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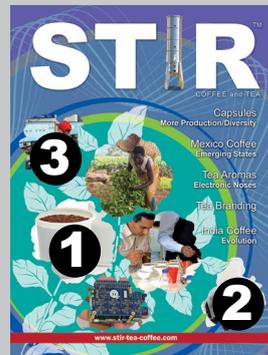
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- 3 Inside coffee factory of Russia's **Orimi Group**. www.orimi.com/en

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Point of View

Looking Decidedly Hopeful

We are feeling decidedly hopeful about the second half of 2021; like a long-awaited surprise is coming up..that “things” that want to get back to normal, might have the chance of doing so. In Thailand, we went from having no vaccine options (a lot of promises) to suddenly, overnight, many options to register here, there, everywhere for shots. Now they are talking about walk-in registration and vaccination at malls, 7-11s. We joke that the delivery girls of Yakult (the ubiquitous small probiotic drinks here in Thailand) will soon be offering vaccines door-to-door along with their daily visits after lunch.

And with the hope of travel restrictions and return-home quarantines easing, and the phenomenal recovery seen in the US, we are looking forward to face-to-face meetings with readers, friends, and customers at exhibitions and conferences as the (more than) year of cancellations is – fingers-crossed – over! And it looks like one of the first exhibitions up will be the Global Specialty Coffee Expo, normally the annual must-do show for the industry, now rescheduled for Sept. 30-Oct. 2 in the wonderful, forget-all-your-sorrows, entertainment/laidback capitol of the US – New Orleans, Louisiana. As many of us at STiR that can come, will be there.

We're asking that you please excuse this issue if you discover errata. Although the publisher is no stranger to the coffee and tea industries, this is the first issue that he has fully edited in, well, a looooong time. But we think you're going to like some of the improvements we plan in STiR in this and upcoming issues, continuing to steer editorial coverage toward our core industry readership (beans, leaf, packing, roasting, manufacturing), but at the same time including the service segment in our new department — see “Marketplace | Machines | Messages | Merch” on page 48 (page 52 in the online e-magazine). (If you've got something appropriate for this section, send it in to us and we can link you up with your readers in the print edition, the e-magazine, and online.)

As usual, with Issue 3, STiR delves into the wide industry range of topics, such as:

- Agriculture:* “Drought: The Tea Crop Killer” (page 42);
- Origins:* “Mexico’s Tiny Coffee Emerge” (page 32),
“Evolution in India’s Coffee Industry”, (page 38);
- Products:* “Soluble Strong But Roasted Rises in Russia” (page 44),
The Araku Coffee Brand (exclusive content on page 50 of the online e-magazine only);
- Manufacturing:* “Capsule Companies Crank it Up (page 26);
- Technology:* “Electronic Noses: the Emerging Science of Tea Aromas” (page 34);
- Marketing:* “Tea Branding (page 30).”
- Exports/Trade:* “Africa and India’s Binding Tea Ties” (exclusive content on page 46 e-magazine only).

Now we prepare for a tiny bit of patting ourselves on the back. With the next issue, we celebrate the official **10th Anniversary of STiR coffee and tea magazine**. It hasn't been easy especially the past year or so, but it's been a joy working with all the hard-not-to-like people of the global coffee and tea businesses.

By Glenn Anthony John
Founding Editor/Publisher
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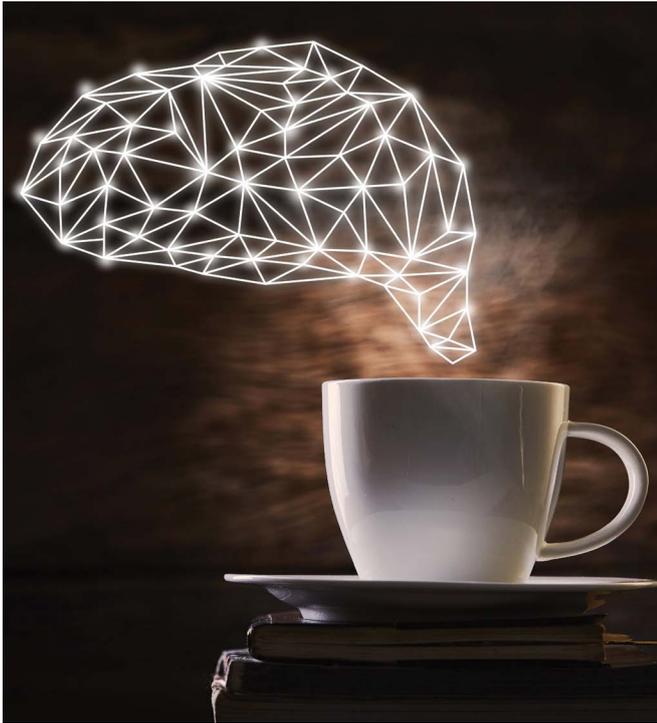
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Study says coffee increases alertness and improves motor control. But you knew that, right?

Food for Thought? Coffee and the Brain

It's not much of a surprise to regular coffee drinkers, but a new study says that coffee appears to enhance concentration and improve motor control and alertness by creating changes in the brain. The study also found coffee drinkers had increased activity in parts of the brain consistent with an improved ability to focus and react to a stimulus.

"For the general public, the take-home message is that we now know better how the regular intake of coffee prepares your brain for action and prompt response," said senior author Dr. Nuno Sousa, professor at the University of Minho in Portugal, in a report from Medscape. The journal *Molecular Psychiatry* recently published the study which was sponsored by the Institute for Scientific Information on Coffee (ISIC). Dr. Nuno also noted that, "this is the first time that the effect of regular coffee drinking on the brain's network has been studied in this level of detail."

For the study, coffee drinkers were defined as those who drank more than one cup of coffee a day. (Moderate coffee consumption can be defined as 3–5 cups per day, based on the European Food Safety Authority's review of caffeine safety.)

Higher alertness, improved motor control

Coffee holds "particular interest for human health, in view of its short-term effects on attention, sleep, and memory and its long-term impact on the appearance of different disease and on healthy span of aging," the authors write. However, despite its "widespread use," little research has focused on the "effects of its chronic consumption on the brain's intrinsic functional networks." Rather, Dr. Nuno noted that the investigators' motivation was to investigate the impact of regular coffee intake on brain connectivity, sometimes described as the "signature" of regular coffee drinking.

Researchers said they found a link between drinking coffee and a decreased degree of connectivity in the right precuneus and right insular areas of the brain, which suggests improved motor control and higher levels of alertness.

"The structural and connectivity differences observed among regular coffee drinkers in this research also occurred in non-coffee drinkers soon after they consumed a cup of coffee," ISIC pointed out in an online article. "This therefore indicates that coffee can impose these changes in a short time period, and that these effects are triggered by coffee."

But...higher stress and anxiety levels

Commenting on the study for Medscape, Dr. J. W. Langer, a lecturer in medical pharmacology at University of Copenhagen in Denmark, who was not involved in the study, said it "also shows a possible link between habitual coffee consumption and higher stress and anxiety levels." Although this is "only an association and not a causal finding, it reminds us that coffee can be a double-edged sword."

Colombia's FNC pleads for end to roadblocks:

With coffee prices soaring on the NY Stock Exchange, reaching \$1.50 pound in April, Colombia's nationwide protest movement halted coffee exports. With production up by 30% in March and 9% in April 2021 (year on year), and coffee exports recovering from the dismal results of 2020, increasing by 21% over April of the previous year, the frustration in the sector was palpable. May 24 marked a full month of sometimes-violent countrywide protests, notably in key cities like Bogota and Cali, the capital of the Cauca coffee region. One particularly devastating effect is the blockage of roads leading to ports.

"No coffee has left the building," FNC president Roberto Velez said in a press conference on May 5. By mid-May, at least 1,200 tractor-trailers filled with over half a million bags of coffee beans were stuck in bottlenecks on the country's main highways, with drivers saying they would have no choice but to abandon the vehicles if something was not done soon. There was also a serious incident in which a warehouse containing tons of coffee stocks was looted of all its content in Buenaventura, Cauca, the largest and most active port in the country and the one through which 70% of coffee exits the country. On May 16, Colombian president Ivan Duque announced that he instructed the national police and the military, sent in by him to try and quell the demonstrations, to clear all roads, especially interstate highways. The move was billed as necessary to get supplies moving again, although some critics claim the action has been disproportionately heavy-handed and would spark an escalation in violence.

But many see it as necessary to help avoid an overflow of storage capacity. Up to now coffee stocks destined for export have been safely stored. But with many of the roads damaged and toll booths burned down, it remains to be seen whether storage capacity will be sufficient pending a return to normal road movement so that delays in shipping can be avoided.

On May 19, the Steering Committee of the National Federation of Coffee Growers (FNC), a government-controlled agency, issued a statement calling on the government to do something, stating, "Colombian coffee growers, through [FNC representatives] urge peaceful and immediate solutions,

especially when this situation has cost the lives of dozens of Colombians and has interrupted the supply of equipment, food, and fuel to several regions of the country,” echoing the exact words used by Duque in his speeches.

“Today, when the sector can once again become a key player in economic recovery, blockades and vandalism are an obstacle to this end and a source of unrest for Colombians” the statement continued. As of May 24, roads still had not been cleared and violence against protesters and police continues. But negotiations between the government and the National Strike Committee continue, with the Minister of Peace putting out positive statements.

By Bethany Hays

SCA Confirms – New Orleans Expo a “GO”

On May 5, the Specialty Coffee Association (SCA) confirmed in a press release that the Specialty Coffee Expo will be held September 30-October 3, as already tentatively announced in New Orleans, Louisiana. The famous expo’s popular features will return with new Covid-19



A “COFFEE” emblazoned fence outside a coffee shop in New Orleans, LA, where SCA confirms it will hold its convention in late September, 2021.

safety measures in place. Alongside both long-time and new exhibitors in the exhibit halls, most of the popular award and championships will return.

“We are extremely excited to be welcoming our community to a physical trade show again after over a year of not having met in person,” said Yannis Apostolopoulos, chief executive officer of SCA. “The effective health and safety guidelines and regulations we are putting in place prioritizes the safety of attendees and exhibitors, and allows us to bring back much-loved expo features.”

More information about how the show will transform in order to maximize the safety of attendees and exhibitors, will be provided in the upcoming months. Registration for expo opened on June 1, with discounted pricing available through August 18. *For further information, please visit coffeexpo.org.*

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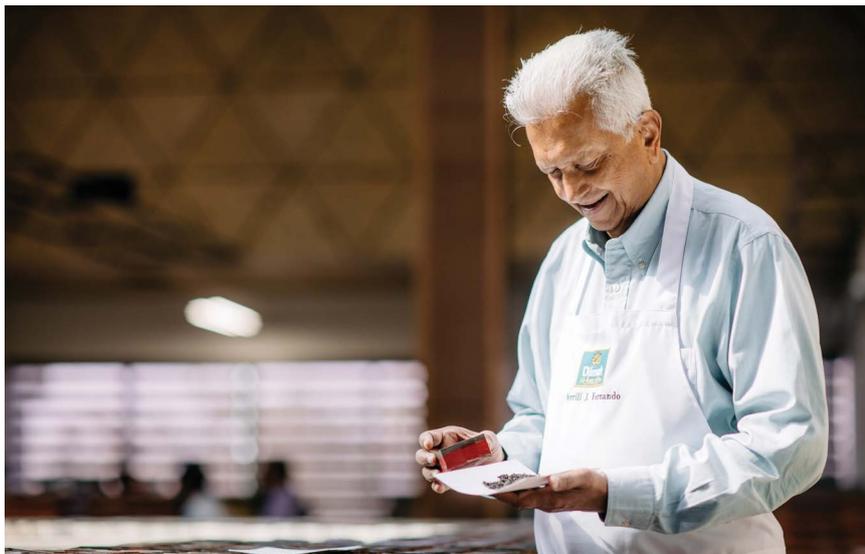
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The unmistakable face of the Sri Lankan family tea company Dilmah is Merrill J. Fernando and his invitation to customers: “Do try it!” The first tea grower to offer his tea to the world - picked, perfected, packed at source. The family tea business he formed around an uncompromising commitment to “faith, determination, dedication to taste, goodness, and ethical purpose,” said the company in a press release. Fernando turns 91 and celebrates 71 years in tea.



Dr. Sandra Krishnan, IWCA executive director as of May.

Dr. Sarada Krishnan: New IWCA Executive Director

“The [International Women’s Coffee Alliance (IWCA)] board of directors is pleased to welcome Dr. Sarada Krishnan as the new executive director to lead the organization,” said Sharon Riechers, IWCA board president in a statement in late May. “The Board was impressed with Sarada’s background in coffee research, leadership skills, and experience with simultaneously managing projects in multiple countries. We are confident that with her strategic vision the organization will continue to grow and empower the members of our global chapter network to enact meaningful

change in their communities and across the coffee value chain.”

As executive director, Krishnan will oversee IWCA programs, fundraising, and events while executing strategic plans for organizational growth and success in the years to come. Her diverse professional experience will help to identify new opportunities for leadership development, amplified market visibility, and critical partnerships that will benefit the members of the IWCA global chapter network, comprised of 27 countries.

“Women are the backbone of a family and community,” said Krishnan. “Empowering women will lead to positive change. I am thrilled to lead IWCA and contribute to the empowerment of women in coffee by enabling success throughout the entire value chain through programs and partnerships.”

Krishnan has an extensive background in coffee research and cultivation that includes a bachelor of science in horticulture from India, a master of science in horticulture from Colorado State University, and doctorate research at University of Colorado, Boulder that focused on the conservation genetics of wild coffee (*Coffea* spp.) in Madagascar. Krishnan currently serves as the director of horticulture and center for global

initiatives at the Denver Botanic Gardens. In addition to her research and professional experience, Krishnan also owns coffee plantations in the Blue Mountains of Jamaica and was a founding member of the IWCA Jamaica chapter.

Probat’s Wim Abbing: NCA’s Newest Board Member

Wim Abbing, c.e.o. of Probat is appointed as a new member of the board of directors of the National Coffee Association of U.S.A., Inc. (NCA). NCA is the foremost trade association representing all segments of the US coffee industry.

Probat states that the US is one of the leading coffee importing countries and the top consumer of coffee worldwide, and therefore an important market for the company. It’s American subsidiary, Probat Inc., recently relocated from Vernon Hills, Illinois to the Lincolnshire Corporate Center, allowing the company to “continue to grow its technological resources and market leading service organization”.

“Many international coffee professionals consider NCA to be ‘the voice of coffee’, even referring to its annual convention as the industry’s premiere networking and educational event,” said Abbing. “I am humbled to have been appointed new board member and feel strongly committed to NCA’s guiding principles to grow the coffee community through education, advocacy and connection. Together we will strive to make a difference in the industry.”



Probat c.e.o. Wim Abbing, NCA’s newest board member.

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Lavazza to Open First US Roasting/Packing Plant

Lavazza North America, part of global Italian coffee company Lavazza Group, begins construction of the first roasting and packing plant in the United States. The new plant is slated to open in October 2021 and will serve the US market. The plant is an expansion of the *Lavazza Professional* facility in West Chester, Pennsylvania, which will integrate existing and new capabilities for Lavazza to produce roasted and ground coffee in the United States, adding 1,000 square meters to the 18,000 square meter facility. Strategically the new plant will create the possibility to increase the business, to be more reactive in the U.S. market, and increase customer satisfaction.

“North America continues to be a strategic growth market for Lavazza Group and opening this facility in the United States will sharpen our competitive edge,” said Davide Riboni, president c.e.o. for Lavazza Americas.

Until now, all Lavazza roast-and-ground coffee for the US market was sourced from Italy, positioning the new plant to reduce Lavazza’s carbon footprint through reduced shipping in line with the group’s “roadmap to zero” that aims to completely neutralize its carbon footprint by the end of 2030.

Lavazza Group currently has 9 production plants in 6 Countries (3 in Italy, 1 each in France, US, UK, Canada, and India).



Reimar Kube and Max Schürtz from Deloitte Deutschland present Wim Abbing, c.e.o. Probat, and Jan Molitor, e.v.p. marketing, Probat, (from left to right) with the Axia Best Managed Companies Award 2021 at the Probat’s headquarters in Emmerich, Germany.

Probat Gets Management Award

Probat, the world market and technology leader in coffee processing plant and machinery received the Axia Best Managed Companies Award 2021 from Deloitte, WirtschaftsWoche, and Credit Suisse in cooperation with the Federation of German Industries (BDI).

The core competencies – strategy; productivity and innovation; culture and commitment; and governance and finance – are the four cornerstones of the evaluation framework of the Axia award. A key selling proposition of the award is its internationality, which recognizes the global orientation of medium-sized companies. Many of them have long been pursued a successful internationalization strategy and continue their expansion course.

“Preserving tradition and values while at the same time progressively developing the company is certainly one of the greatest challenges for a family business,” said Wim Abbing, c.e.o., Probat. “In addition, digitalization will drive medium sized companies to rethink established business models as well. Thus, after the first lockdown in spring 2020, following an initial phase of orientation, we prioritized and consistently brought forward planned digitalization projects in order to continue to maintain a close exchange with our customers and stakeholders.”

One Earth®’s Coffee and Tea Filter Materials: Creating Environmental Standards

According to a recent press release from Nonwoven Network, LLC, the company set out to revolutionize the tea bag market by creating an environmentally friendly filter standard. This line of products, called One Earth®, offers environmentally friendly coffee and tea bags, as well as the accompanying tags, string, and envelopes.

In 2018, One Earth inventor, Stephen Foss set out to create a new standard of tea bags. He used his knowledge of nonwovens to create One Earth, a patented nonwoven filter media that is certified compostable in 21 days, allergen-free, chemical free, bleach free, and plastic free. “It is truly the most environmentally friendly tea bag material available,” claims Nonwoven Network.

One Earth® tea bags are a nonwoven filter material sourced from sugar cane and certified 100% USDA biobased. The material is fully biodegradable and compostable and it does not contain any plastics. Not only is this material not petroleum based, it is also free of any glue, metal, or plasticizers. One Earth is a unique nonwoven with very high water porosity and virtually no dust-like other products. It is semi-translucent and goes completely clear in hot water which allows tea to brew in seconds.

