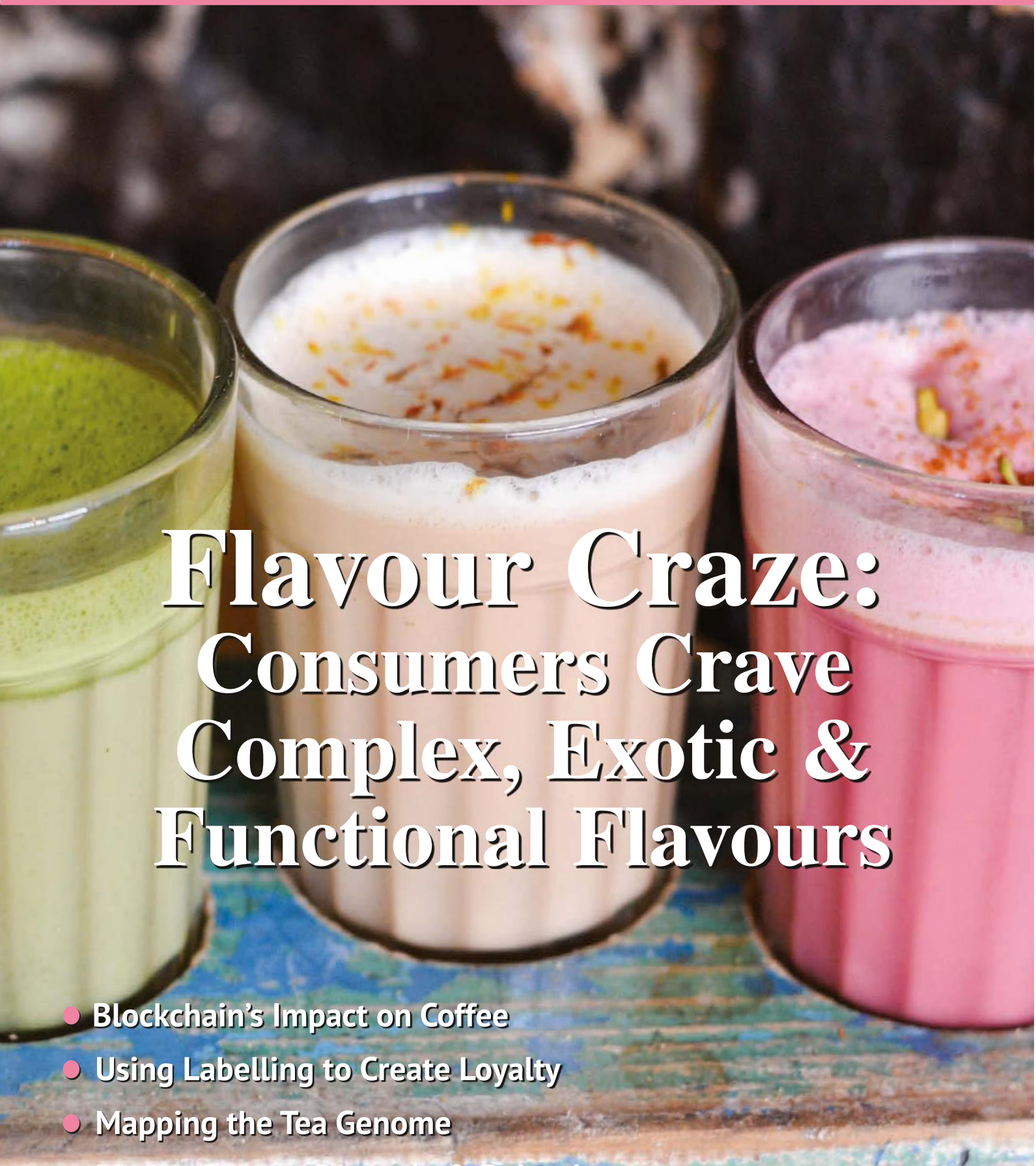
TEA & COFFEE
TRADE JOURNAL
THE INTERNATIONAL & TRUSTED RESOURCE
FOR THE TEA & COFFEE INDUSTRIES SINCE 1901
APRIL 2019
www.teaandcoffee.net



