced analytical techniques such as liquid chromatography with mass spectrometry detection. The method used should therefore be optimised for the analysis performed, while taking the matrix into account.

Modern analytical tools are helping laboratories to work around the worst matrix problems. Techniques such as liquid- and gas chromatography coupled with tandem mass spectrometry and (LC-MS/MS and GC-MS/MS, respectively) can detect trace compounds even in challenging samples, thanks to their high sensitivity and selectivity.

On the other hand, non-destructive methods like Fourier-transform infrared (FTIR) and near-infrared (NIR) spectroscopy can quickly generate a “fingerprint” of a product with little or no sample preparation. When combined with chemometric modelling, these tools can identify subtle changes in composition and help spot adulteration or contamination earlier in the production process.

While these approaches can be powerful, they do not eliminate the need for sound sample preparation. Even the most sophisticated instrument cannot produce reliable results if the sample entering it does not represent the true composition of the product. This is where an experienced analyst’s skill makes the difference. The analyst is responsible for interpreting the results, knowing when the data looks wrong, understanding why, and having the ability to adapt the method or preparation to get it right.

In cases where the results are wrong, albeit through matrix interference or deliberate adulteration, the consequences for the producer can be serious. Analysts should therefore always choose between taking the red pill, ignoring the matrix and risking inaccurate results, or the blue pill, ensuring accurate results even when the result shows that the product does not conform.

www.synercore.co.za

Author:

Dr. Stefan Hayward, Principle Scientist, Synercore



From density to polarimetry: How Anton Paar integrates precision for faster food and beverage quality control



The new benchmark in food and beverage
Analysis – the Anton Paar DMA Series

In an era where food and beverage producers are under constant pressure to deliver both quality and efficiency, precision analytical tools have become indispensable. Anton Paar's latest DMA series is anchored in innovation and robust design and sets a new standard in density and concentration measurement.

Precision meets usability in modern QC

From the heart of artisanal craft breweries to the large-scale operations of global beverage producers, consistency is non-negotiable. The DMA line-up delivers just that:

- Modular Benchtop Models (DMA 4002, 5002, 6002) boast four-digit accuracy in under 20 seconds, thanks to patented U-Pulse technology and automated workflows such as FillingCheck, U-View, and U-Dry - slashing measurement time while boosting reliability.
- Compact Versions (DMA 502 & 1002) are designed for at-line concentration checks, even in harsh production environments. They support fast, bubble-free filling of complex samples and include over 100 built-in conversion tables to streamline workflows across beverage types.
- Portable Model (DMA 35) brings lab-grade density measurement into the field. Rugged, safe, and intrinsically designed, it's perfect for in-process checks such as hot wort monitoring in brewing - sampling in just 2 ml and delivering results on the spot via RFID and Bluetooth.

At the core of every model lies the Pulsed Excitation Method - a refined oscillating U-tube technique that ensures exceptional precision and long-term stability.

For food and beverage QC, a single parameter is rarely enough. Producers need comprehensive insight into product composition, and this is where Anton Paar's modular approach shines"

Streamlining analysis with Multiparameter Integration

For food and beverage QC, a single parameter is rarely enough. Producers need comprehensive insight into product composition, and this is where Anton Paar's modular approach shines. The DMA series can be seamlessly coupled with additional technologies:

- **Refractive Index Modules:** Ideal for sugar concentration measurements in juices, syrups, soft drinks, and dairy applications, refractometry complements density data to give highly accurate Brix or extract content. Together, density and refractive index allow beverage manufacturers to identify adulteration and ensure compliance with recipe targets.
- **Polarimetry Modules:** Crucial for industries such as sugar refining, confectionery, and flavour production, polarimetry measures the optical rotation of chiral substances (like sucrose). When combined with density and refractive index, it provides a three-

dimensional fingerprint of sample composition, offering unmatched reliability for quality control.

- **CO₂, Alcohol, pH, and Beyond:** In brewing, winemaking, and soft drink production, multiparameter systems can capture everything from alcohol strength to carbonation levels, all from a single sample draw.

This synergy not only reduces sample waste and operator workload but also accelerates QC workflows by up to 600 %, a game-changer for high-throughput beverage lines.

Why this matters

For Food & Beverage Reporter readers, the DMA series highlights a broader shift in industry trends: integration and precision as the new normal.

- **Brewing & Distilling:** Portable and compact DMAs streamline wort and fermentation checks, empowering producers to make faster, data-driven decisions.
- **Soft Drinks:** Multiparameter setups (density + refractive index + CO₂ + polarimetry) deliver full compositional profiles in minutes instead of hours.
- **Sugar & Syrups:** The combination of density, refractive index, and polarimetry ensures absolute confidence in purity and labelling compliance. In every case, Anton Paar offers smarter, faster, and more reliable QC, from lab to line.

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U-Dry: One-touch drying increases measurement speed and reliability

U-Tube: Precision glass tubes ensure consistent performance



Human milk probiotics: A natural innovation shaping maternal and infant health

In the nutrition space, few windows are as critical as the first 1,000 days of life. From conception to age two, 80% of a child's brain develops, shaping sensory systems, memory, and learning capacity. The gut and immune system mature rapidly, transitioning from a protected womb environment to one exposed to external challenges. It's a period where nutrition can influence lifelong health outcomes, including susceptibility to chronic diseases, cognitive performance, and emotional resilience.

Breast milk is the gold standard for infant nutrition: it provides complete nourishment tailored to infant needs, has natural probiotics and prebiotics that help establish a healthy gut microbiome, and provides immune protection and developmental support. However, researchers are now turning their attention to a lesser known but powerful component within it: Human Milk Probiotics (HMPs).

These naturally occurring strains of *Lactobacillus* and *Bifidobacterium*, such as Kerry's range of LC40® (*Lactobacillus fermentum* CECT5716) and BfM26® (*Bifidobacterium breve* CECT7263) HMPs, are emerging as valuable in supporting both infant development and maternal well-being, and are gaining attention among healthcare professionals and formulators alike.

The rise of probiotics in infant and maternal care
Across Asia Pacific, the probiotics market is booming,

with a retail value of over USD 3.6 billion in 2024 and a projected CAGR of 6.3% through 2029. This growth reflects a broader shift toward preventative healthcare and rising interest in supplements and functional nutrition.

Within this evolving space, a new frontier is gaining momentum: specialist probiotics formulated specifically for mothers and infants. According to Kerry's proprietary consumer research, 53.7% of women in Asia are actively seeking alternative solutions to support their pregnancy and breastfeeding journey. Meanwhile, 69.5% of parents are looking for products that can enhance their baby's immune health and reduce the risk of future health issues.

These insights highlight the growing recognition of the microbiome's role in early life and the demand for targeted, clinically supported solutions that align with modern parenting and wellness priorities.

Bridging the microbial gap in early life

Establishing a healthy gut microbiome in infancy is crucial for immunity, digestion, and even cognitive development. Yet not all babies receive the same microbial head start. Infants born via C-section or who are formula-fed often lack exposure to the beneficial bacteria naturally transferred during vaginal birth and breastfeeding.

This is where HMPs can make a difference. As strains originally isolated from breast milk, they are well adapted to the infant gut environment and can help close the microbial gap for at-risk populations.

Clinical research on LC40 has shown its ability to reduce gastrointestinal infections by 48% and respiratory infections by 27%, while supporting a gut microbiome more closely resembling that of breastfed infants. This suggests a reduction of antibiotic use, improvement in infant comfort, and lowering healthcare burdens.

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Addressing breastfeeding challenges with microbial support

Breastfeeding, while beneficial, is not always easy. Mastitis, a painful inflammatory condition, affects up to 15% of breastfeeding mothers, often leading to early discontinuation. LC40 has demonstrated a 51% reduction in mastitis incidence in clinical studies, and mothers who consumed it also reported faster resolution of symptoms and improvements in emotional well.

Beyond physical relief, LC40 also helped alleviate psychological symptoms associated with mastitis. Women reported reductions in anxiety, sadness, and fear around breastfeeding, highlighting the holistic benefits of this probiotic intervention being compared to those treated with antibiotics.

The implications are significant for maternal health outcomes and breastfeeding continuation rates, especially in the early postpartum period where support is most needed.

Infant comfort and development: The role of BfM26

Colic remains one of the most distressing yet poorly understood conditions in early infancy. *B. breve* BfM26 has shown positive outcomes in reducing crying time and improving gut comfort, particularly in colicky infants. It does so by modulating the gut microbiota and helping reduce intestinal inflammation—a mode of action increasingly supported by microbiome research.

Beyond colic, BfM26 is also being explored for use in neonatal care. When administered alongside LC40 in preterm infants, the probiotic duo significantly reduced the risk of necrotizing enterocolitis (NEC) and lowered mortality rates, making a compelling case for HMPs in clinical settings.

Growth benefits and long-term potential

In addition to immediate health outcomes, emerging evidence suggests that HMPs may have longer-term developmental benefits. In one study, formula-fed infants who received LC40 showed improved length gains, with measurable differences persisting up to two years of age. This suggests HMPs may positively influence growth trajectories during a critical window of development.