One Earth offers the ability to emboss logos onto the filter media with no chemicals or ink to provide identification but without the expense and waste of the string and tag. One Earth not only offers tea bag material but



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also offers coffee filter material, iced tea or cold brew bag material, string, tag, and envelopes that are all sourced from the same sugar cane material. The entire product line is environmentally friendly and certified compostable.

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By Dan Bolton

David Veal, European Speciality Tea Association executive director speaking at the Tea Masters Cup competition, Moscow, Russia.



David Veal European Speciality Tea Association

David Veal has for almost 40 years embraced the trending edge in specialty beverages. During the 1980s he worked for Automatic Catering Supplies (ACS) the coffee service that introduced UK office workers to specialty brands like Douwe Egberts. A decade later he witnessed the early adoption of espresso-based take-out as UK barista's rode the second wave of café culture. In 1998, the Specialty Coffee Association of Europe (SCAE) hosted its first World of Coffee event. Veal was there. Barista competitions began in 2000 and by 2011 SCAE was so successful Veal was recruited to manage the organization full time.

"I led the SCAE as if it was my own business, being really careful financially, employing basic business principles and building a really focused team around me. I only asked people to do things I was willing to do – it's one of the oldest lessons in the book really – lead by example, go out and meet people. Engagement is key," he said as he transitioned to work in tea.

As executive director of the European Speciality* Tea Association (ESTA) Veal continues to innovate, deftly applying his organizational expertise to tea.

STiR: *David, will you share your vision for the European Speciality Tea Association (ESTA).*

David Veal: The vision is to be an inclusive, membership-based association, built on foundations of collaboration, expertise, and the power of shared knowledge. Our mission is to help improve the quality and quantity of specialty tea available to consumers by creating and inspiring excellence in the specialty tea community through promoting innovation, research, education, and communication.

We hope to pull together many strands within that community by collaborating with and partnering other organizations and bodies spanning all aspects of the tea industry. In that respect we share a common purpose with many other tea lovers and professionals globally.

STiR: *ESTA recently certified its first professional in tea, an initial step in establishing a cadre of workers skilled in tea craft. Describe how this program works and the benefits it brings to the tea industry.*

Veal: Our newly launched tea certification program is a very ambitious initiative whereby we will offer high-quality, well-respected, and consistent certification based on integrity and transparency. We can only achieve this by working with well-respected tea professionals creating our curricula, and high quality and dedicated educators who will deliver and certify these curricula on our behalf.

STiR: *How is this funded and what is the return on investment for participants?*

Veal: Our certified partners, Authorized Tea Certifiers, will both earn money from our program and provide a stream of income to the association. An active Authorized Tea Certifier will be able to cover the cost of their initial investment in the program in a matter of months, or even weeks, depending on how active they are.

Our objective is that this program will become universally accepted and recognized and will help students to obtain jobs or develop their careers in tea and also assist employers in their recruitment of good quality and educated staff.

STiR: *The tea association in Denmark recently agreed to merge with ESTA, the second regional association to do so. Describe the structure and reach of chapters.*

[*Note: ESTA, European Speciality Tea Association uses the British/European word "speciality" in its title instead of the word "specialty" preferred by the Specialty Coffee Association which omits the second "i".]

"Many people now see the emergence of specialty tea as an event which is happening right now."

Veal: The new Danish chapter, formerly the Danish Tea Association, was our second chapter to be formed, following our Benelux chapter formed by members from Belgium, Netherlands, and Luxembourg. Ireland will be the next chapter to launch, within the next two months, Russia and Germany will follow. Chapters, which are a vehicle whereby local members can network, hold events, and organize competitions, will be formed when a minimum 10 members join from that particular country and will become the lifeblood of our association and community.

We are a European organization, although of course we are operating in a global community, and so without really trying we attracted members from all over the world who share our values and want to join the movement that we are part of. We now have members in more than 40 different countries, 18 of which are outside of Europe. Many of these are producers, a group which we feel are vital to and completely connected with everything we do and believe. Very early on we realized that we had to specifically target certain groups in order to ensure that they travelled on the journey with us, and one of those groups was producers, both in Europe and in more traditional growing countries. The engagement that we are having with producers is really exciting and stimulating.

Another group that we targeted was the tea barista, as we felt that the time was right to introduce the concept that the word “barista” should not only be synonymous with coffee. So we are asking the question “what makes a good barista?” and we believe that part of the answer is that a good barista should be equally knowledgeable, skillful, and passionate about tea as they are about coffee, and that should be reflected in their menu. So we would

encourage producers and tea baristas alike to join us on our journey and become a member.

STiR: *You worked in coffee for many years, how is it you ended up in tea?*

Veal: There was absolutely no planning in my switch from coffee to tea. After 35 years in coffee [with a bit of tea] I left SCAE in 2018 as the merger was completed with Specialty Coffee Association of America. In September of that year I just happened to be visiting an exhibition in the UK where the European Tea Society, as it was then called, were launching, stating that they had observed over the years what had happened in specialty coffee, and that they aimed to achieve for tea what SCAE achieved for coffee. I introduced myself and suggested that I may have some experience that would help them get started and grow quickly. I joined a few months later as executive director and I am really enjoying the challenge of growing the association and learning more and more about specialty tea every day. That in itself is a real joy for me.

There are many commonalities between tea and coffee and many differences. Tea has some advantages over coffee but several barriers to gaining the momentum with consumers that coffee has enjoyed over the last two or three decades. Many people now see the emergence of specialty tea as an event which is happening right now, and there is a level of excitement and anticipation which has not truly been there in the past. It will be a long, challenging, and exciting journey and I am personally really looking forward to further successes.

And as for the definition of specialty tea, well that’s a story for another day. ☕



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The top-selling Chinese bubble tea brand Hey Tea generated more than \$300 million in sales, followed by Nayuki at \$226 million. Both have opened US locations. Kung Fu Tea, the largest US boba chain, currently operates 250 locations and expects to open 70 more in 2021.

Bubble Tea Bōbà's Precarious Supply Chain

The bubble tea* bōbà shortage is a lesson in how pandemic-induced pileups create lingering logistical challenges.

The bōbà crisis (media quickly dubbed it Bobapocalypse) can be traced to Taiwan's worst drought in 56 years. As reservoirs drained to less than 20% capacity, the government ordered a shutdown of manufacturers that consume large amounts of water. Taiwan is the world's hub for bōbà**, a black pearl of tapioca made from cassava root that bubble tea consumers consider essential to their drinking experience. Bubble tea was invented in Taichung in the 1980s spreading to Japan and Hong Kong before reaching mainland China where bubble tea is a \$1 billion market.

Fortune Business Insights estimates the worldwide market at \$2 billion in 2019, with sales expected to swell to \$3.4

billion by 2027. Market research firm Technavio estimates boba sales will grow by \$963 million by 2023, a combined annual growth rate of 7%.

During lockdowns, many bubble tea drinkers in the US and Canada were forced to make their favorite treat at home, ordering the ingredients in bulk online. Sweet syrup, milk, and tea are readily available, but packages of authentic Buddha Bubbles Boba and Wu Fu Yuan boba to cook at home ship from Asia. The tapioca pearls are simply there to provide texture; the flavor is from the drink itself. There is, of course, a YouTube video on making the five- to 10-millimeter balls at home. The industrial process is complex, requiring the preparation of a wet flour from cassava starch formed in rotating cylindrical pans, followed by gelatinization that requires baking in a long tunnel followed by drying or freezing to preserve the pearls.

Since January as US and Canadian shops reopened, managers ordering direct from Asian suppliers found that consumer orders were clogging the supply chain, drawing down stocks at a time when the arrival of bulk re-orders was uncertain.

According to Smithsonian Magazine, tea Zone, one of the largest US suppliers, and Bubble Tea Canada, report shortages of the most popular boba balls due in part to over-orders and hoarding. Retailers Boba Guys estimate 99% of boba consumed in the US is imported from Asia. A return to sufficient stock and average delivery times is not expected before summer.

Tea Entangled as Brexit Unfolds

As Brexit continues to unfold, the challenges of trading tea in Europe now rival the cost and complexities of sourcing.

The EU-UK Trade and Cooperation Agreement is now fully in effect (May 1, 2021). The direct economic effects of Brexit have yet to happen, as the country remained inside the EU's economic orbit until the end of 2020,

so few people have noticed any difference, writes the *Wall Street Journal*. The immediate impact of the 1,000-page document on the tea industry revealed some troubling but mainly short-term aspects.

Britain imports virtually all the tea marketed there and re-exports about 17%, much of it to the EU. In recent months British expatriates say they can no longer find PG Tips and Yorkshire on grocery shelves in Spain, France, and Germany. At the British Store in Belgium, store manager Ryan Pearce said 90% of his stock is depleted as deliveries are delayed by Brexit red tape and reams of new paperwork. The Road Haulage Association reported a 68% drop in exports from Britain to the EU in January.

Many of the 500,000 Britons who own second homes in the EU are considering selling due to residency rules. The estimated 350,000 British ex-pats living in Spain, for example, can now spend only 90 days of any 180 days in residence without a visa. A 90-day visa costs US\$425 (€350) per person.

Like everyone else buying large quantities, UK importers shipping tea from China experienced container rates that have quadrupled since the first of the year. Blenders and tea packers are also contending with a wave of EU import controls on food products. Packaging and bottles are in short supply.

More troubling is the decision by major tea suppliers to bypass the UK. Kenya, which shipped 4,313 metric tons to the UK in January, now sends more of its tea to Poland and northern European ports near Amsterdam, Rotterdam, and Hamburg, cities with many large-scale tea blenders packers. Once a captive of Britain's tea multinationals, Kenya shipped more than a thousand metric tons to Poland in January 2021. According to the UN Comtrade database on international trade, Kenya exported \$110 million to Germany in 2019, about 8% of Kenya's total exports. Kenya's combined tea and coffee exports to the UK totaled \$124 million that same year.

*Bubble Tea (from Wikipedia): the oldest known bubble tea drink consisted of a mixture of hot Taiwanese black tea, small tapioca pearls, condensed milk, and syrup or honey. Now, bubble tea is most commonly served cold. The tapioca pearls that make bubble tea so unique were originally made from the starch of the cassava, a tropical shrub known for its starchy roots, which was introduced to Taiwan from South America during Japanese colonial rule. Larger pearls (Chinese: bō bā/ bēi zhēn zhū) quickly replaced these.

**The word "Bōbà" is a combination of the words bubble and big — Cantonese slang for large breasts.



The EU-UK Trade and Cooperation Agreement (BREXIT) is now in effect. It is too early to measure the impact on the tea industry, but several short-term aspects are troubling.

Tariffs and tea

As the current economic downturn and lockdowns depress sales on the continent, many popular British tea brands look elsewhere like New Zealand, where free trade agreements exist.

The new EU-UK Trade Agreement avoids tariffs — at least on those goods originating or defined as having been substantially transformed in the other's territory. Tea in bulk is exempt, and processed tea shipped to the EU after “transformation” crosses the border without duties, but importers pay a 2% duty for green tea from outside the UK. In Northern Ireland, importers pay a 3.2% third-country duty.

In December, Kenya and the UK signed a trade agreement replicating the EU market partnership, which waives duties and quotas on importing goods from the East African Community (EAC) trade bloc.

There is no escaping the fact that strict new rules on composite food products will add extra layers of bureaucracy on food exports to the EU, writes Arne Milken, founder of Customs Manager, a UK consultancy. Shelf-stable teas (except refrigerated kombucha) are considered low risk and do not require an export health certificate (EHC).

Food prices remain stable with Unilever, Nestlé reporting strong earnings on increased at-home consumption of tea and coffee. Northern Ireland saw a 2.4% decline in tea prices while coffee rose 0.3%. Overall, year on year, there was a 1.7% increase in the cost of everyday goods, according to the Ulster Fry Index. Tomatoes are up 15%, eggs down by 7%, according to the index. The UK Office of National Statistics reports a modest increase in core inflation to 1.1% from 0.9%.

While it is too soon to assess the full impact, UK residents remain skeptical. In November, a YouGov poll showed that 51% of people think it was a wrong decision and 38% a right one, the largest gap since 2016, according to the *Wall Street Journal*.

As 2021 progresses, Brexit fears, along with the disruptions brought by the pandemic and the economic thrashing England suffered in 2020, are abating. One tea to have perished amid the turmoil was the briefly popular English Brexit Tea's Harmony blend, “a tea to calm down and relax.” There were apparently few takers of late, and the 75g folding box was discontinued on Amazon UK.

By Dan Bolton

Climate Change: Troubling Effect on Kenya Tea and Elsewhere

Tea companies in the European Union seek climate targets to protect Kenya's tea fields from a potentially devastating combination of heat and erratic rain.

In May, UK charity Christian Aid published 14-page report of troubling research on climate studies that forecast reductions of 25-40% of Kenyan tea yields by 2050. Kenya supplies half of the tea consumed in the UK or re-exported and ships direct millions of kilos to Germany and Poland, where blenders supply the continent.

The report, released in advance of the G7 gathering in June and the November COP26 climate summit, highlights the importance of industry and government programs to help farmers cope with temperature increases in equatorial Africa, estimated to rise to an average of 23.5°C.

Christian Aid's climate policy director Dr. Kat Kramer called on the UK government to “ensure that countries on the front line of this crisis can adapt and respond to the impacts of climate change.” As countries begin announcing improved climate plans, “there is a unique opportunity to accelerate cuts in emissions and boost the finance needed to help countries adapt to the changing climate,” writes Kramer.

The report features the work of Sadeeka Layomi Jayasinghe and Lalit Kumar, researchers who predict that “climate change is going to slash optimal conditions for tea production in Kenya by 26.2% by 2050.” Tea grown in less favorable regions will experience 39% declines. Torrential rain and extreme temperature are the two biggest concerns. The combination encourages plagues of locusts and devastating floods. Temperatures will rise 2.5°C to an average of 23.5°C with spells hot enough to kill mature tea plants.

Lower quality leaf and less appealing taste will affect all growers. Kenyan farmers the most productive in the world, harvesting an average of 1,500 to 3,300 kilos per hectare of made tea per year. Smallholders harvest an average of 2,300 kilos per hectare.

Not just Kenya

In a section assessing climate change in India, the authors cite a survey of tea producers in Assam describing the impact of climate change. Garden managers (88%) and smallholders (97%) agree that climate conditions are a “definite threat” to growing and producing tea. In China, the authors cited a Tufts University survey of Chinese tea growers that found the majority of farmers interviewed had observed: “shifts in the occurrence of seasons, the length of seasons, increase temperatures, and changes in rainfall.”

In an article published by *Food Navigator*, spokespersons for Tetley, Unilever, Twining's all responded favorably to the report, confirming challenges and explaining steps taken. Sebastian Michaelis, head of tea at Tata, told Food Navigator, “we strongly believe that tea communities need much more from the industry than just research, so in tandem, we are involved in a program to help tea farmers mitigate the impacts of climate change, training them in sustainable practices like soil management, rainwater harvesting and drip irrigation.”

Reading the tea leaves Climate change and the British cuppa

May 2021



christian
aid

The Christian Aid report on Kenya tea supplied to the UK.

The report included comments from farmers concerned that they have little power to change policy in developed countries responsible for climate change.

In Kenya, Kericho tea grower Richard Koskei, 72, writes that “For generations we have carefully cultivated our tea farms and we are proud that the tea that we grow here is the best in the world. But climate change poses a real threat to us. We cannot predict seasons anymore, temperatures are rising, rainfall is more erratic, more often accompanied by unusual hailstones and longer droughts which was not the case in the past.”

Researchers concluded that it would be very difficult for tea growers to move to new, higher altitude, previously uncultivated regions. While much can be accomplished at the farm level, the problem is global, not local. Tea is an example of how we are all connected, wrote one farmer. “We grow it here in Kenya and it’s enjoyed by people around the world. But if we are to carry on growing it we need those other, richer countries, to cut their emissions and to think about how we are affected as tea farmers.” *For the full report, visit www.christianaid.org.uk and search for “Reading the Tea Leaves.”*

India Tea Dealt Double Blow

Little early-spring rainfall in Assam and West Bengal curtailed plucking and idled factories that are now contending with logistics challenges tied to a massive surge of Covid-19 infections. Many workers are

on leave during the slowdown and lockdown. At the time of this writing, weather is a far greater threat to the harvest than Covid-19, but infections in the tea lands are rising. Lockdowns are imminent with far-reaching impact as auctions slow and everyday activities such as truck delivery and port activity react.

“We were hopeful of a fresh start this year but prospects look bleak because of the drought-like situation,” Prabir Bhattacharjee, general secretary of the Tea Association of India (TAI), told the *Times of India*.



Intermittent pre-monsoon thunderstorms are doing more harm than good as India’s Brahmaputra Valley experiences a dry spell that has lowered tea yields in Assam by an estimated 10-15%.

Tea Board of India statistics shows yields are down 10-15% in Assam in March and April, with March down 30% compared to 2019. North Bengal reported harvesting only 1.92 million kilos (m.kg) this year compared to 4.04 m.kg in 2019 during January-February. Demand remains strong, according to TAI, but tea prices have not surged as in 2020.

Hailstorms no help

Rainfall measured 14.2mm in January and February, well below the 28.47mm that fell during the same period last year. Cachar received only 4.15mm through February. Terai rainfall totals were 6.15 mm compared to 19.1mm last year. The dry weather makes it more likely that local hailstorms like those in recent days near the Chengmari Tea Estate in Jalpaiguri will continue. Contact between dry and moist air masses power 60 -80 km per hour winds, torrential rains, and hail in Assam and Northeastern India. Known as the “spring shower”, these

storms occur before the monsoon, originating over the Chotanagpur Plateau and carried eastwards.

Meteorologists expect an above-average monsoon, but tea bushes need steady rainfall until the arrival of the monsoons in summer. The monsoon has been intermittent in recent years. According to the India Meteorological Department, the last time that India experienced three consecutive years of normal monsoon weather was between 1996-1998. The department’s April forecast is for the June 1-September 30 southwest monsoon to bring normal or above normal rainfall, which averages 907mm. The privately operated Skymet Weather forecasting system estimates the monsoon at 103% of the Long Period Average (LPA) this year. According to a report in the Assam Sentinel, rainfall was 109% of the LPA in 2020 and 110% in 2019.