Flavour Craze: Consumers Crave Complex, Exotic & Functional Flavours

- Blockchain's Impact on Coffee
- Using Labelling to Create Loyalty
- Mapping the Tea Genome

Photo courtesy of Trace.Coffee

Blockchain Explained and What it Means for Coffee

Blockchain business applications are the subject of much attention, from container shipping to commodity sourcing. As with reactions to many new technologies, much of this excitement might be premature. While new tools solve one problem, they also create new ones with unexpected side effects.

By Rachel Northrop

To understand how blockchain can be used as a tool to improve transparency, accuracy, and equity in the coffee trade, it is crucial to first understand how the tool functions to then assess where it will be truly transformational and where it may create more new problems than it solves.

Seattle, Washington-based Yave is a two-side marketplace for trading coffee that uses blockchain as a tool for matchmaking between buyers and sellers. "Yave is a sales-based chain of receipts," explained Scott Tupper, Yave's founder and COO. "There are three modules all linked within Yave for end-to-end traceability."

The "chain" of blockchain, which Tupper refers to here as a chain of receipts, is a sequential series of records linked by a unique alphanumeric code called a hash, which is generated by complex mathematical functions. The hash at the end of one link in the chain must match the beginning of the next link. Any change to a receipt would also alter the hash, meaning the links in the chain no longer fit together and the chain breaks and no further transactions can be completed.

The first of Yave's modules records coffee on the farm and field. "Step one is first mile transactions. The producer entering his/her ID creates the first hash on the blockchain," said Tupper. "Samples are crossed checked with a Q grader to correlate quality and price." Yave has built its platform to account for blending smaller lots together, so that the buyer of a blended lot or container of coffee can see its component elements, almost like reading the ingredient list of a soup. The next module is the trading desk. "Before physical transfer takes place, the code verifies that both parties have the items they are agreeing to trade, either cash liquidity or coffee in parchment." This is known as the consensus algorithm, an agreement memorialized in code that forms the basis of a smart contract.

Yave operates as a chain of sales receipts.

Photo courtesy of Scott Tupper for Yave

"Once the contract is entered into the database, it would be very hard for either party to change it," explained Ashley Taylor, researcher of cryptocurrencies and co-founder of Regenerative Resource Network, based in Brooklyn, New York. "Anyone who is an owner of the database is periodically verifying that no one is changing the contract or the database. That is part of the programming that goes into how people can modify and update the database."

Rafael Saavedra, co-founder of Sunnyvale, California and Bogotá, Colombia-based Trace.Coffee, described the process of adding to the block as leaving a digital fingerprint. "Every recorded event, data item, or media item – or a fingerprint of it – is stored in a blockchain." The ownership of the ledger containing these records and "fingerprints" is distributed across all its users, making blockchain a decentralized technology, with no single owner of the database where records are stored.

Meshing with the Trade

Trace.Coffee built a traceability platform that includes IoT (internet of things) sensors and mobile apps to record each step of the coffee production process and the supply chain, creating a chain of custody from the farm to the cup. Saavedra explained how "the platform enables tracing every coffee and confirming the validity and accuracy of the information presented at every step. Buyers and consumers can follow a link or a QR (quick response) code to learn about and verify things such as origin, quality attributes, process, impact and payments to producers."

Full supply chain visibility is valuable to consumers, so the blockchain delivers it. This new trading technology must add value all the way to the end user. Tupper said that the Yave platform, "is a mirror of your value chain. We've built recursively: the function of the tech is defined by the business rules it serves."