For manufacturers of infant formula, maternal supplements, or neonatal nutrition solutions, HMPs offer a compelling intersection of natural origin, clinical efficacy, and consumer relevance. As demand grows for science-backed, microbiome-supportive products in the maternal and infant space, these strains represent an evidence-based approach to formulation.

Importantly, their safety profile has been validated across multiple populations, including full-term, preterm, and breastfeeding infants, making them suitable for broad application in early life nutrition.

Scientific backing of human milk probiotics

As the nutrition industry continues to explore microbiome-targeted solutions, Human Milk Probiotics like LC40 and BfM26 are standing out for their unique relevance to early life health. They represent a natural yet science-driven innovation, helping bridge biological gaps in modern birth and feeding practices while supporting better outcomes for both mother and baby.

With robust clinical backing and strong consumer interest in preventive, functional health, Human Milk Probiotics (HMPs) can play a defining role in the formulation of next-generation maternal and infant nutrition products.

www.kerry.com

About the author:

Dr. Monica Maria Olivares is RD&A Director, Women & Infant Health at Kerry.



IFF launches interactive platform to inspire adult beverage innovation

IFF a global leader in food, beverage, health and wellness, has unveiled SipScape, a new platform designed to inspire innovation across the rapidly evolving adult beverage landscape. It offers actionable insights and trends, including product design, flavour modulation and sweetness reduction in no-and low-alcohol beverages. The platform also highlights IFF's expertise in incorporating botanicals, natural colours and other functional additions based on current trends and market demands.

“Understanding how and why people drink today is essential to staying ahead,” said Fernanda De Paula, vice president of global beverages category for IFF Taste. “Consumers are looking for more than a buzz, and drinks are no longer defined solely by their alcohol content. The most successful new products are those that reflect people's values, fulfill specific occasions and genuinely resonate with their needs. When done right, beverages can turn fleeting moments into joyful and meaningful experiences. SipScape is a vibrant virtual social scene, where brands can meet today's beverage consumers, learn more about their preferences and uncover exciting innovation opportunities.” Visitors to SipScape will benefit from deep explorations fueled by PANOPTIC, IFF's proprietary trend and foresight capability. PANOPTIC has decoded cultural

and consumer drivers, providing new insights into current shifts in the beverage market—such as the rise of conscious consumption and moderation among younger consumers. SipScape introduces five new consumer personas, each paired with distinctive concepts that reflect their unique preferences and motivations.

Meet two of the Sipscape's Resident Sippers:

- **Eternal Explorer, Eva**
Eternal Explorers, like Eva, are “rebels with a cause,” driven by a desire to create positive impact. Progressive and globally minded—similar to some members of Generation X and baby boomers—they have the means and mindset to support ethical brands through conscious choices.

“Consumers are looking for more than a buzz, and drinks are no longer defined solely by their alcohol content. The most successful new products are those that reflect people’s values, fulfill specific occasions and genuinely resonate with their needs”

Go-to concepts for Eternal Explorers include:

- **Once Upon Oaxaca Cocktail** - a 5% ABV cocktail featuring Mexican flavors like mezcal and palo santo.
- **Mango Sticky Rice Flavored RTD Green Tea** - a refreshing green tea packed with vitamins, immune support and natural energy.

- **Good-Time Guru, Gemma**
Rebellious and disruptive, Good-Time Gurus are drawn to brands that not only understand their priorities but also celebrate them. Generation Alpha and Generation Z consumers value sensorial escapism, experimentation and personalization.

Go-to concepts for Good-Time Gurus include:

- **Hopped Pineapple Lemonade** - an 8% ABV beverage that fuses tropical fruit with the crisp bite of hops.
- **Dragon’s Zen Sparkling Energy Drink** - a zero-alcohol sparkling energy drink with balanced sweetness and a sophisticated flavor profile.

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International beverage brand challenges global Goliaths

In a world where brands scream for attention with multimillion-dollar billboards and celebrity endorsements, The PURA Beverage Company is doing something radically different - and it's working. Instead of going big, PURA went precise. The brand recently launched what might be the tiniest outdoor media campaign in one of the world's busiest cities: with sticker placements on Broadway in New York City, right outside the iconic Nike Store.

This wasn't a budget-saving stunt. It was a statement about strategy, about knowing your audience, and about playing smart in a marketplace dominated by Goliaths. PURA's move underscores a new era in marketing: one where micro-campaigns, when executed well, don't just save money; they deliver bigger returns.

Placed in a high-footfall, health-conscious area in the heart of Manhattan, the sticker caught the eyes of exactly the kind of consumer PURA speaks to: active, mindful people who care about what they put into their bodies. According to **recent reports by Stack Influence**, targeted efforts can generate nearly three times more revenue per ad than general campaigns. Engagement rates for micro-initiatives are also higher, ranging from 7% to 20%, and in some cases, marketers are seeing returns of R230.00 for every R17.00 spent. In an era of inflation, shrinking budgets, and demand for authenticity, these stats are game-changers.

What PURA understands, and what many legacy brands are slow to accept, is that success in today's market isn't just about reach. It's about relevance. It's about connection. And it's about showing up where your audience already is, with a message that aligns with who they are and what they care about.

The sticker outside the Nike Store wasn't just a clever guerrilla marketing move. It was a calculated brand alignment. Nike represents health, motion, and ambition - values that overlap seamlessly with PURA's vision. By borrowing just a bit of that brand equity and placing itself in the right moment, in front of the right people, PURA wasn't just seen - it was remembered. Micro-campaigns like this are proving to be the new frontier of challenger brand strategy. They're low-cost, high-impact, and deeply personal. While the billboard arms race continues in Times Square, brands like PURA



are winning the war with a whisper on Broadway. Because in the end, it's not about how loud you shout.

It's about how well you're heard.

Since entering the market in 2017, PURA has met the beverage world with a challenger mindset, positioning itself as the next global health-forward brand to watch. Its disruptive campaigns aren't anomalies; they're part of a deliberate data-driven strategy that speaks to this shift in marketing.

The Pura Beverage Company isn't just selling soda, but challenging a category. Traditional brands compete on volume, while Pura competes on values, velocity, and vibe. This Broadway placement is proof: when you know your audience, a sticker can do the work of a billboard.

PURA's products reflect that philosophy. Its range of low-calorie, naturally sweetened sodas with real cane sugar and zero artificial sweeteners has gained loyal followings across the USA, the Middle East, and Africa. The company is serious about wellness, lifestyle, sustainability, and clean ingredients, not just in its beverages, but in its business practices as well, through the use of sustainable packaging, and by avoiding all of the artificial additives common in big-brand sodas.

www.livealittlepura.com

KHS redefines low level filling



Different centrifugal forces act on the product in the bottle as it passes from the filler to the transfer star and capper. (Source: Frank Reinhold)



KHS development engineer Dominik Weirich has been carrying out fluid dynamic calculations in Bad Kreuznach, Germany, since 2013 (Source: Frank Reinhold)

If beverage filling is to be safe with little loss, physics comes into play: given the rotation speed and change in direction, especially at the transition from the transfer star to the closure system, high levels of centrifugal force act on the content of the containers.

This can cause liquid to slosh out of the bottle. This may only comprise a few drops of spillage at a time – but with up to 90,000 fills an hour, the amount of product lost soon mounts up.

Another aspect is hygiene. It's not hard to imagine that on the one hand, sloshed sugary beverages soil container necks and closures, with mould even being formed in some cases. On the other, the machine is also contaminated. This in turn increases cleaning requirements and takes up valuable production time.

Two groups of parameters

In order to counter this, Dominik Weirich has been drawing up CFD calculations since 2013, "Ever higher filling outputs mean that the technology's reaching its physical limits, so that we also have to take liquid sloshing into account when designing the machine," says the KHS development engineer.

Data collected from the simulations he carries out form the basis here. "First, we take a look at the geometric parameters of the beverage containers themselves: here, we investigate the impact the bottle shape, fill height and neck diameter have.

This is done in close consultation with our Bottles & Shapes experts, especially in conjunction with new line projects, when changes are made to the geometry or the bottle weight is reduced, for example. Second, we have the physical parameters of the machines. These depend on the capacity, machine pitch and diameter of the stars. Adjustments can be made here relatively easily. Adapting the containers, however, is usually an iterative and more extensive process."

Increasing number of simulations

As a rule, it can be said that the larger the product surface and the closer the beverage is to the bottle mouth, the more likely the liquid is to slosh. This interaction of the various factors requires calculations to be made that are then included in both the design engineering and the offers for the machinery. Weirich has already performed about 850 of these simulations – with this number continuing to rise.

www.khs.com

Does SA have the skills to back up water sector investment?

The African Union-AIP Water Investment Summit 2025 held in Cape Town in August proved largely successful, raising \$10bn in investment commitments for the continent.

However, water infrastructure investment needs to be equally matched by investment in skills and professionalisation within both the water sector and its external support partners.