Assam harvests about 10.5% of the region’s annual total in the first quarter, typically 75 million kilos. The region produced 618 million kilos in 2020, accounting for more than half of the tea grown in India.

Iran Boosts Tea Industry

Iran’s government boosted green leaf price guarantees 45% this spring, pleasing the nation’s 55,000 growers and expanding domestic production. The guarantee is a base; many of the nation’s 160 tea factories purchase tea from local growers at prices higher than the \$0.30 floor for quality leaves and the \$0.20 rate for seconds.

Output from the harvest that began in May is expected to reach 135,000 metric tons in calendar 2021, up 4,000 metric tons compared to 2020. The Iranian calendar year ends March 20.



Tea picker working on a tea plantation in Lahijan, Gilan Province, Iran.

Iran produces 90% of its tea in the far northern Gilan and Mazandaran Provinces. Production grew 10% from March 2018 through March 2019, according to the Iran Tea Organization. There are currently 28,000 hectares designated for growing tea, with 22,000 hectares under tea. Lower precipitation is a concern, but there was sufficient tea for plucking the first week of May.

Iran is a net importer but now produces enough tea to trade small quantities with Azerbaijan, Uzbekistan, Tajikistan, Turkmenistan, Afghanistan, Canada, Australia, Spain, the Czech Republic, and Georgia.

Iran also issued its first agritourism permit for a farm in Qom Province last week. The permits allow farmers on privately-owned land to host tourists and educational experiences such as tea tastings. The program is a subset of the rural tourism industry that includes resorts, non-profit agricultural tours, farmer's markets, and support for leisure and hospitality ventures that attract visitors with money to spend. *The Tebran Times* reports that "in addition to the customer services jobs, agritourism pays special attention to the production sector. Experts say agricultural tourism is much more important and practical than other branches of tourism because it creates a new chain and diversity in the field of production and services."

India to Iran exports

Contracts for 30 million kilos of new-season tea are currently being negotiated. Indian sellers shipped twice the amount of tea as in 2019-20 at favorable prices, averaging \$3.91 per kilo, making Iran the single largest importer of Indian tea. Last year Iran bought 21% of India's exports, exceeding Russia/CIS for the first time.

Iran increased its tea shipments from India after sanctions were imposed. Quantities increased following India's cessation of exports to Pakistan after an exchange of gunfire over Kashmir in 2019. According to the Islamic Republic News Agency, India and Iran first established trade relations in 1950 and have since expanded cultural exchange and development agreements, including highway connections via Afghanistan and oil imports totaling 5 million barrels a day.

Iran previously traded oil for tea, but the US has since convinced India to stop importing oil from Iran, causing some tea growers to worry about timely payments. "India has [an exchange] mechanism [US\$ converted to rial to INR] through which certain exports like tea, rice, etc., are covered for repatriation," said Sujit Patra, president, Indian Tea Association. A portion of the US dollar is kept for barter trading of tea. "This system will continue till equivalent oil money is there," he said.

"The present sanctions by US may create some difficulties, but tea exports will continue to grow," analyst Ajit Nandkeolya told Northeast Now. "Indian tea exports to Middle East have steadily gone up over the years despite continuous US sanctions and the turmoil in the region during the last 10-15 years," he told the newspaper.

Tehran and New Delhi are in the final phases of negotiations for a preferential trade agreement easing financial transactions currently restricted by US and European Union sanctions against Iran. In 2019 Iran signed a provisional trade agreement with the Eurasian Economic Union (EAEU), a trade block that imports tea from Gilan Province, lowering tariffs to 3.1%.



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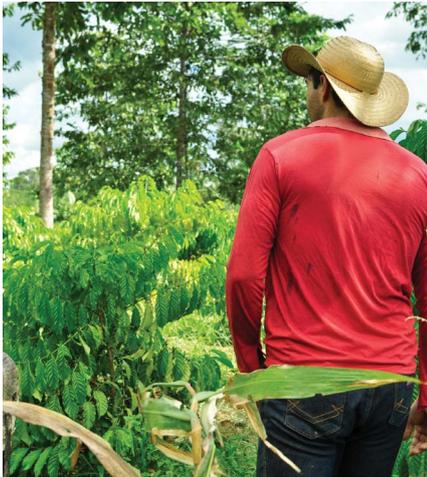


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Coffee Report: David Foxwell

photo CIFOR



Brazilian coffee farmers have been affected by adverse weather conditions.

Next Brazilian Crop Could Be Nearly 20% Lower

The latest estimate of the size of the next coffee crop from Brazil, the world's leading producer, confirms earlier suggestions the 2021/2022 harvest will be a small one, but not quite as low as the 31% decline recently forecast by some.

A May 17 report from the US Department of Agriculture's Global Agricultural Information Network (GAIN) puts the size of the forthcoming crop at 56.3 million 60-kg bags (mil. bags), a reduction of 19% compared to last year's record output of 69.9 mil. bags.

As highlighted previously by *STiR*, in March and in April 2021, adverse weather conditions in the arabica coffee growing regions of Brazil and an 'off-year' in the biennial production cycle are behind the steep fall in production. The US Agricultural Trade Office (ATO) in São Paulo put arabica production at 35 mil bag, a 30% reduction compared to the previous crop.

"The majority of producing areas are in the off-year of the biennial production cycle," said the authors of the GAIN report, "resulting in lower production potential for the upcoming crop. Several growers also pruned their coffee fields at above-average rates after the record crop in 2020, thus reducing the area to be harvested." A persistent drought and high temperatures in major coffee growing regions in the second half of 2020 and in early 2021 affected blossoming and fruit setting, and then affected fruit development. ATO São

Paulo said robusta/conilon production will be 21.3 mil. bags, an increase of 1.1%. The increase is because of good rainfall in states producing robusta, in addition to improved use of crop management practices and the use of improved planting material.

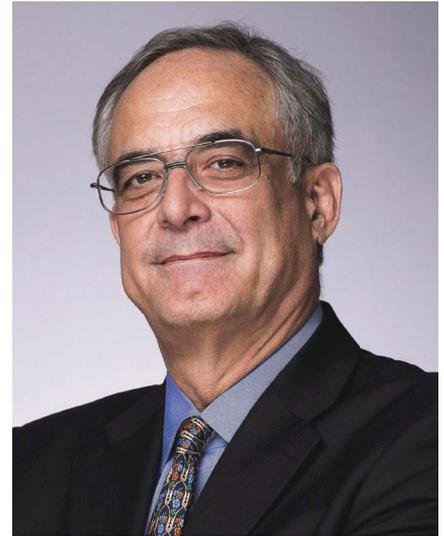
Due to the Covid-19 pandemic, ATO São Paulo did not conduct the field trips to major coffee producing areas it would normally have undertaken to observe conditions, cherry set and fruit formation. Information was obtained from government sources, state secretariats of agriculture, producers associations, cooperatives, traders, consultants, and other major players in the coffee industry.

In early 2021, CONAB projected arabica production of between 29.72 and 32.99 mil. bags, and a robusta/conilon crop of between 14.13 and 16.60 mil. bags. It was due to release its second coffee survey for the 2021 crop on May 25. In early May, the Brazilian Institute for Geography and Statistics released details of an April survey forecasting Brazilian coffee production at 47.01 mil. bags, of which 31.81 were arabica and 15.20 million robusta/conilon, a 24% decrease compared to the previous crop. The government agencies use a different methodology to forecast coffee production and have both been consistently lower. *(For summaries of all the recent USDA FAS GAIN reports on coffee origins, please see the feature story on page 48.)*

Brazil Urges ICO to get US and China to join

The government of Brazil, the world's largest producing nation wrote to International Coffee Organization (ICO) urging it to do everything in its power to get the US and China to join the UN body.

The US was previously a member of ICO but decided to leave during the previous US administration. The state department confirmed that it would do so in 2018. The US was also a member of ICO at an earlier date. The 2018 US withdrawal was a major blow to ICO creating a significant hole in its finances. There are hopes that the current Biden administration will be much more open to participation in UN bodies such as ICO. As previously highlighted by *STiR*, ICO courted China as a member for many years, during which consumption



Jose Sette, director, ICO, steered the organization through many challenges – including the US withdrawal in 2018. Sette retires in early 2022 and the search for a replacement begins.

there has grown significantly. China also produces a growing amount of coffee.

In an April 14, 2021 letter seen by *STiR*, the Brazilian government asks that its request be circulated to members of the organization. In the letter, the Brazilian government said, "Taking into consideration the importance of the American and the Chinese markets to the coffee sector, Brazil would like to suggest that the US and the People's Republic of China receive special attention from the [ICO] secretariat in its efforts to increase the number of members."

The letter went on, "The current process of modernization of ICO is undergoing. With a new agreement in sight, the possibility of a further and much closer interaction with the international private sector, and the creation of the coffee public-private task force, with all the work that it encompasses, especially in regard to the question of sustainability, suggests that our organization needs to urgently engage these two largest economies in the world in the process. Having that in mind, Brazil would like to request the secretariat to intensify its contacts with representatives of both countries, on order to secure their membership to ICO."

In other important news from ICO, the organization initiated a search for a new executive director to replace José Sette, whose five-year term comes

to an end in early 2022. Sette was appointed by the International Coffee Council in March 2017 having earlier been head of operations at the UN coffee body. His five-year term at ICO comes to an end in March 2022. Member governments are now to forward names of endorsed candidates to the ICO secretariat no later than July 30 this year. The ICO Council is due to consider and decide on the appointment of a new executive director at a council session from March 28-April 1, 2022.

Coffee Coalition Aims to Unite Stakeholders

Italian coffee major Lavazza and Slow Food launched a “coffee coalition” that hopes to unite all of the stakeholders in the coffee supply chain – from growers to roasters to distributors to consumers. Slow Food has been working with Lavazza since the mid-1990s sharing ideas and projects. They describe the Slow Food Coffee Coalition as an open network based on a model for relationships inspired by the values of cooperation and based on the evolution of paradigms of production and consumption.

The coalition launched in Turino, Italy on World Earth Day. Its aim is to improve the relationship between farmers and consumers by promoting a better understanding of coffee and its identity among those who buy it on a daily basis.

“This coalition is a response to the crisis that we are living through and which loudly demands change,” said Carlo Petrini, president, Slow Food in a statement. “It is a concrete example of transition and as such it requires the conscious involvement of everyone, from those who care for coffee plants to those who savor it in the cup. We need to shift from a society based on competition to one based on collaboration. That is the aim of the coalition. For real change to take place, it is necessary to create awareness and generate shared knowledge within the coffee community.”

“In founding the Slow Food Coffee Coalition there is an assumption of responsibility and a sharing of rights and duties,” said Giuseppe Lavazza, vice president, Lavazza Group. “All the actors in the world of coffee will be called upon to take part in this challenging and innovative

model. It will be an open working group, whose importance will become increasingly evident. The need to construct alliances in the precompetitive sphere to develop knowledge, planning and content is clear.”

“We are at a moment when the desire to create links and to cooperate to reach new goals is stronger than ever,” said Emanuele Dughera, coordinator, The Slow Food Coffee Coalition. “Only through open and collaborative dialog can we change the system and improve the coffee production chain, increasing awareness of those who produce it, distribute it, and those who consume it.”



Giuseppe Lavazza, vice president, Lavazza Group: “The need to construct alliances in the pre-competitive sphere to develop knowledge, planning, and content is clear.”

The Slow Food Coffee Coalition invites participants in the supply and distribution chain to sign up to its manifesto.

FNC Warns of More Aggressive New Leaf Rust Variants

Cenicafé, the research arm of Colombia’s National Federation of Coffee Growers (FNC) identified six new races of coffee leaf rust not previously characterized in the country, as well as nine variants of the fungus with greater genetic complexity and with different degrees of virulence and aggressiveness. The news prompted Roberto Vélez Vallejo, general manager, FNC to renew calls for farmers to replant with leaf rust-resistant varieties such as Castillo, Cenicafé 1, Castillo zonales, and Tabi. An epidemic of coffee leaf rust spread through Central America starting in



photo credit: Luis Salazar Crop Trust

Leaf rust new variants in Colombia becoming a concern.

2012 causing yields to decline significantly. It caused serious yield losses in 2012/2013 and financial losses that ran into several hundred million dollars across the region. Leaf rust fungus, *Hemileia vastatrix*, attacks the leaves of coffee trees and can cause defoliation. Colombia was particularly hard hit and saw production fall steeply, but a massive replanting program enabled former levels of productivity to be regained. However, coffee leaf rust remains a primary cause of problems in coffee producing countries, with losses of 30-80% in susceptible varieties if timely management is not carried out.

Cenicafé said some of the varieties of leaf rust it discovered show characteristics different from those in other producing countries, which suggests that the fungus evolved in unique ways in Colombia.

“The main recommended management strategy – which is the most economical, sustainable, and efficient – is the use of resistant varieties developed by Cenicafé,” said Hernando Duque Orrego, technical manager, FNC. “The only alternative is chemical control, applying fungicides.” Cenicafé director Alvaro Gaitán said conditions in Colombia are favorable to rust epidemics, throughout the year, in all coffee regions, and at all altitudes, because of the country’s location and geography, the diversity of production systems employed, and very varied patterns of flowering and harvest.

As of today, approximately 84% of the coffee area in Colombia is planted with resistant varieties, a much higher level than in other countries, but resistance does not mean that coffee trees are immune. The remaining 16% of the coffee area in the country is planted with susceptible varieties such as Caturra, Typica, Bourbon, some Catimores, and varieties of unknown origin. Periodic measurement by Cenicafe show that, whilst the average incidence of rust in susceptible varieties is 20% or more, in resistant varieties it is 6% or less. It said the most recent findings regarding new races and variants confirm that coffee leaf rust continues to show significant capacity to evolve and adapt, and potentially, overcome the mechanisms resistant coffee trees use to protect themselves.

'Forgotten Coffee' Handles Climate Change Tastes Good Too

A forgotten species of coffee that grows at high temperatures, that has superior flavor, could help futureproof the coffee industry against climate change, scientists claim.

The scientists believe *Coffea stenophylla* – a rare and threatened species from West Africa – could be important as arabica coffee is threatened by changes in world weather patterns. It has the unique combination of tolerance to high temperatures and a superior flavor.

Dr. Aaron Davis, head of coffee research at Kew said, "This is a once-in-a-lifetime scientific discovery – stenophylla - could ensure the future of high-quality coffee. Future-proofing the coffee supply chain to deal with climate change is vital." Results from an independent, professional tasting with panelists from Nespresso & Jacobs Douwe Egbert suggest the flavor of stenophylla is like high-end arabica.

In a paper published in *Nature Plants*, scientists at Kew, along with others at University of Greenwich, CIRAD and others working in Sierra Leone, revealed the results of an in-depth study of the species. They claim its unique qualities mean it could soon be grown commercially, but in much warmer places than arabica. It also has the potential to be used as a breeding resource, to produce new, climate-resilient coffee crops for global consumption.

Credit RBG Kew



Future-proofing against climate change: *Coffea stenophylla*, the forgotten coffee.

Dr Davis said, "Future-proofing the coffee supply chain to deal with climate change is vital. To find a species that flourishes at higher temperatures and has an excellent flavor is a once in a lifetime scientific discovery."

Dr Davis and Professor Jeremy Hagger from Greenwich University travelled to Sierra Leone to work with development specialist Daniel Sarmu to try and locate the species in the wild. With support of NGO Welthungerhilfe and the Sierra Leone Forestry Department, they found a single plant in one area, then located a healthy population.

Endemic to Guinea, Sierra Leone and Ivory Coast, stenophylla grows wild in hot-tropical areas at low elevation, only 400 m above sea level. They found that stenophylla grows and crops under similar climatic conditions to Robusta, but with a higher mean annual temperature requirement of 24.9°C (1.9°C higher than that of Robusta) and a substantial 6.2-6.8 °C higher than Arabica. Stenophylla coffee is also reported to be drought tolerant, although this attribute requires further research.

There had been no recorded sensory information for stenophylla for 100 years, due to its scarcity in cultivation. Obtaining a small sample from partners in Sierra Leone, it was assessed by an expert tasting panel at Union Hand-Roasted Coffee in London in the summer of 2020. The panel awarded the coffee a specialty score of 80.25, based on the protocol of the Specialty Coffee Association, and identified arabica-like

qualities. To reach "specialty" status, a coffee needs a score of 80 points or higher.

After this initial tasting in London, an additional and much more substantial sample of stenophylla, this time from Ivory Coast was obtained from the Coffea Biological Resources Center on Reunion Island in the Indian Ocean. The sample was evaluated at CIRAD's sensorial analysis laboratory in Montpellier by a panel of judges, and then soon afterwards by coffee experts from companies including JDE, Nespresso, and Belco. The 15-strong panel blind tested two arabica samples (one high quality and one low grade), one high-quality robusta sample, and the Ivory Coast stenophylla.

The evaluation revealed that stenophylla has a complex flavor profile, with judges noting its natural sweetness, medium-high acidity, fruitiness, and good body. When asked if the stenophylla sample was an arabica, 81% of the judges said yes (compared to 98% and 44% for the two arabica samples, and 7% for the robusta sample).

Delphine Mieulet, scientist at CIRAD, who led the tasting, said, "The sensory analysis of stenophylla reveals a complex and unusual flavor profile that the judges unanimously found worthy of interest. As a breeder, this new species makes me hopeful about the future for quality coffee, despite climate change."

David Behrends, managing partner and head of trading at Sucafina said, "These findings open the way for farming high-quality coffee in warmer climates, and could be part of the solution for ensuring a climate resilient coffee sector."

NCA: Reasons for Optimism

US National Coffee Association (NCA) president and chief executive Bill Murray says the latest data gathered by the industry body "offers many reasons for optimism for all segments of the coffee sector," including the away-from-home segment, which has been particularly hard hit by the Covid-19 pandemic. NCA's latest National Coffee Drinking Trends (NCDT) report showed a pandemic-induced dip in away-from-home coffee preparation, but the association now confidently expects things to improve.