The coffee trade, however, draws up contracts in many ways, with forward contracts agreeing to buy and sell coffee that has not yet been grown or harvested and intermediaries buying based on either client specifications or their own spot inventories. Often, there are many informal agreements in place before the formal contracts are drawn up. The format for coffee contracted through a blockchain must account for the real-life variables that occur in the trade. What if a seller agrees to sell a certain number of bags but half are damaged when a storm hits the warehouse?

"The buyer and seller can't alter their terms without both agreeing and agreeing in a way that

Infographic courtesy of Trace.Coffee

the network will allow them to. This depends on the precise rules of how that specific blockchain is encoded. There is no single blockchain standard for verifying contracts," said Taylor.

Coffee contracts specify the growth and quality, and, while traded against a futures market that defines containers of coffee as essentially interchangeable, these agreements sometimes need to be adjusted to account for what happens in the real world. The social contracts of relationships, of doing business for decades with the same partners, is often more important that the terms of a single transaction. Coffee prides itself on being an industry that cares about people – about the "who" of doing business as much as the "what."

Yet, recurring market downturns and an adherence to the commodity pricing model have called to the forefront the disparity between feel-good marketing narratives and on-the-ground business practices. To Tupper, this paradox, and the trust equity of strong social contract networks represents far more opportunity for collective industry betterment than technology itself. "Blockchain is a tool; this is no silver bullet. Partnerships in the supply chain unlock far more potential than any database ever could."

In this complex and shifting business environment, how does a tech platform drive business towards trust-based networks and away from obscure or predatory supply chains?

Trust, Immortalized

"Blockchain and traceability are being used interchangeably, and that's the wrong way to think about the opportunity we have," said Tupper. "Nothing about the digital or memorialized nature of the record means we depend less on trust." Transaction actors must tell the system something for it to create the record. The data does not populate itself, so the challenge is around behavioural economics more than data policing.

According to Saavedra, "The technology adds the missing trust element. It provides a way to verify that what is being presented is what was recorded at the right point and time." Smart contracts entered into a blockchain are only as trustworthy as their users. As with any tool, it is the user more than the tool itself that determines effectiveness. Tupper noted that "only when the business interests of the stakeholders are directly and democratically aligned with data cleanliness can we expect to know what's in our cup, the impact of our purchasing, and experience all the feel-good grand theory that blockchain purports to magically unlock."

To incentivize data integrity, airtight, voluntary, and profit-driven QC (quality control) checkpoints are critical to the veracity of the stories coffee tells about itself. "Without digital ledger technology we could do all the data capture for production and supply chain traceability, publish the story of every coffee, with the same details we do now, but, without a mechanism to demonstrate that the information wasn't tampered with by us or by anyone in the chain the question of how true it is will always be there," said Saavedra.

Photo courtesy of Scott Tupper for Yave

Quality control checkpoints are critical.

The Chain in Motion

On 24 May, blockchain-enabled farmers from across Guatemala will auction off exclusive coffee lots of coffee part of the Producer and Roaster Forum with Anacafé and Yave. "The auction is the ideal microcosm for implementing blockchain. The trust dynamics of how buyers and producers perceive their relationship with exporters will be laid bare over positive sales activities; we're reinventing the notion of direct trade," said Tupper.

This is what blockchain purports to provide: transactions where parties know each other and are mutually invested in everyone's success. Saavedra sees that, with this added element of trust, the coffee trade can be more agile and buying decisions, execution of orders, movement of funds and other currently slow steps of the trading process can be expedited. "Everybody along the supply chain can have more information at hand and make decisions based on it, optimizing the process and making better use of time and money, ultimately benefitting everyone, starting with the producer.

"Our goal of creating a real connection between producer and consumer can be achieved."

Rachel Northrop has been covering coffee for *T&CTJ* since 2012, while she lived in Latin America's coffee lands writing *When Coffee Speaks*. She in Miami, FL. She may be reached at northrop.rachel@gmail.com.