This is according to Dr Lester Goldman, CEO of the Water Institute of Southern Africa (WISA). “We’re not saying that infrastructure investment is not critical or welcome but without the right skills, it’s an exercise in futility,” he says.

The human factor

Days before the summit, President Ramaphosa presided over the opening of the new System 5A Water Purification Plant at Rand Water’s Zuikerbosch Station in Vereeniging. The plant adds 600 million litres of potable water per day to the system - enough to supply 2.4 million people.

“We are celebrating the completion of a vital piece of infrastructure, and we are affirming our shared commitment to the people of South Africa to continuously provide clean, reliable and safe water,” he said.

It’s a commitment that needs to be supported by sufficient capacity and skills. “Capacity speaks of the right mix of people, processes and policies within organisations responsible for water, but skills are about the people themselves possessing standards-

“Regulation 3630, gazetted on 3 June 2023, requires that water services works be supervised by at least a Class V process controller. Professionals of this class and above must register with WISA, meet its membership standards, and pursue continuous professional development (CPD) as required.”

based talent to perform their duties effectively,” says Goldman.

There must be ample skills in three main categories - leadership; management across the various departments; and technical skills within the water department itself. Goldman says each is equally important and supports the others to form a dependency chain.

Leaders in the water sector are not necessarily water experts. They are counsellors, decision makers, finance managers and other managers in support departments outside the technical water department. So, they depend on the expertise of technical professionals.

Professionalisation & training

Regulation 3630[1], gazetted on 3 June 2023, requires that water services works be supervised by at least a Class V process controller. Professionals of this class and above must register with WISA, meet its membership standards, and pursue continuous professional development (CPD) as required. Lower classes must also undergo continued education independently.

Yet, there is a lot of resistance to the regulation. Most process controllers work in municipalities and, although they knew they had until 1 July 2025 to register, many have not complied.

Goldman says it comes from a combination of ignorance, unnecessary budgetary resistance by the powers that be, and the individuals themselves. Councillors, municipal managers, politicians and others in charge don't want to spend money, although the cost of training is comparatively low. Individuals may fear that they don't meet the standard or may not be able to maintain it going forward.

"These concerns are unnecessary - you spend less maintaining skills than maintaining broken

infrastructure and processes, and professionalisation is not an obstacle but a career enhancer," says Goldman.

A boon to the water sector

Regulation 3630 promises to enhance accountability, transparency and performance within the water sector - something many process controllers want. "They are finally being acknowledged as professionals, like engineers and scientists in the industry already are," he says.

The well-known Blue Drop and Green Drop reports also draw a direct correlation between municipality performance and their capacity.

So, yes, water investment is welcome, but people are just as critical as pipes and plants, and South Africa must invest in both to secure water resilience.

Goldman invites municipalities and process controllers to open a dialogue with WISA to air their concerns and understand the true benefits of professionalisation.

www.wisa.org.za

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Is your label legal? Understanding SA's food labelling regulations

In South Africa's fast-moving food and beverage industry, a product's label is more than just packaging—it's your first point of contact with consumers, a reflection of your brand, and a legal requirement. While creative packaging and eye-catching designs grab attention on shelves, failing to meet legal labelling standards can expose your business to fines, recalls, and reputational damage.

1. Why labelling compliance matters

Food labels are governed by the Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972 and associated regulations, including Regulation R146 and R429. These rules ensure that consumers receive accurate information about the products they buy, including ingredients, nutritional content, allergens, and expiry dates.

Non-compliance doesn't just risk legal action. It can also erode consumer trust. Imagine a customer discovering undeclared allergens in your product—this isn't just a compliance failure; it's a serious health risk that could damage your brand for years.

2. Common labelling mistakes

Even seasoned producers sometimes slip up. Here are the most frequent labelling errors in South Africa's food sector:

3. Incomplete ingredient lists

Every ingredient must be clearly listed, including additives, preservatives, and allergens. Ambiguous or generic terms like "spices" can be legally problematic.

4. Missing or incorrect allergen declarations

Common allergens such as peanuts, dairy, gluten, or shellfish must be explicitly stated. Failure to do so can lead to serious health incidents and recalls.

5. False or misleading claims

Phrases like "low fat," "sugar-free," or "natural" must meet strict legal definitions. Misrepresentation can trigger fines and regulatory scrutiny.

Incorrect expiry or best-before dates: Labels must clearly indicate shelf life. Products sold past their expiry date can lead to legal action and consumer complaints.



Molisa Cheda

“Food labels are governed by the Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972 and associated regulations, including Regulation R146 and R429. These rules ensure that consumers receive accurate information about the products they buy, including ingredients, nutritional content, allergens, and expiry dates”

Nutritional information gaps

Nutrition panels are mandatory for certain packaged foods. Omissions or inaccuracies can result in penalties and erode consumer confidence.

How to ensure your labels are compliant

Staying ahead of labelling regulations doesn't have to be daunting. Here are practical steps every food and beverage business can take:

- 1. Understand the law:** Familiarise yourself with the Foodstuffs, Cosmetics and Disinfectants Act and applicable regulations. Keep up to date with amendments and changes.
- 2. Use clear, accurate information:** Every ingredient, allergen, additive, and nutritional fact must be correctly stated. Avoid ambiguous terminology.
- 3. Train your team:** Staff involved in packaging and labelling should understand legal requirements and the importance of accuracy.
- 4. Conduct regular audits:** Periodically review your labels for compliance, especially when introducing new products or reformulating existing ones.

5: Seek professional advice: Legal experts can review your labels, contracts with manufacturers, and marketing claims to mitigate risk before products hit the shelves.

The business case for legal labels

Beyond avoiding fines or recalls, compliant labels enhance your brand reputation, strengthen customer trust, and position your products as safe, reliable, and professional. In a market where consumers increasingly scrutinise what they eat and drink, legal labelling is not just a regulatory box to tick—it's a competitive advantage.

By prioritising labelling compliance, South African food and beverage businesses can protect their customers, safeguard their brand, and grow with confidence.

About the author:

Molisa Cheda is the Founder and Managing Director of Vanguard Legal. Kerry.

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Innovative sludge management solutions that deliver real results:



In 2024, Haztech launched the Sludge Dewatering Plant, an innovative solution designed to reduce operational costs for industrial sludge management while diverting more wastewater from landfill. By separating water from the dam sludge, the plant also lowers carbon emissions through fewer transport loads and significantly improves overall environmental performance.

By finding an alternative use for this waste stream, Envirotech moved it up the waste hierarchy for treatment and reuse, demonstrating that innovation combined with technical expertise delivers tangible results for clients and the environment.

How Haztech solved complex sludge challenges

When a previous provider could not complete a client project, Haztech stepped in. The team removed, transported, and safely disposed of 16,992 tonnes of dam sludge, which contained hazardous materials such as mercury and fluoride. Recognising that bioremediation was no longer viable, the team developed a sustainable and cost-effective solution.

Following a pilot in 2023, it further refined the design and successfully launched the fully operational Sludge Dewatering Plant in 2024. The plant has delivered significant benefits for the client, including reduced operational costs, decreased wastewater sent to landfill, lower carbon emissions due to fewer transport loads, and improved environmental performance on-site.

Additionally, the recovered sludge is now reused at one of the EnviroServ waste management facilities,

enhancing sustainability and providing further operational value.

Commitment to innovation and sustainable waste management

This achievement demonstrates EnviroServ and in particular, the Haztech team's dedication to delivering innovative sludge management solutions that provide measurable results for clients. Its approach consistently protects the environment while creating economic value, turning complex waste challenges into practical, sustainable solutions.

The Sludge Dewatering Plant exemplifies Haztech's ability to combine technology, expertise, and innovation to tackle industrial waste challenges. From cost-effective water separation to reducing carbon emissions and landfill impact, the solutions consistently deliver tangible benefits for clients while supporting a circular economy and promoting sustainable environmental practices.

www.enviroserv.co.za



Breaking barriers: Women redefining South Africa's beer industry

For decades, beer in South Africa was branded as a man's drink, produced and traded in a man's world. That image is being dismantled - one brew, one business, and one breakthrough at a time. Women across the value chain are changing the industry's face and future, bringing innovation, resilience, and a distinctly collaborative style of leadership.

During Women's Month, the Beer Association of South Africa (BASA) profiled three remarkable women - brewer Megan Gemel, township distributor Pulane Koster, and Heineken South Africa Quality Manager Makgosi Booyesen - who are challenging stereotypes and proving that beer's future is female too.

From Kitchen Experiments to Industry Advocate

Megan's journey began at home, brewing small batches for friends. Curiosity became craft, and craft became career. Today, she is an award-winning brewer, educator, and advocate for inclusivity in the sector.

"Earning respect through passion and knowledge has been key," she says. Her work champions traditional African brewing methods, promotes local

ingredients, and encourages more women to step into the industry.

Driving Township Transformation

For Pulane, beer was never just a beverage - it was a cultural and economic force in her community. Fascinated by the value chain, she started in operations and rose into leadership, driving transformation initiatives that empower women-led distributors and marketers in rural areas.