(photo: Probat)



NCA boss Bill Murray, president and chief executive officer, NCA, said out-of-home consumption will return to growth

“In January of this year, 58% of Americans reported drinking coffee ‘yesterday,’ down from 62% a year ago, which is a modest change,” said Murray. “The away-from-home segment was impacted by the pandemic, but that was temporary... and is already reversing. We know this because of what the data tells us about the recent past – and consumer attitudes – towards coffee.

“Firstly, rolling, random lockdowns are coming to an end,” said Murray. “Second, the slight decrease in overall coffee consumption is linked to the economic impact of the pandemic. [24%] of Americans told us in January of 2021 that their financial situation was ‘much or somewhat worse’ than a year ago, up from 13% who told us the same thing in January 2020. Now, stimulus checks are in the mail, and shortages of workers are growing. Recent reports confirmed a surge in retail sales in March and falling unemployment. The economy is poised for a comeback and the worry now is actually over an overheated economy, and the inflation that could ensue.”

Murray’s third reason to be optimistic is that although drinking during in the afternoon fell during the pandemic, afternoon coffee is closely associated with socializing, work, or being out and about, and will grow again as America reopens.

“Fourth, away-from-home coffee didn’t disappear,” Murray noted. “In fact, over two-thirds of respondents told

us they were already back in their coffee shops or anticipating a return in the near future. First responders, truckers, delivery service workers, tradespeople, grocery store employees, public sector employees – those in the ‘essential’ parts of the economy have been there all along, and about 11% of coffee drinkers drank their coffee during their commute – right through the pandemic.”

Another reason to feel optimistic is that away-from-home coffee pivoted quickly to adapt to the new reality, and coffee drinkers responded. What’s more, coffee drinkers miss their away-from-home coffee and the social aspect of

going out to coffee shops, cafes, and restaurants, and will return to it. And last, but by no means least, steps that away-from-home venues take to encourage customers’ return are straightforward. Having workers wear masks and gloves – and having customers wear masks – encourages people to visit more often. Practicing visible sanitation protocols, and limiting capacity also work.

The bottom line is that vaccines are rolling out and the economy is improving,” Murray concluded. “America has not lost its love and need for coffee, or its relationship with it.”



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Demand for Nespresso-compatible capsules and compostable capsules continues to grow rapidly.

By David Foxwell

Capsule Companies Crank It Up: More Production and Product Diversity

Responding to continued demand growth, manufacturers plan to boost production of all types of capsules and continue to develop new, more environmentally friendly products.



Flavio Di Marcotullio, global industry manager, NatureWorks: "there is tremendous interest in compostable capsules".

"We have seen tremendous interest in compostable capsules."

— NatureWorks' Di Marcotullio

The fast pace of growth in the market for capsule coffee shows little sign of slowing down, with demand continuing to grow, continued emphasis on new product development, multifaceted segmentation, and diversification into new materials.

And as delegates at AMI's Single Serve Virtual Summit in March 2021 heard, there is ever-greater emphasis on research and development for the capsule market, particularly new materials and more environmentally friendly capsules, some of which – it is claimed – are fully compostable at home. There is also an ever-growing number of products that are 'compatible' with leading brands names.

According to analysis by AMI, compatibles' share of the market – which grew quickly since 2012 when some of Nestlé's Nespresso patents began to expire – will continue to grow significantly. Martyna Fong, AMI head of consulting told the virtual conference that in 2020, 71 billion capsules were filled with Europe accounting for 70% of supply and figures she showed attendees indicate that the direction of travel of the capsule market is toward continued growth.

From around 20 billion capsules filled globally in 2012, AMI projections show continued growth to around 80 billion by 2025, and far from tamping down on this fast pace of growth, the Covid-19 pandemic actually led to a spike in demand as a result of increased home consumption during lockdowns.

Although new entrants continue to enter the capsules market, consolidation is also taking place, Fong explained. The leadership position in the market held by Nestlé and JAB firmed up, and there is a 'system rationalization' going on that has seen nearly all growth in the market coming from capsules intended for three market-leading systems: Nespresso, K-cup, and Dolce Gusto.

One of the most notable changes taking place is that manufacturers of Nespresso compatibles have moved quickly into aluminum capsules, ironically at the same time that manufacturers focus ever-greater attention on compostable capsules and on the 'holy grail' of capsules that are truly compostable, at home, not just in specialized industrial composting facilities.

Of the top capsule systems by volume in 2020, Fong told delegates – which include Nespresso at number one followed by Keurig K-cup, Nescafe Dolce Gusto, Tassi-

mo, Nespresso Professional, Cafitaly/Cafissimo, A Modo Mio, Espresso Point, Delizio/Cremesso, and Lavazza Blue – only JDE’s (JAB’s) Tassimo is not served by a compatible capsule. And of the total market by volume in 2020, 34% is compatibles and 66% original.

In 2020, Alupak with its aluminum-type Nespresso capsules remained in top place as the leading supplier of capsules, followed by Berry Global (Dolce Gusto, Tassimo, and other proprietary and compatible capsules using plastics and bio-resins); Grupo Phoenix (K-cup, conventional plastics); Aluflexpack (Nespresso compatible (JDE), aluminum); Bisio Progetti (Nespresso and Dolce Gusto compatible, conventional plastics/bio-resins); Printpack (K-cup compatible, conventional plastics); Datwyler (Nespresso compatible, aluminum); Greiner Packaging (Dolce Gusto, conventional plastics); and Säntis Packaging (proprietary and compatible, conventional plastics and bio-resins).

As if to confirm AMI’s analysis of the market and the fast pace of growth it anticipates will continue, Bas de Vet, founder and chief capsule officer of Cappac told the virtual summit that the company, already capable of producing 300 million capsules per year, has embarked on an expansion plant that will see it ramp up production to 1 billion capsules per annum by this September. Producing Nespresso-compatible capsules for the private label segment of the market, the company’s new facility in the Netherlands makes use of IMA Coffee filling and packaging machines and a high level of automation and robotization. A spokesperson for the company said, “demand is growing enormously, and we are well prepared for increased demand.”

Although only accounting for around 5% of the market by weight of material used, with 79% still conventional plastics and

16% aluminum, the market for bioplastics and compostable materials is growing rapidly and new environmentally friendly capsules were launched at the event.

Others that are now well known such as NatureWorks’ Ingeo polylactic acid (PLA), used by food packaging producer Flo in its ‘Gea’ industrially compostable coffee capsules and Terracaps’ ‘CO2 neutral’ industrially compostable capsules, were described in presentations.

Shortly after the event, NatureWorks and IMA Coffee announced that they had entered into a strategic partnership to address the market for compostable K-Cups coffee capsules in North America. The agreement brings together NatureWorks’ expertise with compostable materials, formulations, and processing technology with IMA’s competence and application-specific know-how in coffee handling, processing, and packaging.

“Compostable capsules create the opportunity to not only address consumer concerns and divert packaging away from landfills, but perhaps more importantly, to recover used coffee grounds, enabling their processing at a compost facility where they deliver valuable nutrients to the final compost,” the partners said.

“We have seen tremendous interest in compostable capsules,” said Flavio Di Marcotullio, global industry manager NatureWorks. “Brand owners and roasters are responding to consumer demands for more sustainable packaging and to circular economy directives that specify compostable packaging as a key enabler of recovering food waste for compost. To continue supporting this growth, we saw an opportunity to partner with IMA.”

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“In 2019 IMA launched ‘IMA NoP,’ our ‘no plastics program,’” said Nicola Panzani, chief executive officer, IMA Coffee Petroncini. “NoP means we promote eco-friendly plastic substitutes for the packages manufactured on IMA machines. IMA has also established an ‘Open Lab’ where material technologists develop and test compostable and recyclable materials.”

Widespread adoption of truly home-compostable capsules would be a game-changer for a segment of the industry that has had a bad press from environmentalists for years and manufacturers have been working hard to develop capsules that can be composted by consumers.

As briefly highlighted by *STiR* earlier this year, Luxembourg-based Capsul’in Pro claims that its Zero Impact Nespresso-compatible capsule is the first of its kind to be 100% biobased and certified home compostable. Laurent Lombart, managing director, Capsul’in Pro told the virtual summit that the completely plant-based product – which uses only biodegradable and bio-sourced polymer and cellulose – does not contain materials derived from fossil fuels and that after use, it can be put in a home compost bin or collected with organic waste. It is, he told delegates, entirely compostable, at home, in 26 weeks.

Also bringing a new home-compostable product to the AMI virtual summit was Coda Group, whose head of sales and marketing Simon Girdlestone told delegates about what the company claims, “is the world’s first truly sustainable coffee capsule.”

The material used in Coda Group’s capsule, Solinatra, is another type of biomaterial, in this case made from agricultural by-products, and is designed to be biodegradable in garden soil. The company currently has eight patents in place covering a method

of making the material from waste products and says it can be injection molded using existing tooling. The material is currently being tested at Sacmi in Italy and at Husky in Luxembourg in readiness to scale-up production to around three billion capsules per annum. The company has also embarked on the development of what Girdlestone described as a “truly sustainable K-cup capsule,” and is also developing its own lidding material for coffee capsules.

Girdlestone told the virtual summit that Solinatra behaves and feels like conventional plastic and can be injection molded. He said it actually exceeds current certification requirements for compostability and will degrade in a garden. The speed at which it totally biodegrades depends on temperature and bacterial activity. The company is also working on a full life cycle analysis of the material to determine its carbon footprint compared with other materials and will publish it in due course. To substantiate its claims about home compostability, the company tested Nespresso-compatible Solinatra capsules with a 70 micro wall section in normal garden soil. Girdlestone said the capsules degraded almost entirely in 42 days and the remains of the capsules are very fragile, and crumble into powder very easily.

Fast growth in the capsules segment is also driving innovation in packaging machines, as Sarong director of sales and market Stefano Nanni, and IMA’s Panzani, told the virtual summit. In Sarong’s recently launched Magneta filling machines, which are available in 400, 800, and 1,000 capsules-per-minute versions, Sarong replaced belt or chain conveyors of the type that are usually used to transport capsules through a machine with independently operating ‘magnetic shuttles’ powered by a linear motor.

Nanni explained that adopting this solution enables the company to overcome limits that arise from the use of belt conveyors to transport capsules – limits that determine process cycle time because they act as a ‘bottleneck’ on production. They can also limit machines to a single product or capsule.

“With our new concept we have broken this paradigm, allowing for quick and simple format change-over,” Nanni explained. He noted that Magneta also has a smaller footprint than many other machines and is easier to maintain, because of the lack of mechanical transmission elements and components, which reduces the cost of ownership.

IMA Coffee, who’s new coffee pilot plant is due to come online later this year, developed the Unika, which is capable of processing up to 600 capsules/minute. With a modular design, the Unika range of machines can be arranged in a number of configurations and configured on a case-by-case basis by IMA’s technicians. Each machine group is driven independently by brushless motors. With a focus on dosing accuracy, Unika machines are adaptable for use with coffees of different densities, thanks to a sensor integrated into the doser. ☕

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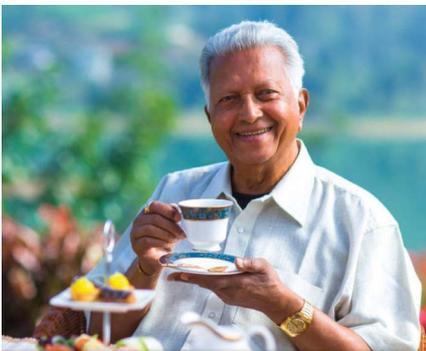
Tea Bag Packaging Machines



By Dan Bolton



Sir Thomas Lipton of the original Thomas J. Lipton Tea Packaging Co., founded in New York City.



Merrill J. Fernando of Dilmah Teas, founded in Sri Lanka.

Tea Branding: Authenticity, Transparency, Trust

Three characteristics shared by successful 21st-century tea brands

Sir Thomas Lipton was an exceptional promoter whose brand transformed tea marketing. In his day, tea was an expensive luxury purchased in 92-pound (42-kilo) chests for \$50 (in 1860, about \$1,600 in today’s dollars). The Thomas J. Lipton Tea Packaging Co., founded in New York City in 1889, produced small packets affordable for every class.

Lipton initially acquired plantations to eliminate intermediaries, selling direct to the masses, but his success globally outstripped production at company-owned farms. Blending to improve the quality across gardens soon evolved into blending to ensure consistency, utilizing massive quantities of tea from many origins. Lipton today blends 20 or more teas from many tea lands with multiple formulations for specific regions. The brand wears a coat of many colors.

Tea grower Merrill J. Fernando, 91, entered the tea trade in 1950 in the shadow of Lipton Yellow Label. The brand’s expansive plantations dotted his native Sri Lanka, then known as Ceylon. Lipton, initially a chain of grocery stores based in Glasgow, Scotland, began purchasing Ceylon tea in the 1870s.

In contrast, Dilmah Teas, the world’s third-largest tea brand by value are Ceylon single origin. Dilmah Founder Merrill J. Fernando, 91 is the first and most successful tea grower to offer tea to the world that is “picked, perfected, packed at source,” writes the company. Seventy-one years after he first began tasting tea professionally, Fernando’s Dilmah Tea is ascendant, and 19th-century brands, including Lipton, are in decline.

What are the characteristics of a successful 21st-century brand?

Authenticity

William Arruda, writing in *Forbes*, explains that “successful brands are based on authenticity, drawn from real achievements, real strengths, and real emotions that are alive and well at all levels in the organization.” Authenticity withstands scrutiny. Brands built on a foundation of anonymous suppliers are at a disadvantage. Inviting consumers to take a closer look makes it possible for growers and blenders to establish their own identity. Brands that are soundly built will burnish the reputation of the tea lands where they originate.

“The conversion of many traditional orthodox tea factories to the more industrial CTC [cut, tea, curl] manufacture, in an uncritical emulation of the Kenyan model, would have become a reality decades ago if not for Fernando’s reasoned but unrelenting opposition,” according to Dilmah spokesman Spencer Manuelpillai. “Had that proposal been implemented, the diversity of Ceylon tea, its uniqueness, would have been obliterated by the depressing sameness of a mass-market production without individuality,” he writes.

Jing Tea founder Edward Eisler agrees. Tea companies that blend teas from multiple origins result in a tea “that doesn’t reflect the true character of anywhere,” and he told *Hotelier Magazine* that the character and flavor of a tea should reflect the origin of where the tea is grown and the production methods local to that origin.

Professor Philip Kotler at the Kellogg School of Management, a pioneer of modern marketing, observed that “the success of Dilmah... cannot be separated from the authenticity that the brand stands for”. In describing the brand’s success, he cited six characteristics: “pure Ceylon tea, unblended tea, freshness, single origin tea, passionate tea maker, ethical business practice, traditional methods, finest quality, natural goodness, and a pioneer in the tea industry. These in-built authenticities have eventually become the company’s brand DNA,” he said.

Transparency

Large, powerful, and intractably indivisible tea brands rested their reputation on a foundation of nameless growers, wholesalers, and blenders for two centuries. Fearful of competitors and the pricing power that it affords suppliers, tea brands went to great lengths to conceal their relationships.

Concealment today is untenable. Transparency is established consumer behavior, accelerated by the pandemic but trending long before 2020. In 2018, every major tea brand in the UK was pressed by the Traidcraft Exchange to reveal the growers and contract blenders by region and farm. Yorkshire Tea was the first major brand to publish its complete list of suppliers. Twinning’s followed, then Tetley, then Clipper.

In September 2019, Unilever, a company that buys 10% of the world’s tea supply, indirectly employing 1 million in 21 countries and generating \$3 billion in

sales, revealed its suppliers in a consumer-friendly online page and downloadable PDF. Andrew McNeill, business development director at Seven Cups Fine Chinese Tea in Tucson, Ariz., says a company’s tangible commitment to transparency is an affirmation of a company’s responsibility to its suppliers and customers... “it is also in a tea business’ financial best interest. Supply-chain details are an essential part of the product’s value, an extension of the product’s value,” writes McNeill.

He adds that consumers (particularly of gourmet, health, and luxury goods) “readily view the supply chain as an extension of the product they buy. This is forcing merchants to re-evaluate the information that has traditionally been regarded as trade secrets. Now, those secrets about your supply chain may actually be more valuable to your business as openly available information.”

Many merchants feel threatened by this pressure to embrace transparency, particularly merchants who do not have the time or resources to invest in their direct-sourcing operations, says McNeill. “To the contrary, I’d argue that these vendors should not underestimate the value their business offers as a trusted curator. To sophisticated consumers, your choice to disclose your partners in your supply chain builds trust and goodwill that is attached to your business, first and foremost. A cafe owner who diligently maintains product quality by working closely with her suppliers ought to make this known — doing so is a concrete demonstration of the value she adds with her careful attention to supply chain. Consumers are now poised recognize her for it.”

Trust

Loomly, a social media marketing platform, describes “brand trust as the most important quality that you need to develop as part of your brand strategy. Consumers need to trust that your brand will deliver on its promise in every interaction, or they’ll search for another brand that does meet their expectations.” Brand loyalty declined during the pandemic, according to McKinsey Research. McKinsey reports that globally 60% of consumers have changed their shopping behavior and that 75% of Americans changed brands during the pandemic. Brian Gregg, a senior partner at McKinsey and co-leader for North America marketing and sales practice writes that researchers globally observed a significant change in consumer behavior. He identified five trends: a shift to value and essentials; flight to digital an omnichannel; shock to loyalty; a focus on health and ‘caring’ economy; and homebody economy.

This amount of change in brand loyalty is unlike any period, Gregg told ZDNet. “During these trying times, consumers have a heightened awareness of how businesses interact with stakeholders, local communities, and society more broadly. The actions that businesses take during this pandemic are likely to be remembered long after Covid-19 has been conquered,” according to McKinsey research. Arruda concludes that “branding is the key to differentiating yourself from the competition, but if you don’t build your brand promise around reality or consistently live up to it, your branding efforts are pointless. Brands are built through the consistent delivery of the brand promise through all stakeholder touch points. It is the consistent, desired experience that builds trust and trust is the foundation for loyalty and promotion.” ☕

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Mexico's Tiny Coffee States Emerge

By Maja Wallengren

Malinal coffee grower Lucio Miranda inspects his crop.