"Being a woman, black, and from a previously disadvantaged background meant I had to work twice as hard to be seen and heard," she reflects. Now she is committed to opening doors for others. "Women bring a leadership style rooted in collaboration, empathy and shared growth. That's what transforms industries."

Guarding Quality, Inspiring Future Scientists

Makgosi's path into beer was unexpected. Initially drawn to pharmaceuticals, she discovered brewing through biochemistry studies and went on to join Heineken's traineeship programme. She became the first black female trainee at her brewery - an experience that taught her the weight of representation.

Now, as a Quality Manager, her mission is clear: ensuring every beer delivers on its promise. "What keeps me awake at night is knowing our products must not only appeal on the shelf but deliver the taste and quality our consumers expect."

Her success, she adds, is built on the mentorship of women like Phindi Mthambana and Apiwe Nxusani-Mawela, whose unapologetic advocacy for women in beer continues to inspire her.

The Power of Mentorship and Community

All three women highlight mentorship as vital to progress. Megan credits Andrea Jennings for inspiring her career, while Pulane draws strength from township women entrepreneurs. For Makgosi, mentorship "keeps you grounded and helps you push through moments when giving up seems easier."

Their collective stories show how women's networks are building the next generation of brewers, traders, and leaders.

Innovation Beyond the Brewery

What unites these trailblazers is innovation. Megan experiments with heritage ingredients, Pulane drives community-based marketing and sustainable packaging, and Makgosi links science to consumer experience. Beyond individual achievements, their

work supports local economies, creates jobs, and challenges outdated perceptions.

Why Diversity Matters

BASA CEO Charlene Louw puts it plainly, "The beer industry is richer, more innovative and more sustainable when women are part of its leadership and value chain. Stories like Megan's, Pulane's and Makgosi's prove that diversity is not a nice-to-have, it's essential for growth."

BASA continues to create platforms - through competitions, education initiatives, and advocacy - that ensure women are not just participants but shapers of the sector.

"The beer industry is richer, more innovative and more sustainable when women are part of its leadership and value chain"

Raising a Glass to the Future

These women are proof that South Africa's beer industry is undergoing a profound shift. They've overcome barriers, reshaped narratives, and built careers that will inspire others to follow.

Their message to young women looking at the industry? Know your worth. Back yourself. Find your community.

Because when women are given a seat at the table - or the brew kettle - everyone's glass is a little fuller.

www.beersa.org



Megan Gemel



Makgosi Booyen



Bühler and SACB showcase power of strategic partnerships at 87th AGM

Strategic collaboration between technology providers and industry associations remains central to building a sustainable food processing sector. This was evident at the 87th Annual General Meeting (AGM) of the South African Chamber of Baking (SACB), where global technology leader Bühler highlighted how partnerships drive innovation, knowledge exchange, and sector-wide progress.

“Partnerships with industry associations are essential to Bühler’s commitment to innovation, sustainability, and collaboration across the food and feed value chains,” says Taryn Browne, Head of Marketing at Bühler Southern Africa. “These platforms connect us with stakeholders who share similar challenges and aspirations, enabling meaningful dialogue and co-creation.”

Leanne Goondi, Operations Manager at SACB, adds: “Our partnership with Bühler is built on shared values and a mutual commitment to progress. Bühler brings global expertise, while SACB provides the networks and local platform for meaningful industry

impact.”

Customer Insight and Industry Platforms

Through associations like SACB, Bühler gains valuable insights into evolving customer needs. “Technical working groups and knowledge exchanges give us a window into customer priorities, from equipment design to energy efficiency,” notes Browne. “These events allow us to demonstrate our expertise while contributing to the collective intelligence of the industry.”

The SACB AGM itself has become a dynamic forum. “It is far more than a statutory gathering,” explains Goondi. “It is where industry leaders reconnect, reflect on progress, and reimagine the future of baking in South Africa.”

Technical Contributions and Trends

At this year’s AGM, Bühler presented on starch valorisation, showing how processors can reduce waste, improve recovery, and support circular economy models. “The feedback was highly encouraging,” says Browne. Goondi agrees, “Sessions like these add immense value, offering practical insights into efficiency and sustainability.”

Both Bühler and SACB are aligned on the key trends shaping the sector: sustainability and energy efficiency, automation and digitalisation, stronger food safety and traceability, and in Southern Africa



Taryn Browne



Leanne Goondi

a focus on local sourcing, skills development, and resilience to climate and supply chain disruptions.

“The presence of global technology leaders like Bühler enriches the conversation, sparks new ideas, and ensures our members are exposed to best practices and future-ready solutions,” Goondi says.

Future Outlook

The 2025 AGM programme received strong feedback for its expert speakers, relevant topics, and balance between technical insights and networking. Beyond events, SACB continues to support industry development through training partnerships with FoodBev SETA, SAQA, and the QCTO, while maintaining close collaboration with regulatory and industry bodies.

“The 2025 AGM programme received strong feedback for its expert speakers, relevant topics, and balance between technical insights and networking. Beyond events, SACB continues to support industry development through training partnerships with FoodBev SETA, SAQA, and the QCTO, while maintaining close collaboration with regulatory and industry bodies”

For Bühler, these relationships are vital. “Strong ties foster a culture of innovation and unity in addressing systemic challenges like food security, climate adaptation, and supply chain resilience,” reflects Browne.

As Goondi concludes, “These efforts reinforce SACB’s role as a trusted and forward-thinking industry body, and cement its position as a champion of continuous learning, innovation, and excellence across the South African baking sector.”

With industry challenges becoming increasingly complex, partnerships like this will be pivotal in shaping a sustainable and innovative future for food processing in Southern Africa.

www.buhlergroup.com

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Smart packaging innovation

The South African food and beverage industry is set to benefit from groundbreaking research on smart packaging technology that uses colour-changing printing inks to reveal product condition. A recent study at the University of Vaasa in Finland shows how machine learning in automated colour recognition can precisely detect subtle changes in packaging inks, offering a cost-effective and sustainable alternative to electronic sensors.

Doctoral researcher Jari Isohanni's findings demonstrate that while traditional computational methods work for clear colour differences, artificial intelligence and convolutional neural networks deliver superior accuracy for subtle or rapid changes. This breakthrough enables AI-powered quality control in packaging, with applications across food safety, shelf life monitoring, cold chain logistics, and healthcare packaging.

For the South African market, where food waste reduction, supply chain transparency, and consumer safety are critical, smart packaging with printed colour indicators could provide real-time insights

into freshness and storage conditions. Unlike costly electronic solutions, these printable indicators can be integrated directly into labels at minimal cost, supporting both sustainability goals and recycling processes.

With rising demand for innovative food packaging in South Africa, this research highlights how smart packaging solutions could reshape industry standards and empower consumers with clear, accessible product information.

www.uwasa.fi/en

A game-changer in Thermal Transfer printing

ARMOR-IIMAK, the global leader in Thermal Transfer ribbon technology, has introduced the AWR XL wax ribbon, a breakthrough solution that is set to transform thermal transfer printing in the South African food and beverage industry. Officially launching at LabelExpo

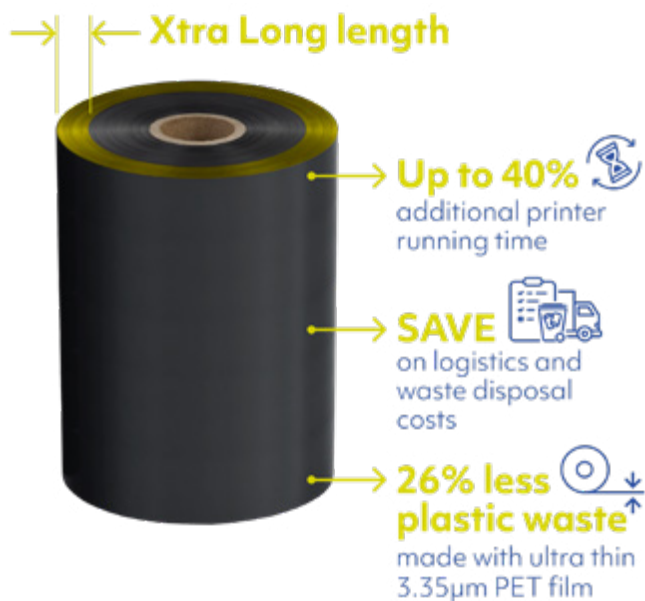
Europe 2025 in Barcelona, AWR XL combines sustainability, operational efficiency, and premium print performance—key requirements for modern food and beverage supply chains.

Designed for flat-head printers and applications such as food packaging labels, logistics, retail, and shipping, AWR XL delivers unmatched eco-friendly benefits. Manufactured using a 100% solvent-free formulation and an ultra-thin 3.35µm PET film—the thinnest in the market—the ribbon reduces plastic waste by up to 26% and saves 830g of CO₂ emissions per roll, supporting food and beverage companies in meeting South Africa's sustainability targets.