By Maja Wallengren

One of the world's 10 largest coffee producing countries, North American coffee producer Mexico has been growing coffee for close to 280 years. But multiple issues, from persisting low global prices to the onset of the massive attack of the rust pest, have caused a lingering crisis that has proven difficult for the country's growers to overcome. In the midst of crisis, it is Mexico's many tiny and mostly unknown coffee-growing states that have started to emerge as exciting and exotic new sources of quality beans for coffee lovers across the specialty markets.

By Maja Wallengren



The first main flowering this year in Mexico's Chiapas covers the state like a carpet of snow.

From the rugged mountain highlands of the east-central state of Hidalgo, named after one of Mexico's most beloved Independence heroes, to the dense pine forests of the bioreerves of the Huichol Indians in the Pacific coast state of Nayarit, some of the tiniest Mexican coffee producing states are earning new acclaim for growing quality beans.

The secret, industry officials agree, is thanks to a number of facts, including the presence of many highly diverse microclimates, the careful attention to cultivation practices in these states exclusively managed by tiny smallholder family-owned farms not dependent on hiring manual labor, and the existence of old heirloom varieties.

This is all good news to the coffee industry as a whole, because as Mexico's top four growing states of Chiapas, Veracruz, Puebla, and Oaxaca struggle to recover from erratic climate and years of below-cost prices, the smaller states help keep the name of Mexican coffee alive with roasters and importers abroad, said Arturo Hernandez Fujigaki of Etrusca Coffee Company, speaking to *STIR* in an exclusive interview.

"We still have a lot of small areas with coffee production in Mexico, which because they have been isolated from the main growing regions for so long, have a lot of farms where we can still find truly unique quality microlots because the farmers have a very high share of the old varieties like typica and bourbon," said Hernandez. "These varieties are very popular with roasters not only because they are famous for their cup quality, but also because these varieties are disappearing very fast from many parts of the world, more so now with the rust," he said.

For most of the last 20 years up until the latest outbreak of rust – which started in Central America in mid-2012 – the typica, bourbon, and caturra varieties were among the most desired beans for roasters and formed a big part of increasing the knowledge

and popularity for flavor profiles among new generations of coffee lovers at the heart of the growing specialty culture across the world. Many growers, especially at bigger farms across Mexico, had already prior to started to replace typica and bourbon plants with more productive and disease resistant varieties, as the negative impact of climate change started to grow. By the time the rust outbreak started to spread to Mexico ahead of the 2013-14 harvest cycle, the fate of the beloved caturra cup was also increasingly threatened because of the variety's weakness to rust.

"It is interesting to observe that in all these smaller coffee-growing states, the farmers have been able to manage the rust much better, in part because the producing areas are smaller so the rust fungus doesn't spread as quickly, but also because the farmers are all family-run, so you don't have a big introduction of manual labor coming from outside the region like it does on all the bigger farms in states like Chiapas," said Tomas Edelmann, owner of the six-generation Finca Hamburgo in the Soconusco region of Chiapas, which is home to about 40% of the state's annual output in an average production cycle.

The states of Chiapas, Veracruz, Puebla, and Oaxaca account for 90-95% of Mexico's entire national crop and have long been known to buyers and roasters alike for producing top-quality beans from a variety of sources from big single estates and cooperatives to tiny independent growers. The balance of Mexico's annual harvest, forecast by the US Department of Agriculture (USDA) to reach 3.3 million 60-kilogram bags in the current 2020-21 cycle, is made up from hundreds of tiny lots picked across 11 other coffee growing states, where the focus on quality over quantity has been growing ever since international prices fell to historic lows in the 2000-2004 coffee crisis.

These tiny estates make up Guerrero, Hidalgo, San Luis Potosi, Tabasco, Colima, Campeche, Michoacan, Jalisco, Queretaro, Nayarit, and the State of Mexico, which surrounds most of the capital of Mexico City.

In Nayarit, coffee growing started over 150 years after a group of French families who arrived in the 1860s started planting the first farms in the Malinal region, located two hours by car, straight up to the mountains from the state capital of Tepic.

"We still have a lot of the old typicas here, so we get big beans, which the buyers really like," said Lucio Miranda of the Ejido Malinal Cooperative in Nayarit. "When we first started to work on improving quality, it was very difficult to get the local growers to understand why it was important to only pick the ripe and fully mature cherries because it meant a lot of extra work, but after a few years, we started to realize that even with all the extra work, it was better for us producing coffee this way because we ended up receiving a higher price," Miranda told *STiR* during a visit to the Nayarit coffee lands.

A little further to the south of Nayarit in Mexico's western Sierra Madre mountain range, a tiny coffee growing community of about 800 farmers in the state of Colima has long been feeding on the fertile soils from the Volcan de Fuego, which remains an active volcano and regularly erupts with nearby coffee farms seeing their soils sprayed with the rich ashes fertilizing the fields. Today, the Colima growers in the Integradora Cooperative have been able to establish direct links with buyers in the US, who only have high praise for their new suppliers.

"We are proud to be the first and only international buyer of coffee from Colima [as the] coffee, the capacity, and the will

are all there to make this a premium destination for specialty coffee buyers," reads a blog post from Brooklyn-based Crop to Cup Coffee Importers, which started to work with coffee growers in Colima a few years ago and buys fully washed typicas and bourbons with complex cup profiles." The going has not been easy – but just wait, they [growers] are earning a name for themselves." reads a blog post from Brooklyn-based Crop to Cup Coffee Importers, which started to work with coffee growers in Colima a few years ago and buys fully washed typicas and bourbons with complex cup profiles.

Coffee was first introduced to Mexico's Veracruz state from the Caribbean island of Martinique in the early 1740s, and over the next 100 years gradually spread to Chiapas and then most of the other highland regions across central and southern Mexico.

Growers in the Atoyac region in the state of Guerrero, meanwhile, were among the first in Mexico to embark on the new opportunities offered by the specialty movement in the early 1990s, but the complications of high levels of insecurity and corruption running deep in the state eventually forced these growers to miss out on the first two decades of specialty developments.

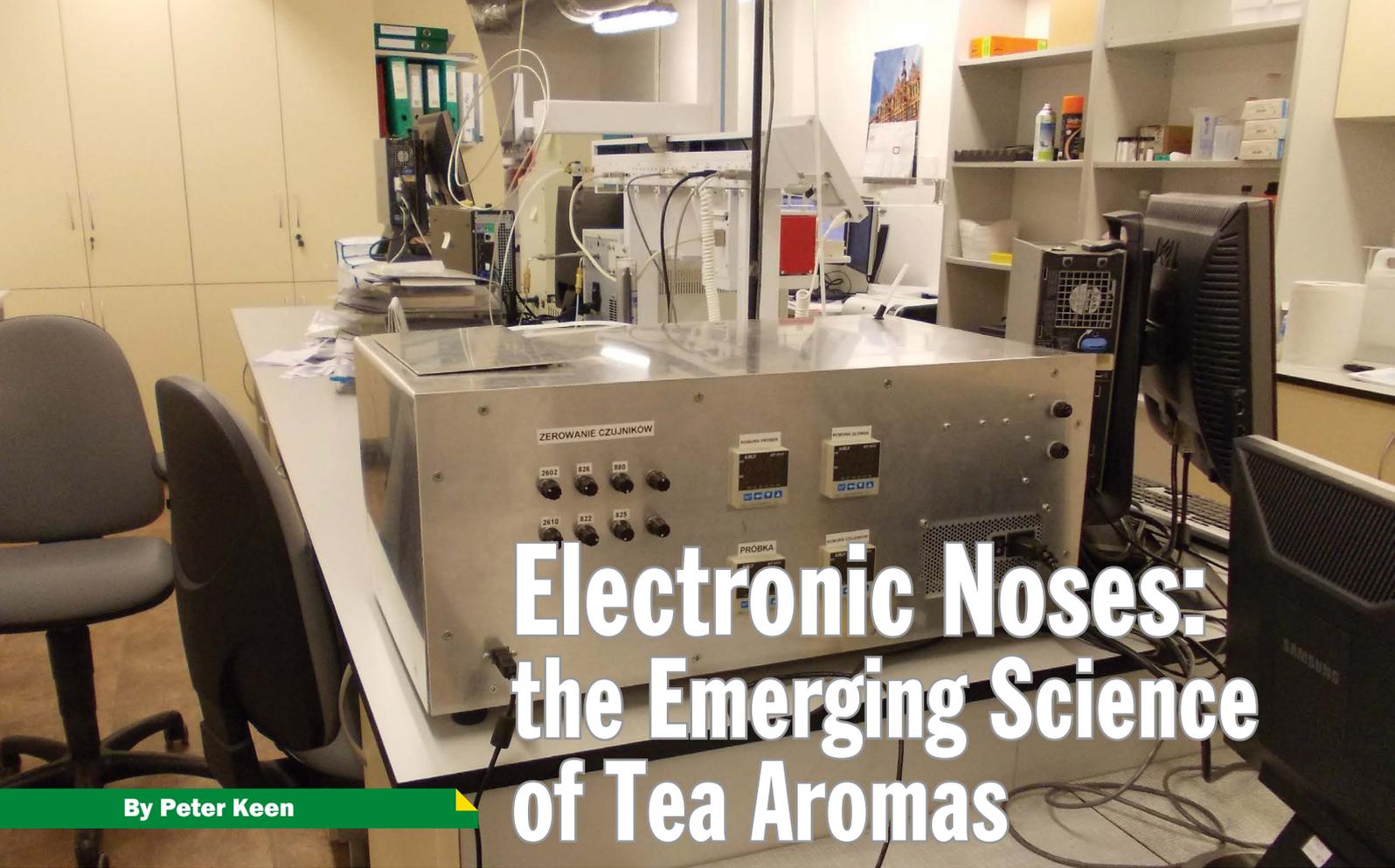
"We have had coffee in Guerrero since the turn of the century, and we have some very good growing areas here, including mountain areas with coffee grown at strictly high altitudes of 1200 meters and more than 80% of the coffee sun-dried on outside patios," said Esteban Castro, who was part of the team that worked to give rebirth to Guerrero's famous "Natural Atoyac" beans over the last 20 years. Even though the area in production in Guerrero, like in the rest of the country, has been reduced over the last 20 years, the quality reports serve as powerful proof of the efforts achieved since Mexico's second Cup of Excellence auction in 2013; beans from Guerrero have been a constant in the top 10 of Mexico's finest.

Watching the boom in specialty coffee from Mexico even inspired a new generation of growers to add a state to the Mexican coffee map, with a handful of independent entrepreneurs starting planting coffee in the State of Mexico between 2004 and 2005, making it the country's 15th coffee growing state.

"We had seen the development and demand for quality coffee in Mexico City growing since the late 1990s and decided that, being so close to the capital, it was an obvious opportunity especially for the more rural areas where poverty is still high and coffee production can help create jobs," Enrique Rodriguez, one of the pioneers in the Temascaltepec coffee region, told *STiR* in a recent interview. The results have been an overwhelming success, with local grower Federico Barrueta taking the #2 spot for Estado de Mexico in the 2018 Cup of Excellence auction with his washed bourbon-caturra lot, earning 90.47 points and fetching an impressive US\$28.30 per pound.

At Finca Hamburgo, the first main flowering for the next 2021-22 harvest started on March 27, and like a carpet of snow, the white flowers have covered trees across the estate.

"We are finishing this harvest at about 20% down from last year after having to spray five times against rust," said Edelmann of Finca Hamburgo. "Coffee production has become very expensive in Mexico, but even with all the problems of climate and low prices, there is still a future for coffee here, and we continue to find new clients who are willing to pay for quality coffee." The tiny growers in Mexico's smallest coffee states are proof of this, and the industry is sure to follow them closely. ☕



By Peter Keen

Electronic Noses: the Emerging Science of Tea Aromas

Enose prototype analytical dept chemical faculty GUT Gdansk.

Electronic noses are devices that, as the name implies, mimic human smelling and evaluation of aromas. For close to a decade, they have produced striking results in more and more areas of tea processing and quality management.

“Did you ever try to
measure a smell?”

Alexander Graham Bell:

All teas, regardless of their type, have a distinct and unique aroma. It's a major determinant of quality and a differentiator for both high end loose leaf and commodity machine-processed crops. For premium teas, there is a very strong correlation between aroma and price. Electronic noses offer an increasing degree of understanding of aromas and how to use this to authenticate teas and determine their precise grade and quality dimensions.

Tea bag and iced teas compete in a brutal, competitive export market, marked by overcapacity, margin erosion, and crop yield pressures. Here, a small advantage in quality can be decisive for the economic health of regions and even countries. Electronic noses provide insight and tools to improve the processing of categories of tea, especially the timing of oxidation in black tea, by far the largest market segment. In all these situations, aroma is one of the most critical elements of quality.

Aroma detection and analysis

Aroma is extraordinarily complex in so many ways. It is created by the interaction among molecular volatile compounds that evaporate. This generates responses in the human brain through electrical pulses that act at the cellular level. These are affected by ambiance, psychochemical evaluation, mood, and other contextual factors. The typical tea contains around 200 volatiles, which form molecular pathways connecting, creating and releasing classes of chemical compound – theaflavins, leafy alcohols, nitrous sulfides, etc. A few have 600 identified volatiles.

Electronic noses play a major role in applied research in identifying the full range of volatiles for a given target category of tea, and uncovering more and more through the analytic, statistical, and artificial intelligence tools built into them. They also provide higher levels of assessment than the skilled panels of human tasters who rate quality but must rely on subjective 1-10 rating scales and words like “oaky” or “floral.” Alexander

Graham Bell posed the core question of aroma assessment just over a century ago. “Did you ever try to measure a smell? Can you tell whether one smell is just twice as strong as another?... until you can measure their likenesses and differences you can have no science of odor. If you are ambitious to found a new science, measure a smell.”

Electronic noses are a cornerstone in that science. They share a common set of design principles with a wide range of technology, analytic, and application developments. The market is edging towards making the noses portable, standardizing components, and adding new chips that speed up or extend analysis. They can detect counterfeit teas and track the impacts of storage on aroma loss. Most promisingly, they are providing reliable and detailed recommendations for improving manufacturing processes.

Here are a few examples:

Identifying the optimum timing in oxidizing black tea in the factory, taking into account individual characteristics of batches and the process stages that include withering, rolling, and heating, that obviously change the structure and characteristic of the leaf. The aroma is a relative indicator of quality. Levels of key volatiles can vary by 50% within a few minutes. Controlling oxidation is essential for black and oolong teas. Greens are pan-fried or steamed to halt this process which is rather like letting the slices of an apple wither and brown. Rust is the result of oxidation of metals.

Differentiating aged raw and ripe puehr samples with around 98% accuracy. Given the variety, complexity, and counterfeiting of this most expensive of teas, this ability to discriminate is a powerful tool for assessing quality. The electronic nose does not affect the tea – no breaking it up, diluting it, or adding chemicals.



Precisely discriminating raw puehr by different storage years. The age of a puehr is a key selling point and the market is noted for short cuts, misrepresentation, counterfeits, and unreliable heritage. One study meticulously and accurately traced the differences of the same puehr for each of 10 years of age via an electronic nose.

Classifying the storage age of Longjing Dragonwell green tea, one the highest rated teas in the world. The range of grades is extensive with no formal metrics, methods, and verification. The rating gap between the scarce highest premium Dragonwell, little of which is exported or easy to access, and the good can translate to large price disparities. Storage is critical and loss of aroma signals poor initial quality, degradation, and poor handling in the supply chain pipeline.

Capturing the quality differences of Chinese green and black teas. The nose builds statistical profiles of the high, medium and low grades of the teas and provides baseline data for comparative analysis and pattern recognition. The results showed significant

The nose is packed with multiple chips and circuits, each focused on the complex task of converting an odor to a data set.

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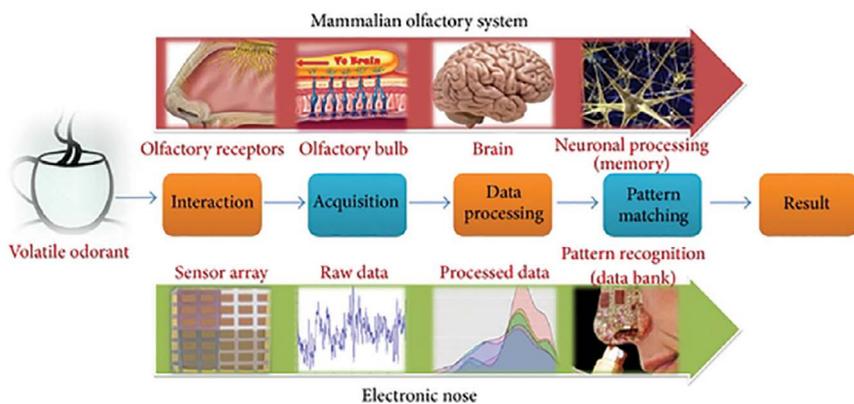
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Human versus computer “smelling”.

differences in aroma compounds that mark the grades and these correlate closely with prices. The electronic nose offers more certification than the label and more objectivity than tea taster evaluations.

Tracking the changes in compounds that are core to a tea’s flavors and postulated health benefits in high end teas, including Margaret’s Hope (India), Keemum (China), sencha, hojicha (Japan), and Uva, Dimbula (Sri Lanka).

Other examples are assessing the severity of damage to bushes through climate stress, season, or disease; analyzing the sensory impacts of brewing of green and black teas, particularly infusion time; broader “precision agriculture” monitoring of soil conditions, comparison among oolongs of pan-frying versus steaming and oven-heating that has detected previously unknown compounds that affect sweetness, smokiness, and fruit taste flavors; aroma formation in white teas; quality analysis of Indonesian flavored green teas – ginger, lemon, and local herbs; detecting nonvisible pesticide levels.

These are impressive and it’s easy to see their value. Commercialization has been slow and almost all the cases are in the lab, not the field or factory. A mass market for affordable, standardized, and portable tools is likely to emerge within the next two to five years, driven by one of more of the sectors that has a stronger financial base and technology-receptive demand: food safety, medical diagnosis, police work – e-noses can detect spoiled meat early and quickly and smell breast cancer and it isn’t just dogs sniffing for drugs and explosives at airports. These are helping reduce the size of the decidedly non-portable services that sit on desks in the lab and not in the hands of field workers.

The market for devices and software is fragmented, with many options. There is a clear increase in firms competing to build market niches. More and more research studies demonstrate the value of electronic noses. As so often in the deployment of new technology, buyers are taking the lead in turning technical and scientific invention into market and product innovation. One striking instance is the Port of Rotterdam, Europe’s largest. It has installed around 250 electronic noses that detect minute changes in the air immediately. The port provides key customers with noses and is gradually building an inter-port platform. It has the infrastructures needed to integrate and communicate the electronic nose data. Organizationally, it has the needed skill base, buying power, and leadership drive. It also has the money.

That’s beyond the financial capital resources of most tea firms. It seems likely that precision agriculture platform providers will lead in easing many of the operational problems: Microsoft Farmbeats, Sentara, CropX, Bayer, and IBM are a few instances.

The technology

Here’s a summary of the core technology of electronic noses. It has many variations in every element but the basic design principles and methods are relatively generic. The nose “sniffs” a sample of the complex of scents and passes them through a set of sensors. The most common enabler here is gas

chromatography. This breaks the sample into individual compounds via sensitivity to material coating, electrical responses, and, increasingly, specialized chips. Detection triggers electrical pulses. Some noses capture the changes down to the individual molecule, providing a unique signal for the nose’s software to interpret.

The sensors are moving towards a shared mainstream of metal oxide semiconductors (MOS), transistors for amplifying and transferring electrical signals. A review of research experiments showed over a dozen sensor types used by the “most known” noses, offered by close to 20 vendors. An individual nose may contain an array of 4-20 sensors. Their input is the “headspace” sample, with all its collection of compounds; the output is the equivalent of a digitized database of the separated elements.

The core of the nose is pattern recognition that organizes these sensor outputs to meet the many needs of the application. This includes profiles of teas, benchmarks, machine learning AI neural models, statistical classification, and expert tea tasters’ evaluations. A main tool is PCA (principal component analysis) that organizes and displays the information in the large dataset in a more meaningful and focused format. Each method has its limits, features, and data requirements and the nose may include a variety of software tools. AI is becoming a major area of development through neural models that are the core of machine learning.

The data aspect of electronic noses is where tea poses problems in moving from lab to field. There is so much variety of combinations of tea plant, terrain, altitude agroforestry, and seasonality plus the regional and local nature of tea categories such as puehrs versus whites. Tea is not standardized even in the basics. “White” tea, for instance, has no formal definition.

Electronic noses are a major and valuable line of applied research. Commercialization lags, as it does in AI application, blockchain, genetic DNA fingerprinting, drones, fertigation, IoT (internet of things) platforms, multispectral imaging, and other areas of technology-centered innovation. Much of this reflects the shrinking of sources of financial capital for long-term investment with delayed though substantial payoffs. Expertise is scarce – how many electronic nose specialists have a sound understanding of tea production and vice versa?

Technology in and of itself rarely provides systemic improvements – it has to be meshed into management methods, production processes, and supply chains to gain full leverage. Electronic noses are high on the payoff list and it’s worth tracking news and developments: once the industry bandwagons get moving, pick a few and jump on.

Back to Bell’s comment: “until you can measure their likenesses and differences you can have no science of odor.” We now have that science. ☕



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The Evolution of India's Coffee Industry

By Aravinda Anantharaman

Drying coffee on raised beds to ensure even air circulation.

Photo courtesy Classic Coffee



At the Harley estate, guests can sign up for a specialty coffee trail. Here, they are on an early morning walk around the estate walk to learn about the produce.

The Indian coffee industry has long been focused on commodity trade. Unlike Indian tea, coffee here has made a different journey from producer to buyer and end customer. The idea of branding coffee or marketing various coffees according to origins and sensory characteristics is still pretty new.

To understand why is to get the backstory, which is that up until 1994 coffee pooling was enforced. Between 1947, when India became independent, until the 1990s, all coffee grown was pooled and sold by the coffee board. Once it left the farm, the growers had no idea what became of it, how much it fetched, or where it went. The erstwhile Soviet Union was a big market for Indian coffee, as it was for Indian tea; the disbanding of the Soviet Union took away that market. It was also the era of a newly liberalized India. The free sale quota, as it was called, opened with 25% and, over the next three years, coffee producers were able to market 100% of their production. The market had finally opened.

New markets, new coffees

New markets brought new challenges. Jacob Mammen, managing director of Badra Estates in Chikmagalur, says, "We had to educate ourselves. One of the buyers asked me to describe my coffee, and I didn't know how to. I didn't have the vocabulary for it." Mammen talks about the long learning curve necessitated as coffee growers began to learn what to do with the beans post-harvest, how to find buyers, and how to approach meeting the needs of the market.

In Sakleshpur, about four hours from Bengaluru City, is the Harley estate, once owned by the British but purchased by Indian owners in 1950. Harley grows both arabica and robusta on 460 acres, with cardamom, vanilla, and areca as complementary crops. The Classic Group that owns Harley also the Kalledevarapura, which is situated in the iconic Bababudangiri hills, the birthplace of Indian coffee. Arabica is the main focus here.

Tapaswini Purnesh, who heads marketing and promotion, talks about how Classic chose to build its base in specialty coffee. What this also means is that the coffee is branded as Harley and Kalledevarapura estate coffee, whether in India or outside.

The brand created its own retail label for the domestic market. Tapaswini also talks about the changes that the open market brought to Indian coffee. She says Classic chose to go the route of specialty coffee and direct sales. “It works better. And even if we work with middlemen, it’s only with those connected with the buyers.”

In 2020, Indian newspapers carried a story on a new farmer producer organization called Biota Coorg, which had successfully made its first direct-export sale to Europe.

IB Bopanna, one of Biota’s founders, is a third-generation coffee grower himself. Two years ago, he returned to India after a long stint as senior global director for Coca-Cola’s coffee division in Atlanta, Georgia. Speaking to *STiR* about coffee marketing, Bopanna returns to history, musing about the time coffee had been relegated to the category of commodity. He calls the 1950s to the 1990s “the lost decades.” Returning to India, he found that although a lot of ground had been recovered and there were coffee growers selling direct and had turned to specialty coffee, it was only just getting started.

Bopanna points to some of the obvious advantages that Indian coffee has. “Since we India don’t have excess coffee to sell, it makes business sense to tap into the higher end of the segment,”



Coffee in Coorg.

he says, adding, “I am not saying we should cut out the middleman. The chain of custody plays an important role. We need the aggregators. However, when you go direct, when you skip many layers in the supply chain, you are able to capture more value, you get paid a fair return.”

Biota Coorg sent its first shipment to Germany, reportedly earning a premium of 15-20%. This farmer producer group is a collective of coffee growers who seek to make quality the incentive and treat coffee as a lifestyle product. “If everyone is selling to the bottom of the pyramid, quality is not the incentive,” Bopanna adds. Marketing to upmarket segments is a no-brainer

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but with the predominance of small farmers in coffee, the need to form a larger platform seemed not only logical but necessary. For Bopanna, so-called farmer producer's organization (FPO) is an experiment that if it works as intended, can offer a roadmap to others in the industry.

Branding Indian coffees

In Badra, Mammen talks about “relationship coffees” and how his buyers come and spend time on his estate. When Starbucks opened in India, in 2012, the *Seattle Times* sent writers to India, and to Badra, too, where they spent time in the “labor lines,” as the workers quarters are referred to. Mammen's Japanese buyers often partner on CSR projects like a creche. There are collaborations with Germans on scientific research. The opening of the market has primed them for partnerships that are strengthened year after year.

This is echoed by Sunalini Menon, formerly of the Coffee Board of India and now a coffee consultant. She was instrumental in helping several growers, including Mammen, in filling the knowledge gap that emerged. The lack of marketing is evident, despite the fact that Araku Valley has achieved some success with it. But Araku's success as a brand to reckon with first happened in France before India took notice. The Araku brand is rooted in the narrative of how the social enterprise has supported the tribal community, both their livelihood and their environment. *(See the following exclusive feature story on Araku coffee.)*

The rise of the roaster

However, it's not just the story but it's also the coffee that has changed with the times. “Can we please look beyond filter coffee?” asks Bopanna, referring to the popular coffee style consumed in south India.

As the specialty coffee segment grows among Indian coffee producers, conversations are moving past arabica and robusta. On Harley and Kalledevarapura there are full time coffee researchers who work on the field and factory.

“Specialty coffee is labor-intensive,” said Purnesh. “There are no shortcuts. We pick the berries at the very peak of ripeness.” Her company now offers 16 different types of specialty coffee, produced in volumes between 200 kgs and 1 tonne. They sound exotic, as slow dried by ice cube method, barrel-aged ... coffee has well and truly entered another realm. The good news is that these coffees are finding takers willing to pay the right price.

Bridging the new coffees and the consumer is the roaster, a breed that's rising and fulfilling a very important role in coffee consumption today. Every coffee producer agrees that specialty coffee is a very new and very small segment, no more than 5-6 years old in India and not occupying more than 5% of the market.

But the rise of the roasters has meant that the education needed for consumers to understand and try new coffees is made possible. The roasters have made coffee styles accessible. These are roasters who come with a love of coffee and an investment to see projects through. It has changed how coffee producers view domestic markets.

Where earlier domestic buyers could not match the export prices, today they can, revealing how modern urban India has the appetite and the income for lifestyle products.

Of the new cafes coming up in India, Mammen says, with some wonder, “They have expensive equipment, they want to visit and see how we run. They are willing to pay the asking price.” Their success is a good sign. Bopanna agrees that cafes have spawned a new ecosystem. For the consumer, it means more options, like being able to roast at home, to access single-origin coffees, experimenting with different brewing styles.

The more-than-25-year journey of marketing Indian coffee has gone from having a single buyer on the coffee board to having an export and a domestic market today, facilitated by digital media. Says Purnesh, “Domestic or exports? We are keeping both.” This season, Classic's specially processed arabica microlots were entirely bought up within India. She attributes this to the time invested in building the market and the arrival of the microroasters.

The farmer's story

Marketing Indian coffee is finally finding more avenues, even if the brand and narrative is struggling to find its voice. There is work to be done to tell the story of every coffee and where it comes from. Today's consumer wants to hear this story. Customers are asking for coffee by origin, by roast. They want to know where it's grown, how it's grown, the community and the environment. They speak the vocabulary, not of a lay person but of an interested and engaged follower whose loyalty is to be earned.

In Bangalore, Ramya Bopanna left her job to return to her roots in Coorg. Her venture, Belli the Farmer, with two other partners, began almost as a call to farming. Belli the Farmer is a “rural venture” one that Ramya chose in place of an FPO as she felt an FPO was too dependent on one person. But she is quick to add that her venture borrows best practices from the FPO model while building relationships with farmers. Using digital media as her marketing tool, her company has managed to reach an audience of 2,000 people, many of whom are her customers. She was clear that Belli the Farmer was a direct-to-consumer brand, offering higher prices to farmers.

Her decision to return to farming was to find a way to keep youth back in the village by giving them an economic opportunity. She speaks of job creation, or stopping the exodus to the city and of bringing back pride in farming. Sunalini points to the ways in which coffee farmers are connecting with the markets. Like the Biota Coorg FPO that brings them together, the cafes, many of which are started by farmers themselves, and the innovation in product itself. And the creation of a market within India, but also the Far East and the Middle East, all traditionally tea-drinking cultures with a growing interest in coffee.

Even as climate change and labor shortages add to the volatility of the coffee industry, there has never been a greater need to pivot, from commodity to specialty, from exports only to new markets wherever they may be, from being yet another source of coffee to becoming a brand that comes with a story like none other. ☕



Coffee plantation at Araku.

The Araku Coffee Brand

Owning their narrative and communicating it to the world has only just begun. India ranks in the top 10 in the global coffee production, not an insignificant player. But it's neither been marketed well nor differentiated beyond a commodity. "It's got a bad rap," as Bopanna says. He talks about the diversity in Indian coffee, from those grown in the Northeast, in the Western Ghats, and in the Eastern Ghats, the landscape under which coffee is grown. He narrates the Coorg story, of this hill district's association with coffee that goes back to the 19th century. Growing wild, he says, coffee was tended to by the local people, the Kodavas. In 1854, the first large estate was planted in Madikeri. The Codagu Planters Association (still standing) was created in 1863. Today, Coorg is the largest coffee-growing district in India with a production volume at a whopping 107,175 MT (Source: Coffee Board, 20-21 estimates). Coffee grows in a landscape that boasts 78% tree cover with 320 tree species and over 109 reported bird species. A lesser-known fact is that it's reportedly the largest shade-grown region (multi-species, endemic trees) across all coffee-growing regions globally. The community of Kodavas is integral to the story, with a tradition of sustainable agroforestry, where protecting nature is interwoven with community practices.

For Bopanna, these make up the story of Coorg's coffee, but yet an untold one.

In Bangalore, Sunalini Menon says that it's only been 10-12 years since Indian coffee producers have been marketing coffee directly and branding has played a part. "That's something we never understood, the concept of branding a green coffee. I still remember the first brand I launched was when I was in the Coffee Board, but it didn't really take off that much, but we branded the coffee because the coffee was brilliant. It was a robusta and I named it Buttercup Bold because the coffee was very buttery in the cup. The coffee was from a different cultivar and the farmer had grown in under the shade of sapota trees. And the fruits had an effect on my cup. The next field did not have sapota, fruit but the berries came from the same strain, same age, same soil conditions, but the coffee tasted different."

The story of the Buttercup Bold is one of many stories that exist in the world of Indian coffee. The GI tags are for the monsooned arabica and robusta and, more recently, for arabica from Coorg, Chikmagalur, Bababudangiri, and Araku Valley, and for the Wayanad robusta. However, the GI tags are not much help in the marketing of the coffee itself. Or as Mammen asks, "What is our coffee? How is it differentiated?"

The Araku Coffee Brand

A few years ago, the name Araku began to grow in familiarity in the context of coffee. Everything about the brand seemed new to the coffee story. The Araku valley is in the Eastern Ghats that line the eastern coast of the Indian peninsula. It's in the Vishnkapatnam district, Andhra Pradesh State and is home to several tribal communities. Coffee arrived here early, by the end of the 19th- to the early 20th-century. But it never quite took off despite various efforts.

Not until about 20 years ago, when the Naandi Foundation, a non-profit, came here to work with the community. As the work on improving health, livelihood, literacy came up, coffee offered a path ahead. It was already being grown by the tribals and offered an opportunity in production and marketing. By 2007, The Small & Marginal Tribal Farmers Mutually Aided Co-operative Society Limited was formed with the support of the Foundation. A year later, the Araku Originals was started as a social enterprise, to market these coffees, not as commodity but as single-origin specialty coffee. It found takers.

The story of a tribal community, growing 100% organic coffee using natural processes was heard and loved. Araku got specialists from the world to create a product that matched its unique story. It made its retail debut in Paris with its first store opening at the Rue de Bretagne in 2017 earning endorsements from celebrity chefs. The second store opened recently (March 2021) in Bengaluru, India. The story of Araku is about the coffee, but it's more about a tribal community whose lives have changed for the better, thanks to the coffee. This narrative has taken time to build but with a storyline in place from the beginning, and with concerted efforts in brand building, they have shown that branding Indian coffee benefits the farmers.



This basic mechanization in Kenya replaces up to 20 pluckers, mainly women.



High volume tea harvester: ideal for large farms, flat terrain, lower quality tea.



Tea plantations on the valley slopes north of Muyu, a town in the Shennongjia Forestry District of Hubei province, China.

Drought: The Tea Crop Killer

By Peter Keen



The results of four years of drought in water-rich Yunnan province China in 2021.



Assam farm drought 2013.



Blades cut whatever they come in contact with and pluckers then select the best leaf.

El Niños, El Niñas, droughts, more droughts and deluges: is the tea tree under siege around the world? Although droughts are bad for yields, they often improve the quality of some teas. Also, the amazing tea plant — surviving now for hundreds of millenium — is packed with genetic defenses against moisture-deficiency.

Drought is the single main constraint in any given year on the tea yields. It is a byproduct of many external forces, most especially seasonal rainfall. It's situational, with microclimates affecting frequency, severity, and impact. It affects young plants more than mature ones. In the very short-term, drought improves the quality of some teas, intensifying aromas and adding a fuller flavor, but with loss of production. It often results in a sudden and short price increase in international markets due to supply shortage. That can disguise the longer-term global which are widespread and have substantial economic and social impact.

In Tanzania, crop yield in 1992 fell by a third from 5,900 kilograms per hectare — a huge blow to jobs and farming communities — to 3,900. For young plants, the drop was almost 60%, from 4,720 kg/ha to 1,960. The figures are substantial in themselves but crippling for a nation like Tanzania, one of the world's 50 least developed countries, which has been targeting tea for its foreign exchange base and job growth.

Kenya, Sri Lanka, and India's Assam face the same disruptive menace. Kenya reports that the "oxidative stress" from drought reduced yield by 14-19% and increased plant fatality by 6-19%. After a poor year in 2020, with a large loss in production from Covid-19 restrictions and lockdowns, Assam predicted a bumper crop. Instead, policy makers see the outlook as bleak due to a severe drought that is the direct result of its opposite: rainfall in the form of a severe hailstorm.

In Sri Lanka, struggling for decades to improve productivity, with the highest harvesting costs of major exporting nations, 1992 saw a drop of 26% in output. This began a long-term slide that lost the nation its position as the world's leading exporter to Kenya. Seasonal droughts have been recurrent, with significant regional differences. In 2016, some of these saw a 60-70% drop in seasonal rainfall. Soil with poor nutrients needs more rainfall, with its water holding capacity key. Heavy rainfall reduces sunshine. The pattern continues. The Planter Association of Ceylon forecasts a 40% drop in production in 2021 from a four-month drought.

The relationship between rainfall and drought is direct, with rain the causal factor and drought the consequence. The major force at work globally is El Niño, basically a giant puddle that forms annually in the eastern Pacific Ocean and expands to create a global chain reaction of weather effects. The 2015 El Niño was a record and is blamed for the mass dying off of corals worldwide, for example. Commentators uniformly see it as getting worse. Asian farming depends on the El Niño patterns. Two-thirds of the land lacks irrigation and is completely dependent on rainfall. A 5% drop in monsoon

rains signals a coming drought period and 10% marks it officially. There is no shortage of water across tea growing nations but these disruptions change its distribution. No fix has been found to avert the resulting droughts.