With its extra-long roll length, AWR XL also offers 40% more printer uptime, fewer roll changes, and reduced storage needs—cutting costs while improving workflow efficiency in food production and distribution. Despite its environmental gains, AWR XL ensures high-quality label printing, essential for barcodes, batch tracking, and regulatory compliance in the South African food and beverage supply chain.

ARMOR-IIMAK's AWR XL sets a new standard for sustainable, efficient, and reliable thermal transfer printing solutions.

www.armor-iimak.com



Mondi launches Ad/Vantage Smooth Brown Semi Extensible

Mondi, a global leader in sustainable paper and packaging solutions, has introduced Ad/Vantage Smooth Brown Semi Extensible kraft paper, designed to meet the growing demand for high-performance and sustainable packaging in the South African food and beverage industry. Combining exceptional strength, extensibility, puncture resistance, and a smooth surface, this innovative substrate ensures reliable protection for packaged goods while delivering excellent printability and coating performance.

Positioned between sack kraft paper and machine-finished kraft paper, Ad/Vantage Smooth Brown Semi Extensible provides an ideal base paper for coated and heat sealable packaging solutions. Its calendered, uniform surface guarantees superior coating adhesion, supporting high-quality branding and consistent packaging design – a critical factor for South Africa's competitive food, beverage, and consumer goods sectors.

Engineered over three years by Mondi's kraft paper specialists, the new grade is particularly suitable for



form-fill-and-seal (FFS) packaging, widely used for dry foods, beverages, powdered products, and sharp-edged goods. Made from responsibly sourced fresh fibres and recyclable in EU paper recycling streams, the solution supports sustainable packaging innovation in South Africa, while running efficiently on existing converting and filling lines.

With its unique balance of strength, sustainability, and smoothness, Mondi's Ad/Vantage Smooth Brown Semi Extensible represents a significant step forward for eco-friendly packaging in the South African food and beverage sector.

www.mondigroup.com

Packaging solutions for a circular world

The South African food and beverage packaging sector is evolving rapidly, with sustainability driving change across the value chain. From September 23–25, 2025, the global packaging industry will gather in Nuremberg for Fachpack 2025, where Greiner Packaging will present cutting-edge sustainable packaging solutions for food, beverage, and non-food applications under the motto "Reduce, Reuse, Recycle."

Sustainability begins with design. At Fachpack, Greiner will demonstrate how innovation in eco-friendly food packaging, lightweight packaging, and recyclable beverage solutions can reduce carbon footprints while maintaining performance. Highlights include the Lightweight Bucket, designed with less material but maximum durability, and reusable drinking cups and meal boxes—BPA-free, dishwasher-safe, and ideal for deposit systems in the food service industry, catering, and corporate canteens.

In recycling, Greiner's K3® r100 cup technology enables cardboard and plastic to separate automatically during disposal, boosting recycling rates across food and beverage markets. Visitors will also discover refill bottles, logistics-optimised CUBO



cups, and next-generation sealing lids, all developed in Greiner's in-house design studio.

For the South African packaging industry, Greiner's vision underscores a global shift: sustainable packaging for a circular economy is no longer optional but essential.

www.greiner-gpi.com

Can South Africa lead PET Recycling in an era of broken promises?

In 2022, the world dared to believe in a breakthrough. Governments rallied behind the United Nations resolution “End Plastic Pollution: Towards an International Legally Binding Instrument” in a bold attempt to create a Paris Agreement for plastics.

The promise was clear: by 2024, the sector would have a global treaty tackling plastic pollution across the full lifecycle - from design and production to waste management and recycling.

But as of mid-2025, that promise lies in tatters. Negotiations collapsed in Geneva, splintered by petrochemical-producing nations opposed to production caps, favouring voluntary measures instead. Without binding limits, plastic production continues to soar, projected to reach 1.2 billion tonnes by 2060, while less than 10% of plastic is recycled globally. Recycling remains the default scapegoat, tasked with solving a crisis it did not create, yet starved of systemic support.

This is the broken promise of the plastics age. And it is why leaders like South Africa’s flagship recyclers are so essential.

In a global industry under siege, Extrupet proves that PET recycling can succeed with vision, investment, and resilience. Yet without decisive policy action, even champions risk being swept away by the undercurrent of cheap virgin plastics and failed global governance.

Food & Beverage Reporter spoke to Chandru Wadhvani of Extrupet to share his thoughts and insights on why plastics recycling should remain at the top of the environmental agenda.

A global industry in retreat

Around the world, the plastic recycling industry is showing signs of fracture. Nowhere is this clearer than in Europe, once considered the gold standard of recycling innovation.



- In the past two years:
- Borealis, Dow, and Nestlé scrapped high-profile recycling projects, citing unsustainable economics and the drag of cheap virgin plastic.
 - Veolia shut two recycling plants in Germany.
 - As plant closures doubled between 2023 and 2024, imports of recycled plastics surged.
 - Nearly €5 billion invested in recycling infrastructure (2020–2023) now hangs in the balance.

The warning is a stark one. If Europe, with its ambitious policies, advanced infrastructure, and mature markets struggles to sustain PET recycling, no region is immune and it is up to South Africa to heed this lesson, or risk repeating the same mistakes.

The lure of virgin plastics

At the heart of recycling’s crisis is the brutal economic truth that virgin plastics are simply too cheap to ignore. With oil prices hovering in the mid-\$60s per barrel, virgin PET undercuts recycled PET (rPET) with the long term potential of driving recyclers into unprofitability.

For manufacturers under pressure to reduce costs, the temptation to manufacture new packaging using virgin plastics, rather than rPET is massive, but the short-term saving could carry a staggering cost to the environment, particularly around these three key areas:

- Virgin production generates far higher greenhouse gas emissions than recycled plastics.
- Plastic pollution contributes to a public health crisis, costing up to \$1.5 trillion annually in environmental and health damages.
- Microplastics are now found in the air we breathe, the water we drink, and even human tissue.

Ultimately, plastics recycling is about safeguarding ecosystems and human health and when virgin plastics win on cost, society loses on every other metric.

“Without binding limits, plastic production continues to soar, projected to reach 1.2 billion tonnes by 2060, while less than 10% of plastic is recycled globally. Recycling remains the default scapegoat, tasked with solving a crisis it did not create, yet starved of systemic support”

Why recycling is being left behind

The struggle of PET recycling is not only about economics; it is about systemic neglect. Too often, recycling is treated as a downstream afterthought rather than a frontline climate and health solution.

Structural disadvantages remain entrenched:

- Sorting, cleaning, and reprocessing PET require significant infrastructure and energy.
- Policymakers avoid addressing upstream production, leaving recyclers to manage the fallout.
- Fossil fuel and petrochemical lobbies wield influence to weaken production caps and resist recycled-content mandates.

The result: recyclers are asked to perform miracles without the political or financial scaffolding to sustain them.

South Africa boldly leading the way

And yet, against these global headwinds, South Africa has carved out a remarkable recycling industry and success story.

- Pioneering bottle-to-bottle recycling: Extrupet launched Africa’s first food-grade PET recycling line in Johannesburg in 2009, followed by expansions in 2014 and 2020. A fourth line now in operation will increase output to 45,000 tonnes per year and phase 2 will increase capacity to more than 60,000 tonnes per year.
- New infrastructure in the Western Cape: In partnership with PETCO, Extrupet is commissioning



a R300 million facility to add 15,000 tpa of food-grade rPET capacity, broadening access to circular packaging nationwide.

- National leadership in collection: South Africa already recycles 64% of PET bottles, outperforming many developed countries. This achievement stems from close collaboration with thousands of informal waste pickers and SMEs.
- World-class quality: Extrupet’s PhoenixPET® is certified by EFSA, BRC AA, ISO 9001, and GRS, providing global brands with food-grade rPET that meets the highest international standards.
- Renewable energy integration: A 1.3 MWp solar plant at its Wadeville facility generates 2 GWh annually, cutting emissions by 1,800 tonnes CO₂. This is equivalent to planting 31,000 trees, and could result in lower electricity costs of up to 30%. The Cape Town facility has recently activated an additional 1.2 MWp of solar generated power.

South Africa is therefore one of the leading countries, certainly on the African continent that demonstrates that PET recycling can be commercially viable, technically advanced, and socially transformative. But in order to sustain we need urgent action.

Time for action

The urgency for South Africa to act is amplified by the collapse of the latest global negotiations.

On 15 August 2025, after ten days of deliberations, the Intergovernmental Negotiating Committee (INC-5.2) adjourned in Geneva without consensus on the draft text of an international treaty to end plastic pollution. More than 2,600 participants from 183 countries attended, yet sharp divisions over production caps, finance, and compliance left the world still without a binding global instrument. As UNEP Executive Director Inger Andersen noted, plastic pollution is already in “our groundwater, our soil, our rivers, our oceans and yes, in our bodies”—but global action has stalled. For South Africa, this failure underscores a critical truth: we cannot wait for the world to act. The 2022 Plastic Acts are not just national legislation; they are South Africa’s best insurance policy in a world where multilateral progress is slow and uncertain. Implementing them decisively would insulate the domestic recycling sector from global policy paralysis, while signalling leadership on a stage where others have faltered.

www.extrupet.com

“The struggle of PET recycling is not only about economics; it is about systemic neglect. Too often, recycling is treated as a downstream afterthought rather than a frontline climate and health solution”



Leading with purpose and passion

When Charlotte Metcalf took up the challenge of leading the South African National Bottled Water Association (SANBWA) 25 years ago, the industry was unrecognised, unregulated and widely misunderstood. Today SANBWA stands as a respected voice for quality, safety and sustainability in South Africa's bottled water sector.