Yunnan: where superb teas grow – or die

Yunnan provides an example of just how far-reaching a general long-term shift in rainfall patterns and consequent moisture loss can be. It produces many of the world's most noted teas, including puehrs, even though it is marked by 50 drought years in the past 60. Farmers adapt to the localized seasonal shifts in rainfall and water runoff created by its unique mountain plateaus and monsoons. But their livelihood can be badly damaged by a severe and sustained drought, such as that of 2019. This slowed the growth of new leaves, delaying the spring harvesting by two weeks, a critical disruption of both output and quality. One smallholder reported the impacts on his family operation: a reduction from 600 to 360 kilograms of leaf for one of the highest priced teas on the market, puehr, that sells for an average \$436 per kilo. Production costs are mainly fixed so that the reduction in volume disproportionately erodes margins.

That's the short-term effect. Many trees had to be uprooted. The "pitiful" ones that survive will need 3-5 years to recover fully. Many of the lost trees were 60 years old. The replacement expenses are an expensive capital drain along with the loss of productivity. In general, the drought means a loss of quality from damage to the spring harvest when the plant nutrients are at their richest and freshest. Prices increase: fine puehrs are scarce at any time and the final product rests on the processing of wild tree "maocha." Lose that and the most distinctive features of puehr are eroded.

In 2019, one of the six major mountain areas that produced puehr experienced its hottest temperatures and lowest rainfall in decades. Spring output halved. The slow growth of new leaves led to a critical two-week delay in harvesting.

A smallholder summarized the 2019 effects on his family operation. It "depends wholly on tea for survival." He grosses around US\$30,000 in a typical year. In this now typically atypical year, his production halved. This means the grower lost half his revenues but most of his costs remain: maintenance, planting, plucking, and fertilizer. His plants are now badly damaged and it may take three to five years to make a full recovery – if they survive. They are in "pitiful" condition. Many are 60 years old and have remained productive through the droughts of the 2000s. Now, they have had to be pulled up and burned. The result is a poorer tea at a higher price.

Yunnan has plenty of water but its special geography that produces special tea relies on a seasonal pattern of little rain in winter and early spring and intense daily downfall in summer and fall. It is directly affected by the strongest of the East Asian and Indian monsoons that fall in torrents. Seasonal climate and even daily weather are mainly driven by the interaction of warm and cold air. Yunnan's mountains may block the flows. The westerly high-altitude regions are warm and dry and their strong ultraviolet rays increase water evaporation. When there's not a balance between water supply, storage and distribution, evaporation means menace. Menghai county in Yunnan illustrates the effects of weather and water. In 2020, the average rainfall in 2020 between January and March was almost 80% less

than for the same period the year before, with severe resulting droughts. It received its first rain in mid-April, but within a week forecasters predicted even more "orange index" level drought peaking at the end of the month. Tea buds germinated 10-14 days later than in 2019. The plucking cycle was 30 days behind and one-third shorter.

The molecular armory of tea

The tea plant is packed with defenses against moisture-deficiency. It is best thought of as a massive store of genetic and molecular compounds that are put to work by an immensely complex and dynamic network whose pathways connect them as needed. Keep in mind that the tea plant has no interest in you. Its "genome" – the complete embodiment of its DNA and chromosome sequences and codes that define every aspect of it as a living organism – is Darwinian in nature.

This has preserved the tea plant's survival for an estimated 400,000 to maybe even 1,500,000 years. Drought is commonplace in that history. The main efforts to extend its adaptability focus on exploiting this genetic resource base. The main area of innovation has long been clonal teas, the equivalent of cross-breeding cultivars – varieties within a shared genetic heritage. There has been a flow of development of drought-resistant clones, but new ones take 10-25 years from parent candidate identification, nursery testing and propagation, field trials and planting, and productive yield. The emerging developments extend this to the genome itself and to molecular engineering. Management methods help improved short-term remediation, most notably fertigation, highly targeted and timed irrigation plus fertilizer feed.

At the start of drought conditions, the plant's chemistry is marshalled to adapt. It accumulates soluble sugars that improve its ability to retain water, for instance. But over time if the root system and nutrients cannot maintain a water absorption balance, the leaves begin to wilt then scorch and fall off. After the drought, damaged bushes must be pruned and retrimmed, and nutrients and fertilizer added to restore soil vitality.

The plant puts to work around a known 100 amino acids, 30,000 protein-coding genes, 300 MiRNA (micro RNA) sequences, to adjust leaf size and structure, tailor the root system, and allocate stimulant and inhibitory nutrients. There are probably 750 or so unexplored compounds. Much of the balancing affects flavor and taste. Drought response adjusts the soothing theanine and the many anti-oxidants that are believed to generate health benefits for humans. Caffeine levels are generally not affected. Their Darwinian role is to dissuade and overdose pests.

Clonal development has been promising. Now, molecular biology is in early research and piloting. CRISPR – "genetic scissors" – will permit tweaking, adding to, or blocking the structure and interactions of the genome. There's a risk that the narrowing down of genetic diversity will add new risks, a commonplace concern with GM crops –genetically modified. Agroforestry and biomanagement methods add some buffers to drought: reforestation to help plant and water collection, soil care, replanting, and organic fertilizers. Farmer education helps disseminate lessons and techniques. Whether they are enough to provide a bulwark against drought as the norm is questionable.

Drought kills plants and crops. The challenge is to mitigate it from killing entire plantations and tea regions, vulnerable economies, and even the economies of tea-dependent nations. ☕



By Daniel Engel

Soluble Strong, But Roasted Rises in Russia

Orimi's Jardin coffee.



Maria Drabova, group corporate communications director, Orimi Group.

The demand for coffee in Russia grows steadily, thanks to the recent lifting of the majority of Covid-19 restrictions and a developing economic recovery after the pandemic and its consequences. This is according to recent statements made by representatives of some leading local producers and analysts. While the pandemic led to the growth of the overall consumption of coffee in Russia, it also resulted in a change of preferences of local customers, and the growth of consumption of previously uncommon roasted coffee (both ground and whole bean).

According to Russian analytical resource *Check Index*, in the first quarter of 2021 overall sales of coffee in Russia grew by almost 20% in retail and 61% in vending. A significant part of these sales are now in roasted coffee, with the biggest demand coming from the largest, primarily Moscow and St. Petersburg.

Alexander Matevosyan, general director of Almafood, the Russian-Swiss company, one of the largest coffee distributors in Russia and the CIS countries, predicted in an interview with *Check Index* further growth in roasted coffee demand this year.

“The Russian market of roasted coffee has been growing steadily over the past several years,” said Matevosyan. “That led to a significant increase of the number of its local consumers. For many of them, roasted coffee has become a favorite hot drink.”

“In general, Russia gradually becomes a coffee-drinking nation despite its rich traditions of tea consumption, which is more typical for Asian countries,” he continued. “This is especially noticeable in St. Petersburg [as well as the entire north-western region of Russia], which is the ‘coffee capital’ of the country at present. In addition to St. Petersburg, the demand for roasted coffee along with its consumption is also growing in the southern regions despite traditionally high popularity of tea there.”

In the meantime, the current market trends are confirmed by some interviewed leading local coffee producers.

“The growth of coffee consumption is a stable trend for the Russian market of natural hot drinks at present,” said Maria Drabova, group corporate communications director, Orimi Group of Companies, in an exclusive interview. “From our side, we observe a more intensive growth of the demand towards roasted coffee although instant coffee currently still dominates in the overall sales structure

of finished packaged coffee products in the Russian retail, with the share of 69% in volume terms, [compared to 31% in the case of roasted].” Orimi is Russia’s largest domestic coffee producer taking an 11% share of the local market).

According to Drabova, the growth of the overall coffee market in Russia last year was slightly lower than 2019 mainly due to quarantine measures and closure of HoReCa enterprises. However, according to her the decline was offset by increased coffee sales in e-commerce segment, with the biggest demand in roasted coffee beans and roast and ground coffee, as well as coffee capsules. Drabova believes that the complete lifting of Covid-19 restrictions in Russia will result in a further growth of “outside home consumption”, the demand for which may even exceed the pre-pandemic figures.

Viktoria Gavrilova, an official spokesman of The May company, another leading Russian coffee producer, shares almost the same position. In an interview with the Russian *Ria Novosti* newswire, Gavrilova said that the pandemic led to the shift of the consumption of coffee in Russia from the HoReCa segment to home consumption. According to her, this year the demand for roasted coffee in Russia continues to grow, resulting in at least a 10% growth in the beginning of this year compared to the previous year.

However, most analysts believe further growth in both instant and roasted coffee may be complicated by the ever rising prices in the domestic market. The purchasing power of the Russian consumer remains generally low due to the pandemic and its consequences, that may have a negative effect on the local coffee Still, the roasted coffee segment is expected to be more resistant to such prices growth.

According to Ekaterina Petrova, a well-known Russian columnist and expert in the field of coffee business, the increase of prices will not have a catastrophic effect on the segment of roasted coffee, as a significant part of local range is traditionally positioned as premium products, which are usually less sensitive price increases, compared to economy segment of the market.

As for the producing segment, so far the majority (both local companies and global majors operating in the local market) announced plans to increase prices.



Inside coffee factory of Orimi.

According to them, that will be mainly due to Russian rouble devaluation, maintaining quarantine restrictions in Russia, and the ever-growing prices for raw materials. Finally, the ongoing increase in logistics, packaging, and other costs puts additional pressure on their business.

According to producers, in recent months many faced an acute shortage of arabica coffee, mainly due to its low harvest in Central America and a general decline in production and supplies by leading exporters. Amid the ever-growing demand for roasted coffee, many of producers are considering an increase in local output this year and more localization of their businesses.

In recent years, local production has become more profitable for them than imports from abroad. That resulted in the building of large-scale processing factories within Russia, which are supply products to both the domestic and export markets.

According to Drabova, the development of local production allows producers to significantly reduce overall costs and ensures implementation of stricter control over the quality of products, which contributes to their competitiveness. ☕



Jhokey coffee, a flagship coffee brand of Russia’s Orimi Group.

Africa and India's Binding Ties in Tea

By Shem Oirere



A farmer samples her harvested tea in Malawi.

The ties that bind Africa's tea story with that of India range from tea trade including imports and exports to a history of investment by Indian major tea companies in the continent's tea production, processing, and marketing. India's place in Africa's tea industry is embodied in the investments by Tetley Group, Dhunseri, McLeod Russel, and Jay Shree Tea & Industries Ltd.

Sitting at a café in Cape Town, South Africa enjoying a cup of Laager rooibos tea or relaxing at a modern restaurant in Kigali, Rwanda sipping Silverback tea or even perched on a stool in a traditional café and restaurant in Lilongwe, Malawi enjoying a mug of Dhunseri tea, there is always an Indian connection that runs across these tea brands.

Over the last two decades, Indian tea firms played a key role in tea production, processing, packaging, and marketing particularly in South Africa, Malawi, Uganda, Mauritius, Kenya, and Rwanda despite a recent trend where some of these Asian tea companies downsized their interest in the African tea industry.

In early 2013, Kolkata-based Jay Shree Tea & Industries, an affiliate of BK Birla Group entered into a share purchase agreement with Kijura Tea Co. to acquire 100% of the tea firm and 50% of Rwanda Mountain Tea SARL's Mata Tea and Gisakura Tea Company. At the time, Jay Shree told investors it would invest in the Rwandan tea market via Tea Group Investment Company Ltd., through

the Dubai-based Birla Holdings. However, Jay Shree, which produces black tea, green tea, and specialty tea, announced early last year it was selling the two estates to Belgium-based Grand Lacs Trading SA at estimated cost of US\$10 million.

"The directors are of the view that it may be prudent for the company to dispose of one or more of its estates in India and overseas and/or other assets which have varying contributions," the company said in January 2020 in its filing to the National Stock Exchange of India.

Previously, in 2019, Jay Shree's Indian competitor in East Africa, McLeod Russel through its subsidiary Borelli Tea, also announced it was selling three tea estates including a 45% stake in Rwanda's Pfunda Tea Co. to Scotland-incorporated Rwanda Tea Investments. Borelli Tea acquired a stake in the company in 2014 after buying out LAB International that held a 90% share in Pfunda which owns and manages tea estates in Rwanda's western region and accounts for up to 25% of Rwanda's tea production.

The Indian subsidiary previously signed a purchase agreement for \$25 million with vendors to buy Rwenzori Tea Investments in Uganda, which owns 100% of James Finlay (Uganda). The company produced nearly 15 million kgs of black tea from at least six tea estates at the time of acquisition. McLeod previously established a tea trading outfit in Kenya for the purpose of procuring and supplying tea from East Africa to the company's blending plant in Dubai.



Farmers carry tea to buying center in Malawi.

Another profound role participation by Indian tea firms in Africa tea industry is that of Dhunseri Tea & Industries Ltd., the largest tea producer in Malawi. Dhunseri, through Dhunseri Petrochem & Tea, took ownership and management in 2012 of both Kawalazi Estate Co. and Makandi Tea and Coffee Estates in Malawi, Africa's fourth largest tea producer after Kenya, Uganda, and Tanzania.

Furthermore, Indian firm Tetley Group, a Tata Tea subsidiary, also previously purchased a 33% stake in South African Joekels Tea Packers hence gaining a foothold in other Southern African Development Community (SADC) member-countries of Namibia, Botswana, Lesotho, and Swaziland. SADC is an inter-governmental organization based in Gaborone, Botswana.

Joekels, known for its famous Lager rooibos original and also herbal, has a license to sell Tetley branded products in the Southern Africa region, a large share of the products coming from the Joekels factory in KwaZulu Natal province.

India and Africa have also traded in tea but the tea imports and exports volumes have been minimal as each of these two regions target non-tea producing markets. India produces an estimated 1.3 million tons of tea from growing regions especially in the northeast, including Assam, north Bengal, specifically Darjeeling district and Dooars region and also Nilgiris to the country's south. Nearly 75% of the Indian produced tea is consumed locally.

However, despite being one of the top global tea producers, India spared some export and import space for a little of Kenyan tea, a country that produced nearly 459,000 tonnes of the crop in 2019 of the 735,156 tonnes combined production from Africa's eight top producers. India is the fourth in terms of tea exports after Kenya. Indian exported an estimated 1.05 million kgs and 1.01 million in 2017 and 2016 respectively.

Egypt was also a top tea trade partner of India. The Asian tea producer exported an estimated 12.69 million kgs to Egypt in 2017/2018 production year up from the 5.20 million kgs for 2016/2017.



Farmers pick tea at a farm in Malawi.

Germany market and consumer data company, Statista, predicts substantial increase in black consumption in Africa by 2027 especially in South Africa and Kenya, where presence of Indian tea companies is a common feature.

For example, in Kenya, where McLeod opened a tea trading entity, McLeod Russel Africa, in the capital Nairobi, Statista predicts an increase from 37,600 tons of consumed tea in 2017 to 56,600 tons in 2027. A similar tea consumption trend is expected in South Africa with locally consumed volumes expected to grow from 25,000 tons in 2017 to nearly 33,000 tons in 2027. Africa's tea consumption was estimated at 344,000 tons, an equivalent of 20% of the global tea imports.

Meanwhile, although it is not yet fully confirmed the likely effects of Covid-19 on India's investments in Africa's tea sector, some Indian tea companies point out the global lockdowns induced by the fast-spread of the pandemic caused delays and disruptions in tea production and sales. Dhunseri, which also owns and operates Dhunseri Mauritius, Chiwale Estate Management Services, and Ntimabi Estates, says its tea estates in Assam were adversely affected by the lockdowns especially in the first quarter of 2020.

The global shutdowns resulted in "delay and disruptions in production and sales operations especially due to restriction on labor deployment and logistical issues." Since the shutdowns were global, Dhunseri says even its affiliates including those in Africa were affected despite the company being optimistic the "pandemic is not expected to have a significant adverse impact on the smooth operations of its subsidiaries."

Despite recent scaling down of investment interests by Indian tea companies, the map of Africa's tea market will always remain incomplete without the addition of India's crucial participation especially in the production, processing, and marketing of tea in sub-Saharan region. ☕



A Mixed Bag:

USDA's Coffee Quality/Production Country Reports

By Staff Report

Brazil: significant decrease in production

(NOTE: For the Brazil Report, please see the full story by David Foxwell on page 22 of this issue in the Coffee Report. You can also see the original report on the GAIN website: <https://www.fas.usda.gov/data/brazil-coffee-annual-6?>)

Colombia: local consumption and exports up

In marketing year (MY) 2021/22, Colombian coffee production will be 14.1m bags green bean equivalent (GBE), assuming excessive rains during the first quarter of the year will marginally impact the October/November harvest.

Colombian coffee consumption continues to increase; however, Covid-19 containment measures impact consumption patterns. In MY 2021/22, coffee exports will slightly decrease to 13.5m bags GBE, driven by lower production levels. In MY 2020/21, the revised production estimate is up from 14.1 to 14.3m bags GBE, mainly due to favorable weather conditions and the success of harvesting plans during the COVID-19 pandemic. Revised coffee exports are up from 13.6 to 13.8m bags GBE due to increasing production, higher international prices, and the Colombian peso devaluation.

For full report: <https://www.fas.usda.gov/data/colombia-coffee-annual-5>

Costa Rica: increases less than expected; production unchanged

Costa Rica's coffee production increased less than originally expected in MY 2020/2021. However, production levels have been more stable during the last two crops, after experiencing variations of about 15% during the two previous marketing years. Production remained almost unchanged in MY 2020/2021, increasing by 0.4% to 1,472,202 60-kg bags, based on preliminary data from the Costa Rican Coffee Institute (ICAFFE). Although it is still early in the new marketing year, production is forecast slightly higher at 1,485,000 bags for MY 2021/2022.

The Covid-19 pandemic did not impact Costa Rica's MY 2019/2020 production because the harvest was for the most part over when the sanitary restrictions were implemented in March of 2020. However, the sanitary measures that were implemented for human protection limited the availability of migrant workers who generally work during the harvest. This situation resulted in uncertainty among producers and created problems during the harvest of the current crop, resulting in lower output than initially forecast.