Metcalf says, "It all started with a single hanging file cabinet and a big dream. There were no instant successes. Every milestone was the product of small, deliberate steps, from building relationships to lobbying government and learning as we went along."

Those early years were demanding but pivotal. Drawing on her background in food science and fruit processing, Metcalf embraced the challenge of carving out legitimacy for bottled water as a food product. After much lobbying and technical groundwork, SANBWA's advocacy helped shape regulations that placed bottled water firmly within the ambit of food law. "Those years were long, but the change they brought gave the industry credibility and taught me resilience."



Charlotte Metcalf

Breaking barriers

Like many sectors, bottled water was traditionally led by men. Metcalf never saw that as a barrier, however. Instead, she credits male mentors who shared their time and expertise generously. Her own leadership philosophy is built on work ethic, clear communication and a can-do spirit.

"Women are leading across the water value chain today, from research and sustainability to retail and brand ownership. It shows that with motivation and skill, there is no limit to what women can achieve."

Passion & purpose

What has kept Charlotte motivated through decades of change is her belief in the bigger picture: that water can be both a human right and a responsible commercial product. "Our members' commitment to protecting water sources and adhering to global standards inspires me daily. There's always more to achieve, whether it's empowering stakeholders with knowledge, stamping out misconceptions, levelling the playing field or raising standards in the industry."

For Metcalf, environmental responsibility is not optional. SANBWA's environmental policy spans source protection, packaging and recycling; a holistic approach that acknowledges the full lifecycle of bottled water. "You can't excel in one area while failing in another. Personally, I live by the principle of leaving places better than I found them – to contribute and not contaminate. That applies as much to the environment as it does to people."

Women who inspired

Metcalf's leadership is rooted in the example of women she calls "ordinary yet extraordinary" - women in her community and workplace who worked with integrity and uplifted themselves and others. Her greatest inspiration was her mother, a widowed single parent whose independence and tenacity left a deep imprint.

In turn, Metcalf has made it her mission to mentor the next generation. "Women need opportunities to grow beyond formal education. I've loved watching young women I've mentored succeed and step into leadership roles of their own."

Redefining success

Over time, Metcalf's own definition of success has shifted. Once measured in titles and promotions, success now means something deeper: making an impact, driving positive change and being unafraid to speak uncomfortable truths.

As she looks to the future, she is energised by the prospect of greater collaboration with researchers, government and industry partners to strengthen consumer confidence and ensure the bottled water sector continues to innovate responsibly. "What excites me most is working alongside both men and women who are committed to building an industry that genuinely serves the public."

For young women aspiring to lead, her advice is straightforward. "Continuously learn to know your subject. Put in the work. Be patient. Walk the talk. Believe in what you do and always give more than what is expected," she concludes.

The deep roots of misconception about forestry, paper and print

Asked to rate the environmental friendliness of eight materials, only 24% of consumers see paper as the most environmentally friendly, whereas 56% consider wood to be among the most sustainable materials. Cue a raised eyebrow: paper is made from wood.

Conducted across key regions by Two Sides and Toluna, the global 2025 Trend Tracker survey examined the opinions of 12,400 consumers. Although the South African-focused research was a small percentage of this, it still provided revealing insights into what consumers believe about printing and paper products.

While environmental awareness continues to shape consumer behaviour, surveys by the paper industry show a persistent paradox of consumer perceptions when it comes to print, paper, paper-based packaging, forestry and wood.

The disconnect is striking: wood is the raw material for paper, and when responsibly sourced, it supports a circular, renewable, and sustainable production cycle.

Unpacking the paradox

The contradictions are stark: half of respondents believe that paper and paper packaging are major contributors to global greenhouse gas emissions, and 45% consider the products harmful to the environment.

Some 76% believe that electronic communication is more environmentally friendly; an assumption that conveniently ignores the carbon footprint of digital infrastructure.

Adding to the paradox, 77% of respondents acknowledge that planted forests are not bad for the environment. At the same time, 69% recognised the importance of using paper sourced from sustainably managed forests, demonstrating a growing awareness of sustainable sourcing, and yet still failing to connect these dots in the paper lifecycle.

This is not the first time we've encountered these contradictory statistics. A survey conducted by PAMSA in 2024 indicated that 61% believed electronic communication – such as emails, e-readers and online news – is greener compared to using print and paper. But 83% agreed that paper is a renewable resource.



Samantha Choles



Why the myths, misconceptions and misnomers?

These myths persist because of outdated beliefs, incomplete information, and misleading 'go paperless' messaging (greenwashing).

There is also a visibility bias. We're blind to the hidden environmental costs of our digital use such as the countless terabytes of cloud storage, electricity-hungry applications, messages and emails. Since they feel intangible, one may assume that they have little to no environmental footprint.

However, people will see forestry land being cleared of trees, whether legally or not. They can be forgiven for thinking this is 'deforestation' due to the lack of awareness about sustainable forestry. What many may not know, or even see, is that these plots of land will have new trees growing within 12 months. This is especially true in the South African context.

Sustainable forest management is the opposite of deforestation, which is the conversion of forest to another land use – urban, agriculture or infrastructure. (FAO, 2020[i]). Deforestation specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural (forestry) measures.

In fact, South Africa's pulp and paper sector sources its fibre from some 676,000 hectares of 850 million trees that are 'farmed' in rotation. These plantations are managed according to strict certification standards set out by the likes of the Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. And it's the way the sector has operated for decades.

"These myths persist because of outdated beliefs, incomplete information, and misleading 'go paperless' messaging (greenwashing)."

Digital reality check

Any industry or product should be evaluated within the full life-cycle context – including energy sources, recycling practices and responsible manufacturing. When it comes to computers and devices, the embodied carbon – emissions from materials extraction and manufacturing – is often far greater than the emissions from actual device use.

The production of a single laptop can generate over 200kg of CO₂ emissions before it's even used – around 331kg[ii]. Add in the electricity required to power the device, the unseen data footprint and the impact of e-waste, and the picture becomes clear: tech is far from the green solution it's marketed to be.

According to the UN's fourth Global E-waste Monitor (GEM) Report, the 460 Terawatt hours consumed by data centres in 2022 represented two percent of all global electricity usage, a statistic echoed by the International Energy Agency[iii]. The GEM report states that e-waste is on track to rise to 82 Mt in 2030, and of the record 62 Mt produced in 2022, less than a quarter of this is likely to have been properly collected and recycled.

Let's be clear: of course we cannot avoid using digital devices and applications – they are fundamental

to everyday life, the economy and society, offering us unparalleled accessibility to information, convenience, efficiency and so much more. However, we must stop pretending that the environmental impact of the online world is not negligible, and reject the greenwashing that positions digital as automatically 'better for the planet'.

We must fell forestry myths with facts

As industry, we are working with Government and advocacy groups to educate consumers and correct misconceptions – particularly around the life-cycle of packaging materials and the true sustainability of paper. The sector is also a significant contributor to the local economy through trade and employment, and invests in the communities that neighbour the operations.

The survey findings highlight an urgent need for greater public understanding of how paper is made, the role of sustainably managed plantations, and the practical and environmental value of paper. Even in a modern and digitally-driven world, paper in its countless forms still has a unique and pivotal place.

The bottom line is this: next time you automatically choose 'go paperless', ask yourself whether you're really saving the planet, or just hiding the environmental cost where you can't see it.

www.thepaperstory.co.za

About the author:

Samantha Choles, Paper Manufacturers Association of South Africa (PAMSA)



Line integration, automation, and workforce solutions



The contract packagers (CPs) and contract manufacturers (CMs) industry is expected to grow, according to a 2024 study by PMMI, The Association for Packaging and Processing Technologies. In fact, 67% of brand owners participating in PMMI's 2024 **Contract Packaging & Manufacturing: Drivers of Machinery Investments** study plan to maintain or increase their current use of CP/CM services in the next few years.

To keep up, 87% of CPs/CMs surveyed state they intend to add new equipment over the next three years. However, these third-party service providers face challenges: labour shortages, the timely delivery of supplies and new equipment, and the management of throughput and scheduling.

Productivity is a top priority in any manufacturing environment, typically followed by cost. Today's savvy manufacturers are automating not only to solve production issues but also to ease the pain of labour shortages. A report derived from discussions at PMMI's 2025 Top to Top meeting earlier this year, **2025 Performance Optimization: Insights for Packaging Line Readiness**, concluded that three distinct yet interconnected phases create an environment of operational readiness. The phases are:

- Vertical startups (productivity)
- Operator training (workforce)
- IT-OT integration (automation)

Vertical startups focus on optimising processes and workflows to ensure a swift transition to full production, particularly how to avoid a post-startup performance dip. Key priorities include early communication and collaboration with original equipment manufacturers (OEMs), workforce preparedness, and optimizing planning.