Ecuador: Covid-19 a drag on harvesting/processing

Coffee production for marketing year (MY) 2021/22 (April to March) will be 261,000 60-kilogram bags GBE basis, an increase of 2% over the MY 2020/2021 estimate of 255,000 bags. Despite government and private sector efforts to recover national coffee production, planted area in marketing year 2021/2022 remains at 60,000 hectares. Exports will fall to 444,000 bags after a jump in exports the previous year. The continued Covid-19 pandemic could cause some issues with harvesting and processing of coffee in Ecuador.

For full report: <https://www.fas.usda.gov/data/ecuador-coffee-annual-5>

El Salvador: Struggles due to low prices/climate change

El Salvador's coffee production will reach 519,000 60-kg bags in marketing year (MY) 2020/21. The Salvadoran coffee sector struggles mainly due to low international prices, climate change, continued coffee leaf rust, and a lack of a long-term strategy that hinders investment at the farm level. The MY2021/22 crop will slightly rebound to 528,000 bags. The Covid-19 pandemic also affects the sector due to a reduction in farm worker availability to carry out post-harvest coffee berry picking and processing. The government announced a coffee sector rescue program that will renovate approximately 35,000 hectares, as well as re-structure debt, and create a coffee research institute.

For full report: <https://www.fas.usda.gov/data/el-salvador-coffee-annual-6>

Ethiopia: local consumption on the rise

Ethiopia is the African region's largest producer and consumer of coffee. Coffee production in Ethiopia grew steadily over the past three years and, with suitable growing conditions, will reach to 7.62m bags (457,200 MT) in 2021/22. 50-55% of Ethiopia's production is consumed domestically. Local consumption will increase to 3.55m bags in MY 2020/21.

Ethiopia is the largest coffee exporter in the region and its shipments are primarily green coffee. In 2019, the country enacted a new marketing and export policy to allow direct coffee exports by smallholders with minimum of two hectares of land and by commercial farms in order to encourage vertical integration and improve coffee traceability. Exports from October 2019 to September 2020 reached to 4.135m bags (248,129 MT), 2326 MT lower than MY 2018/19. Ethiopia's primary export destinations in 2019/20 were Saudi Arabia, Germany, US, Japan, and Belgium.

For full report: <https://www.fas.usda.gov/data/ethiopia-coffee-annual-6>

Guatemala: Steady even with double hurricanes

Guatemala coffee planted area in MY2021/2022 remains steady at 305,000 hectares (ha), but harvested area will increase 2% as planted trees mature. Production will be 3.47 million 60-kg bags, a 10% increase compared to 3.15m 60-kg bags estimated for the MY2020/2021 harvest, hit by hurricanes Eta and Iota at the beginning of the harvest. Between the storms and the Covid-19 pandemic in 2020, the harvest dropped 16%. Exports in MY2021/2022 will be 3.2m bags. Consumption in MY2021/2022 will slightly recover as hotels, restaurants, and coffee shops open, but continue with limitations due to less than 1% of the Guatemalans being Covid-19 vaccinated as of May.

For full report: <https://www.fas.usda.gov/data/guatemala-coffee-annual-6>

Honduras: Production and exports down

The production forecast for marketing year (MY) 2021/22 is 5.5m bags, a 12% reduction from the previous year. Favorable weather conditions for a higher incidence of leaf rust will impact production directly. Covid-19 incidence will remain high in Honduras and post-hurricane road infrastructure rehabilitation efforts will still be underway. As a consequence, MY2021/22 export forecast is 5m bags, down to MY 2019/2020 levels.

<https://www.fas.usda.gov/data/honduras-coffee-annual-5>



India: Robusta yields and exports up

Post forecasts marketing year (MY) 2021/22 coffee production (Oct/Sep) to increase by 5% to 5.41m bags. Above normal pre-monsoon rains coupled with expectations of a normal monsoon will improve yields, especially for robusta in major growing regions. Exports will be 5.68m bags due to robust demand in Europe and the United States. This export increase will lead to tighter stocks. Domestic coffee consumption will be 1.2 bags, driven by at-home consumption as the hospitality sector remains closed due to Covid-19 lockdown measures.

For full report: <https://www.fas.usda.gov/data/india-coffee-annual-5>

Indonesia: Modest declines and local consumption steady

Coffee production will modestly decline to 10.63m bags in 2021/22 on lower yields in robusta and arabica growing regions. Consumption remains below pre-pandemic levels as various social distancing restrictions continue to hamper food service sector growth. Green bean imports will continue to decline as industry utilizes more competitively priced local beans.

For full report: <https://www.fas.usda.gov/data/indonesia-coffee-annual-5>

Mexico: Efforts on to fight rust and increase production

Mexico coffee production for marketing year (MY) 2021/22 is at similar levels to the previous MY, due to labor shortages and ongoing drought conditions in some states that are degrading tree and soil health. Ongoing public and private sector efforts to increase production and efficiency by replanting rust resistant tree varieties has minimal effect due to low financing for producers, a lack of robust technical and marketing assistance, and continued low global prices.

For full report: <https://www.fas.usda.gov/data/mexico-coffee-annual-5>

Peru: Products and export up

Coffee production in marketing year (MY) 2021/22 (April/March) will rebound 17%, reaching 3.95m bags. This expected increase comes from good weather conditions and improved international coffee prices. Peru's coffee exports in MY 2021/22 will be 3.85m bags, increasing 16% from the previous year.

For full report: <https://www.fas.usda.gov/data/peru-coffee-annual-5>

Tanzania: Increases in quality, inputs mean exports shoot up

MY 2021/22 coffee production will increase by 3.7% to 1.4m bags due to increased fertilizer use, improved extension services, and an anticipated high-producing period of the crop-bearing cycle. Domestic consumption will remain at 50,000 bags. Meanwhile, total coffee exports will increase 34% to 1.38m bags due to an increase in quality and easing Covid-19 restrictions in Tanzania and neighboring countries.

For full report: <https://www.fas.usda.gov/data/tanzania-coffee-annual-5>

Vietnam: Improved weather conditions and irrigation

Posts forecasts Vietnam coffee production for marketing year 2021/2022 (MY21/22) at 30.83m bags, GBE, on improved weather conditions and irrigation that support yields. Post revised MY20/21 coffee exports down to 23.65m bags (GBE), lower than USDA's official number based on strong competition and logistical difficulties. Post also revised MY20/21 stock up to 7.23m bags on lower exports.

For full report: <https://www.fas.usda.gov/data/vietnam-coffee-annual-6>

Airscape cotton refill bag.



Planetary Design switches to reusable bag in Airscape coffee canister packaging. The maker of the Airscape coffee storage canister, launched an effort to increase sustainability between coffee retailers and consumers' kitchens. All 4- and 7-inch Airscape stainless steel and Airscape ceramic storage canisters now come wrapped in a reusable cotton bag that can be filled with coffee beans from coffee roasters or bulk dispensers at grocery stores and food cooperatives. *For further information, visit <https://planetarydesign.com/>.*



Buying the one-and-only coffee at the CPA Australia pop-up café and museum. In celebration of CPA Australia's 135th anniversary and 65 years in Hong Kong, the company assembled a pop-up café and museum at Jao Tsung-I Academy, the celebrated heritage site. At the opening ceremony, a business magnate and iconic leaders came together to try out their barista skills by making their first cup of latte. The lattes were then auctioned to guests at the ceremony with the goal of raising funds for the academy's heritage conservation. The pop-up café was open to the public in during the month of May. *For further information, visit www.cpaustralia.com.au.*



Asachamici receives ISO certifications. The three main areas covered by the ISO 9001, ISO 14001, and ISO 45001 certifications recently obtained by Asachimici®, owner of the "puly®" brands focus on operational flows and an efficient internal organization; protecting the environment and striving to reduce the company's impact; complying with the best practice standards concerning workers' health and safety. AQC Middle East LLC issued all three certifications. *Follow <https://www.facebook.com/PULYCAFF>. Enjoy Your Espresso, or visit www.pulycaff.com*



Qima Coffee and Alliance for Coffee Excellence announce Best of Yemen 2021 auction. As part of a multi-year partnership, the two organizations came together series: to launch the third and largest installment of the Private Collection Auction the Best of Yemen 2021. Due to the success of the partnership over the last several years, the size and reach of the auction grew to serve over 3,000 smallholder farmers in Qima Coffee's network. *For further information, visit www.allianceforcoffeexcellence.org or www.qimacoffee.com.*

Innovia's new BOPP film with improved thermal resistance. CHS, Innovia's new film in its Propafilm™ range of transparent specialty packaging films offers improved thermal resistance and shrinkage properties compared to conventional polypropylene films. It is designed to substitute traditional outer web films in laminates for applications such as pouches and lidding in various food markets. *For further information, or to trial this new film, contact packaging@innoviafilms.com or visit www.innoviafilms.com*



Biron Teas brings in-house blending with Munson rotary batch mixer. Founded in 2015, Biron Teas sells organic artisanal teas and needed to expand capacity and bring blending in-house. Their equipment consumed too much floor space so they ultimately specified a rotary batch mixer MX-3-SS mini mixer from Munson Machinery for its smaller footprint and ability to produce uniform blends without product degradation or cross contamination. Biron says the mixer blends 32 to 36 kg batches of tea blends with or without liquid additions uniformly in three minutes. *For more information, visit www.munsonmachinery.com or www.bironteas.com.*

Sprso: Bravor Bonamat's new auto espresso maker.



Bravor Bonamat new espresso range available. In designing this fully automatic espresso maker, Bravor Bonamat says it considered every last detail. Intended to be as compact as possible, the Sprso is even right at home on the kitchen counter. It is designed so that every action feels logical and natural. "Pure art," says Claire de Zilwa, marketing and communication specialist of Bravor. *For further information, visit www.bravor.com.*



Simplify the Brewer released by Japanese coffee equipment professional Bathtub Coffee.

The product is the company's first original equipment and is a pourover brewer. *Simplify the Brewer* increases extraction of coffee; all customers have to do is just pouring hot water at the center of coffee powder for just 30 seconds. The higher flow rate comes from the air-flow calculation with a hole of 40mm, allowing brewing with much finer ground coffee without the water staying in the brewer, resulting in extraction without blooming. *For further information, visit www.bathtubcoffee.com.*

Jesus Mountain: Judith Amador Rivas, quality control and Antonio Vanegas Tórez, production.



Nicaragua Cup of Excellence crowns four Presidential Award winners. Cup of Excellence (CoE) and Comisión Nacional para la Transformación y Desarrollo de la Caficultura (CONATRADEC) announced the 23 CoE and 11 national winning coffees from the 2021 Nicaragua CoE competition. This year's results feature four Presidential Awards and a wide range of coffees that represent 12 varieties. The top three lots, which all come from Nueva Segovia, have a distinctly different variety and process will be split for the auction. *For further information, visit www.allianceforcoffeexcellence.org.*

Eversys Shotmaster reinvested – going from 4 shots to 8 shots. Six years on from its initial release, Eversys reimagined a brand new Shotmaster complimenting its recently launched Enigma range. The new Shotmaster is available in a variety of models in Eversys' classic and super traditional designs. The top of the range is the new Shotmaster s-pro/ST and its twin, the Shotmaster m-pro/ST both capable of producing up to 700 espressos per hour. The Shotmaster can be operated by two separate baristas at the same time, optimizing the use and cost of space. *For more information, visit www.eversys.com, Facebook: @EversysSA Instagram: @eversys_swiss. LinkedIn: EversysSA*

Eversys Shotmaster.



IMA introduces premium delivery of spare parts. Nowadays, logistics is functional part of the production process. A fast and efficient spare parts delivery service becomes a key element for the business, able to either contribute or not to the achievement of production results. For these reasons IMA group introduces IMA premium delivery for spare parts, the new global IMA project and the premium service designed to reduce production and delivery times, and offer group customers the chance to receive faster spare parts and restore even faster the manufacturing processes. *For more information, visit <https://ima.it/en/ima-premium-delivery>.*

Kratom-based functional teas.



Top Tree Herbs launches world's first line of kratom-based functional teas. Top Tree Herbs, the leading kratom tea bag company offers five herbal blends, as it says to "bridge the gap between tea drinkers and the kratom community". After successfully launching the world's first line of kratom tea bags in 2020, the team quickly recognized that both established and new kratom tea drinkers could benefit from kratom drinks. *For more information, visit toptreeherbs.com or email soren@toptreeherbs.com*

Coffee Planet's biodegradable coffee capsules for that guilt-free brew. Coffee Planet's 100% biodegradable and compostable coffee capsules, provide specialty grade arabica coffee for home use. The certified 'Mother Earth-friendly' capsules are made from vegetable-based materials which break down easily while preserving the integrity of the coffee. The capsules come in four unique blends for Nespresso machine. *For further information, visit <https://coffeepplanet.com/coffee-capsules-c4>.*



Afpak's H2 K-cup filling/sealing machine.



Afpak of China's updated/completed capsule packaging equipment.

After months of hard work, AFPAK, a leading coffee capsule filling machinery company in China reports they have completed and/or updated their capsule filling machines. Afpak makes equipment for Nespresso, K-cups, K shots, Dolce Gusto, Lavazza blue and others. *For more information, visit <https://www.afpakmachine.com>*

Contributors



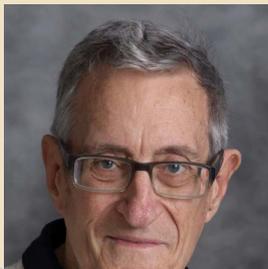
Maja Wallengren
Correspondent

Maja Wallengren has vast experience reporting on coffee for many years. She lives in Mexico City and will keep STiR's readers informed about origins.



Bethany Hays
Correspondent

Bethany is a freelance writer covering coffee. She lives in Medellin, Colombia.



Peter GW Keen
Tea Correspondent

Peter is a noted business professor and writer who has authored two books on tea.



Thomas Schmid
Correspondent

Veteran journalist Thomas Schmid lives in Bangkok and is a longtime reporter for STiR.

S T A F F



Glenn Anthony John
Founding Editor

Glenn, with many years of experience as editor and publisher at international trade magazines — including those for the coffee and tea industries — founded *Tea & Coffee Asia* in 1999, and *STiR* in 2012.



David Foxwell
Coffee Correspondent

David Foxwell has been writing about coffee for two decades and was editor of *Coffee & Cocoa International* for 18 years.



Somjait Thitasomboon
Art Director

Art director Somjait beautifully puts together *STiR* from sunny southern California.



Emerson Leonard
Sales Director

US-based Emerson is director of sales at October Multimedia representing *STiR*.



Dan Bolton
Tea Correspondent

Dan, former *STiR* managing editor edits *Tea Journey* for tea enthusiasts and hosts the Tea Biz podcast. He lives in Winnipeg, Canada.



Boonthin Tubsongkroh
Director

Boonthin is director of October Inter Co. Ltd. and liaison with *STiR*'s Bangkok, Thailand service providers.

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June 24-25, 2021

Central European Summer Time Zone
<https://www.retail.sca.coffee>

World Tea Expo

June 28-30, 2021

Las Vegas NV USA
www.worldteaexpo.com

ASIC Conference (VIRTUAL)

June 28-July 1, 2021

Montpelier, France
www.alphavisa.com/asic/2021

HOFEX

September 7-9, 2021

Hong Kong, China
www.hofex.com

MICE Melbourne

September 9-11, 2021

Melbourne, Australia
www.internationalcoffeeexpo.com

Single-Serve Capsules Europe

September 21-22, 2021

Barcelona, Spain
www.ami.international

Specialty Coffee & Tea Asia (SCTA)

September 28-30, 2021

Singapore
www.speciality-asia.com/coffeeandtea

Thaifex Anuga/Coffee & Tea (HYBRID)

September 29-October 2, 2021

Bangkok, Thailand
www.thaifex-angua.com

Global Special Coffee Expo

September 29-October 3, 2021

New Orleans, LA USA
www.sca.coffee

SCTA Forum (Virtual)

October 14-15, 2021

Basel, Switzerland
www.sc-ta.ch

HOST Milano

October 22-26, 2021

Milano, Italy
host.fieramilano.it/en

Gulfood Manufacturing

November 7-9, 2021

Dubai, United Arab Emirates
www.gulfoodmanufacturing.com

SINTERCAFE

November 10-13, 2021

San Jose, Costa Rica
www.sintercafe.com

Café Show Seoul

November 10-13, 2021

Seoul Korea
www.cafeshow.com

PLMA Private Label Trade Show

November 14-16, 2021

Chicago, IL USA
www.plma.com

ICT Asia / Cafe Asia

November 18-20, 2021

Singapore
www.cafeasia.com.sg

Taiwan Int'l Coffee Show (HYBRID)

November 19-22, 2021

Taipei, Taiwan
www.chanchao.com.tw

World of Private Label

December 14-15, 2021

Amsterdam, Netherlands
www.plmainternational.com

2022

Coffee Tea Cacao Russia

April 6-8, 2022

Moscow, Russia
coffeetearusexpo.ru

Global Special Coffee Expo

April 7-10, 2022

Boston MA USA
www.sca.coffee

Global Special Coffee Expo

April 7-10, 2022

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www.sca.coffee

FHA Horeca

May 10-13, 2022

Singapore
www.fhahoreca.com

World of Coffee

June 16-18, 2022

Warsaw, Poland
www.worldofcoffee.org

Pack Expo

October 23-26, 2022

Chicago, IL USA
www.packexpointernational.com

2023

Global Specialty Coffee Expo

April 20-23, 2023

Portland, OR USA
www.sca.coffee

Interpack

May 4-10, 2023

Dusseldorf, Germany
interpack.de

World of Coffee

June 22-24, 2023

Athens, Greece
www.worldofcoffee.org

2024

Global Specialty Coffee Expo

April 11-14, 2024

Chicago, IL, USA
www.sca.coffee

As there continue to be many changes in events, please visit www.stir-tea-coffee.com/events for the most up-to-date conference and exhibition schedule.

What's the STiR in the next issue...

STiR's 10th ANNIVERSARY EDITION

- SE Asia coffee imports-exports • Bio friendly coffee-tea bag filters
- Soluble-decaffeinated • American consumption trends
- Welcome back exhibition/conferences issue (SCA • MICE Melbourne
- SCTA Singapore • Single Serve Barcelona • Pack Expo)

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