Optimising machinery usability is the most effective way for OEMs to help end users avoid the dip, with 66% of participants in the PMMI study advocating for more instructive, intuitive human/machine interfaces (HMIs) to aid troubleshooting. The second-highest rated

suggestion (41%) calls for comprehensive equipment documentation and training, while methods to assess operators' understanding and training effectiveness ranked third.

The operator training phase explores ensuring operators have the knowledge and resources available to perform their roles. This phase emphasises the importance of designing training programs around the workforce's needs and adopting a people-centric approach. Key elements include using technology to improve training, enhancing the skills of trainers, and providing regular, hands-on training.

The timing of this training is crucial. Hands-on, structured training well in advance of vertical startups is key to maximising performance efficiency and ensuring operators are ready. Technology to support training and improve information retention should include videos, interactive manuals, augmented reality, and tablet-based instructions. In addition, OEMs should simplify machinery design and provide HMIs that are user-friendly and intuitive to accommodate operators with varying skill levels.

The IT-OT integration phase ensures that machines are operated effectively and production is optimised through real-time, actionable data insights. Successful IT-OT integration is essential for end users aiming for efficiency, scalability, and cybersecurity, but it comes with challenges. Specifically, it requires early collaboration between IT, OT, engineering, and OEMs to avoid costly delays and compatibility issues.

By prioritising real-time data visibility, secure

infrastructure, and early stakeholder involvement, organisations can achieve seamless IT-OT integration, future-proof operations, and avoid costly setbacks. However, 2025 Top to Top attendees reported that a key challenge in IT-OT integration is justifying the investment. End users must balance short-term, tangible benefits, such as cost savings, reduced downtime, and immediate ROI, with long-term advantages, including a scalable, future-proof solution that enhances automation, provides real-time insights, and optimises production processes.

Success depends on strong OEM and supplier relationships

According to the 2024 Contract Packaging & Manufacturing study, CP/CM organisations must be flexible and versatile operations capable of handling numerous different product formulations and packaging formats. This means CP/CM organisations need OEM and supplier partners who focus on offering equipment that can handle a wide variety of different product and packaging parameters.

These operations also require a higher level of digitally integrated processes – from data management to automating physical processes like changeovers, managing complex production schedules, and maintaining machine uptime.

CP/CM organisations also need to adopt technology-focused solutions, such as AI-supported processes and data-driven decision-making, to stand out in the marketplace. Since these technology-focused solutions quickly become standard in manufacturing, CP/CM organisations must implement new strategies to stay competitive. In many cases, early adoption of new technology and new capabilities can be a defining characteristic of any successful CP/CM.

Operational integration is a crucial tool for CPs/CMs to drive efficiency in their own facilities, as well. This integration includes both digital processes (like data collection and management) and physical processes (like physically automated machinery). Furthermore, CP/CM organisations need to pursue ever-higher levels of integration to:

- Enable the adoption of more automated processes for production and packaging.
- Expand the level of available operational data to make more data-driven decisions that increase efficiency and mitigate risk.
- Ease the burden of regulatory compliance and reporting.
- Enhance coordination with brand-owner clients by extending connectivity outside the plant.

Harnessing the power of AI

Another tool for CPs/CMs, AI, is more of an evolution than a revolution, according to PMMI's 2024 **The AI Advantage in Equipment: Boosting Performance and Bridging Skills Gaps** study. As of now, the technology is not at the level where tasks can be completed solely by

AI, so a human is still required to make the final decisions.

The three key impacts that currently available AI solutions will have on the packaging industry are:

- Increased staff productivity
- Improved machine performance and overall equipment effectiveness (OEE)
- Mitigation of skills gaps and labour issues.

One key advantage of AI is it enables staff to be much more efficient and productive with their time. AI assistants have the most potential to improve this metric. With them, time-consuming tasks, such as data entry and coding, can be totally automated, increasing the speed at which these functions and projects can be completed, freeing up additional time for personnel to focus on other tasks.

AI technology also increases both machine performance and the OEE of automated technologies. For example, integrating AI into machine vision systems improves the success rate of decision-making in processes, such as quality inspection, and allows a wider range of complex tasks to be completed, while machine builders can use digital twin simulations to optimise key machine metrics, such as throughput, which can significantly improve machine performance.

Predictive maintenance is another tool that vastly reduces the frequency of machine downtime. When combined with improved training from connected worker platforms, it can significantly impact a machine's OEE.

The final major impact AI will have on the packaging industry is mitigating the skills gaps. The optimised training provided in connected worker platforms can reduce these gaps by ensuring that all employees receive the highest-quality training. For instance, AI assistants and generative AI predictive maintenance solutions allow users to ask questions regarding issues, further enabling staff members to upskill independently and reduce the risk of human error.

Due to the nature of AI models, the longer these technologies are used and the more data they process, the better the outputs become. However, integrating AI technologies into your company is not a one-time improvement like previous automation technologies; continuous improvement is seen in key metrics.

To begin your AI journey, the following are important considerations:

- Have a clear plan of what you want to achieve.
- Collect and store relevant data.
- Speak with an AI company early.
- Start with small, achievable projects.
- Don't assume AI is a fix-all solution.

AI-driven tools are proving invaluable in boosting staff productivity, enhancing machine performance, and OEE, and addressing workforce skills gaps.

www.pmmi.org/

How AI Is revolutionising the food packaging sector



Artificial intelligence (AI) is moving beyond pilot projects and into production lines across the food and beverage (F&B) sector worldwide — and South African food-packaging operations are beginning to capture measurable gains.

AI-driven solutions improve safety, reduce waste, increase uptime, and enable new smart-packaging features that provide traceability and consumer engagement.

Here we look at concrete AI applications relevant to South African food packaging, the business benefits, adoption challenges, and a practical roadmap for manufacturers and packagers who want to get started.

Computer vision for automated quality control

What it does: Uses cameras + deep learning to inspect fills, seals, labels, package integrity and to detect foreign objects or product defects at line speed.

Why it matters: Improved detection accuracy, fewer false rejects, and the ability to inspect at higher speeds than manual methods — reducing recalls and protecting brand reputation.

Predictive maintenance for packaging machinery

What it does: AI ingests sensor, PLC and operational data to predict component wear, abnormal vibration or impending failures so interventions can be scheduled before unplanned downtime.

Why it matters: Unplanned stoppages are costly for food packaging lines; predictive models reduce downtime and spare-parts costs while increasing

throughput. South Africa's predictive-maintenance market is growing rapidly as industry players move to adopt these models.

Smart packaging, active sensors and freshness monitoring

What it does: Embeds indicators, time-temperature sensors, NFC/RFID or QR-linked data to monitor freshness, cold-chain integrity and provenance; AI analyses the sensor streams to predict spoilage or intervene in logistics.

Why it matters: Smart packaging increases transparency across farm-to-fork supply chains and helps retailers, distributors and consumers make better decisions about product quality. Global smart-packaging demand is expanding rapidly, enabling new services like dynamic shelf-life assessment and authenticity checks.

Packaging design optimisation and material selection (generative AI)

What it does: Generative algorithms optimise pack geometry, material usage and structural strength to reduce materials and cost while meeting protection requirements.

Why it matters: Designers can explore thousands of configurations quickly, allowing South African

converters to cut material waste and lower cost-per-unit while preserving food protection.

Supply-chain traceability and anti-counterfeiting

What it does: Combines AI with blockchain/QR/NFC to create tamper-evident, traceable packaging; machine learning links product events (temperature breaches, transit delays) to risk models.

Why it matters: Seafood, dairy and imported goods in South Africa benefit from improved traceability to meet regulatory compliance and export standards — reducing fraud and improving consumer trust.

Consumer engagement and circularity

What it does: AI tailors digital experiences (AR/recipe suggestions, personalised information) when consumers scan packaging; it also supports takeback and recycling logistics by matching material types and local recycling options.

Why it matters: Brands can deliver richer experiences and use packaging data to close the loop on recyclability and material recovery.

Why these AI approaches matter specifically for South Africa

- Waste reduction and shelf-life extension: Food loss is a global challenge; AI-enabled freshness monitoring and predictive shelf-life can reduce waste across SA cold chains.
- Local production competitiveness: AI helps South African packagers meet export standards and compete on quality and cost.
- Operational resilience: Predictive maintenance and automation reduce the impact of skilled-labour shortages and increase uptime for high-volume packaging lines.

Business benefits — measurable outcomes South African firms should expect

- Higher line OEE (overall equipment effectiveness) — fewer unplanned stops through predictive maintenance.
- Fewer quality rejects and recalls thanks to vision systems and foreign-object detection.
- Lower food waste and longer effective shelf life through sensor analytics and dynamic life-span prediction.
- Enhanced traceability for exports and retail — data for regulatory compliance and consumer transparency.
- Material cost savings via generative design and better pack optimisation.

Main barriers and risks for South African adoption

- Upfront capital and integration costs: Sensor networks, cameras, edge compute and skilled systems integrators increase initial investment.
- Skills and data gaps: Effective AI needs annotated

data, model maintenance and staff trained in AI/OT convergence.

- Connectivity and infrastructure constraints: Reliable bandwidth and on-site computing (or suitable edge devices) are required for real-time vision and sensor analytics.
- Regulatory and food-safety validation: Systems must be validated to meet South African and export food-safety standards.
- Change management & workforce impact: Upskilling is required to shift human roles from inspection to exception management.

Practical implementation roadmap (for packaging managers and CTOs)

• Phase 1 — Identify highest ROI use cases

Prioritise by cost of failure (e.g., lines with frequent unplanned downtime, products with high recall risk). Typical high-ROI pilots: vision inspection for foreign-object detection; predictive maintenance on critical fillers/sealers.

• Phase 2 — Run a focused pilot (4–12 weeks)

Define success metrics (reduction in downtime minutes, defects per 1,000 packages, false-reject rate). Use a single production line and integrate with an MES/SCADA feed for instrumentation.

• Phase 3 — Validate & scale

Validate model performance across product variants and lighting conditions; document SOPs for model drift handling and retraining. Expand to other lines, adding edge compute nodes where low latency is a must.

• Phase 4 — Institutionalise & govern

Establish data governance, periodic model revalidation and an upskilling programme for operators and maintenance staff.

Consider partnerships with local systems integrators (South African vision/automation firms already supply packaging inspection systems).

Practical tools

AI is not a futuristic promise for food packaging — it is a set of practical tools that South African food and beverage manufacturers can apply now to cut waste, avoid recalls, increase line availability and unlock new consumer services through smart packaging. The most pragmatic path is to prioritise targeted pilots with clear KPIs (vision inspection, predictive maintenance, or smart sensors), work with capable systems integrators, and embed governance and upskilling from the start. With the right approach, AI can move packaging lines in South Africa from reactive maintenance and manual inspection to predictive, data-driven operations that protect product quality and improve margins.



Top seven food packaging innovations in South Africa's food and beverage sector

The South African food and beverage industry is experiencing rapid growth and transformation, driven by changing consumer preferences, sustainability concerns, and advances in technology. At the centre of this evolution lies food packaging innovation, which is reshaping how products are protected, marketed, and delivered to customers.

In today's competitive market, innovative food packaging solutions not only enhance shelf appeal but also extend product shelf life, reduce environmental impact, and improve supply chain efficiency. South African manufacturers, retailers, and producers are increasingly adopting new packaging technologies to remain competitive locally and globally.

1. Sustainable and eco-friendly packaging

Sustainability is a top priority for both consumers and manufacturers. Eco-friendly food packaging has gained significant traction in South Africa due to rising awareness of climate change, waste reduction, and stricter environmental regulations.

Key developments include:

- Biodegradable and compostable packaging made from materials such as cornstarch, sugarcane, and bamboo.

- Recyclable plastics with higher post-consumer content.
- Plant-based films and coatings that reduce reliance on petroleum-based plastics.
- Reusable containers in retail and quick-service restaurants.

These sustainable packaging solutions not only reduce waste but also strengthen brand reputation among environmentally conscious consumers.

2. Smart packaging with QR codes and NFC technology

Digital technology is transforming packaging into an interactive tool. Smart food packaging in South Africa now integrates QR codes, NFC chips, and augmented reality (AR) to engage consumers and provide real-time product information.

Examples include:

- QR codes linking to detailed nutritional information and sourcing data.
- NFC technology enabling mobile payments or loyalty program integration.
- AR experiences that allow consumers to interact with brands through gamification or recipes.

These innovations enhance transparency, build trust, and help companies comply with evolving labelling regulations.

3. Modified Atmosphere Packaging (MAP)

Modified atmosphere packaging is widely used to extend the shelf life of perishable products such as meat, dairy, baked goods, and fresh produce.

How it works:

- Air inside the packaging is replaced with a mixture of gases (commonly carbon dioxide, nitrogen, and oxygen) to slow microbial growth.
- This reduces spoilage and maintains freshness for longer distribution cycles.

MAP is becoming increasingly important in South Africa's food retail and export markets, ensuring higher quality standards and reduced food waste.

4. Active packaging for food safety

Active packaging goes beyond containment to actively improve food safety and freshness. This type of packaging interacts with food or the environment inside the package to prevent spoilage.

Innovations include:

- Oxygen scavengers that prevent oxidation.
- Moisture absorbers for baked goods and snacks.
- Antimicrobial coatings that inhibit bacterial growth.

For South Africa's growing processed food industry, active packaging provides an effective solution to meet consumer demand for safe, high-quality products.

5. Lightweight and flexible packaging

Lightweight packaging is becoming increasingly important for reducing transportation costs and environmental impact. Flexible packaging formats, such as pouches, sachets, and films, are replacing traditional rigid packaging in many product categories.

Benefits include:

- Lower carbon footprint during shipping.
- Space efficiency in retail environments.
- Enhanced convenience for consumers.
- Versatility across beverages, snacks, and ready-to-eat meals.

Flexible packaging aligns with the lifestyle of South Africa's urban population, which values convenience and portability.

6. Edible packaging

Although still emerging, edible packaging represents one of the most innovative trends in the global and South African food sector. Made from natural ingredients such as seaweed, starch, or proteins, edible packaging eliminates waste entirely.

Applications in South Africa include:

- Edible coffee cups in quick-service restaurants.
- Wraps for snack foods or confectionery.

- Soluble films for instant beverages.

While scalability remains a challenge, edible packaging is gaining momentum as a premium and eco-friendly alternative.

7. Personalised and customisable packaging

With growing consumer demand for unique experiences, customisable food packaging has become a key differentiator. Digital printing technologies allow brands to create personalised designs, seasonal packaging, or limited-edition campaigns.

Examples include:

- Packaging with consumer names or messages.
- Customised labels for corporate events and celebrations.
- Digital printing that allows faster turnaround for smaller batch sizes.

This approach enhances customer loyalty and helps brands stand out in crowded retail spaces.

The future of food packaging in South Africa is undergoing a profound transformation, driven by sustainability, digital technology, and changing consumer behaviour. From eco-friendly packaging materials to smart interactive solutions and edible alternatives, these seven innovations highlight how the sector is adapting to global trends while addressing local challenges such as waste reduction, food safety, and affordability.

For food and beverage companies, adopting these packaging innovations is no longer optional—it is a strategic imperative for growth, compliance, and customer engagement. As South Africa strengthens its role in regional and international markets, packaging will continue to play a critical role in driving competitiveness and sustainability across the sector.



Building a sustainable future



The South African food and beverage sector faces a growing responsibility in addressing waste management and recycling. According to Petco, the country's longest-standing producer responsibility body, small daily actions – not just headline events – hold the power to transform the sector's environmental footprint. Following the Clean-Up & Recycle Week 2025 running from 15 to 20 September, businesses and consumers alike are being urged to embed recycling into everyday practices.

Why Clean-Up & Recycle Week matters

The campaign, spearheaded by Plastics SA and supported by the Department of Forestry, Fisheries and the Environment, aligns with international events such as World Clean-Up Day and International Coastal Clean-Up Day. For the South African food and beverage industry, which relies heavily on packaging, this Clean-Up & Recycle Week highlights:

- The urgent need to reduce packaging waste.
- The economic opportunities for waste pickers and recycling businesses.
- The role of separation at source in creating a sustainable circular economy.
- Practical Recycling Actions for Food and Beverage Businesses

Separation at source means separating recyclables at the point they become waste. Petco advises:

- At production facilities and warehouses: Clearly mark bins for PET bottles, cardboard, and paper packaging.
- At retail and distribution outlets: Ensure shrink sleeves are removed from PET bottles before recycling.
- At events and hospitality venues: Avoid black or opaque PET bottles, which are harder to recycle, and opt for clear or light blue alternatives.
- Educate staff and customers: Highlight the

difference between recyclable and non-recyclable packaging, especially compostable or biodegradable plastics that often contaminate recycling streams.

How consumers can contribute beyond Clean-Up Week

Consumers play a vital role in reducing landfill waste by:

- Setting up home recycling stations and using clear bags for kerbside collection.
- Supporting local buy-back centres and small recycling businesses.
- Choosing products packaged in recyclable PET bottles and liquid board cartons.

Turning good intentions into lasting impact

"Clean-Up & Recycle Week is a chance for all of us to turn good intentions into lifelong habits," says Petco CEO Telly Chauke. For the food and beverage sector, embracing recycling is not just an environmental obligation but an opportunity to strengthen the circular economy, support livelihoods, and build consumer trust in sustainable practices.

To start your recycling journey, visit Petco's consumer guide: *How to Collect, Sort and Recycle.*

What's happening?



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