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Shedding the Stigma: Robusta's Bright Future



Part one of our two-part series on Robusta explores the basics of Robusta cultivation and the potential for improving the quality of the crop, with a focus on the unique case of Uganda's burgeoning Specialty Robusta industry. [By Rachel Northrop](#)

Since it emerged on global markets a century ago, *Coffea canephora*, commonly known as Robusta coffee, has consistently played second fiddle to its relative *Coffea Arabica*. The tables are begin-

ning to turn. Changes in climates mean that Arabica is becoming increasingly risky and unpredictable, while Robusta's inherent resistance to various diseases and tolerance of warmer temperatures make it

an ever more attractive crop to cultivate. Improvements in Robusta processing and more conscientious handling, coupled with a commitment to long-term research and genetic resource preservation, offer a



Photo courtesy of Andrew Hertz

Flowering Robusta tree

new vein of potential for this historically neglected segment of the *coffea* genus.

Genetics and Agronomy

In the field, Robusta behaves completely differently than Arabica. To begin to explore its virtues, it is first helpful to understand its *modus operandi*.

Most people in the coffee industry are familiar with the various folkloric tales of

Arabica's origins in the Ethiopian highlands, but Robusta's origins trace back to a much broader geographic region, spanning the African continent. Dr. Alexandre de Kochko, head of evolution and dynamics of genomics at the Institute of Research for Development in Montpellier, France explained, "*C. canephora* has the widest natural range of distribution (of all *coffea* species). It is found in forests from Guinea to Uganda/South Sudan and from southern up to northern Angola."

While the narrowness of Arabica's genetic material is often lamented, Robusta's original genetic diversity is not often enough celebrated. Many strains of Robusta have been disseminated around the world and many more still exist across Africa, but because Robusta is not self-pollinating like Arabica, there are further degrees of variation between generations of Robusta. Dr. de Kochko noted, "The Brazilian Conilons are derived from a wild group from central Africa called 'Kouilou,' but certainly other introductions enriched the genetic background of the Conilons compared to the parental Kouilou."

He said that because Robusta's natural habitats are diverse and their environments are similar without being identical, *C. canephora* constitutes an interesting plant to study in terms of its aptitude to adaptation. "With the changing environment this is a crucial field to be studied."

Since Robusta trees cannot pollinate themselves as Arabica trees can, it is more labor intensive to generate a uniform field of Robusta. "*C. canephora* is what is called an allogamous plant, which means that it cannot pollinate itself. The father and the mother must be two different plants, each with its own genetic background," said Dr. de Kochko. "The offspring will receive genes from both and will be then different from both, so all the plants of the following generation are genetically different. Close, yes, but not identical."

Creating nurseries of Arabica plants involves germinating seeds, but Dr. de Kochko explained, "Multiplication of *C. canephora* through seeds will lead to plants that are all different among themselves, it

is not recommended for a good and homogeneous production of coffee."

Cuttings of Robusta branches do regrow roots, so farmers looking to clone Robusta trees that demonstrate the same desirable traits as parent plants must turn to one of many labor-intensive processes: regrowing roots from cuttings, grafting onto existing rootstock, the laboratory process of somatic embryogenesis cloning, or obtaining seedlings from government coffee programs that produce clones through one of the above processes of vegetative multiplication.

The basic agronomic requirements of Robusta are an average yearly temperature between 20-26 degrees Celsius at elevations between 100-900 meters above sea level, compared to Arabica's demands of elevations between 900-2200 meters with yearly average temperatures from 18-23 degrees Celsius, according to a 2009 report by Manuel Diaz of Coffee Quality Institute, Aliso Viejo, Calif.

Diaz described Robusta as being resistant to *la roya* (coffee leaf rust), nematodes and coffee berry disease. Changes in weather patterns at coffee origins mean a general global increase in instances of these plagues, and Robusta's allogamous genetics allow it to adapt to changing climates without intensive human intervention.

Robusta is not typically associated with the descriptor "shade grown," as many varieties are grown in full sun due to their heat and drought resistance, but many varieties of Robusta also thrive as part of multi-storied shade systems. Bombay Burmah Trading Corporation Ltd.'s Elkhill Estates in Kodagu, Karnataka, India, grow a Perridinia strain of Robusta. "The mixed shade made up of varied native species contributes the right mix of organic matter and minerals in the soil to produce a mellow yet distinct Robusta coffee," said Baharath Mandanna, vice president of Bombay Burmah Trading.

Perspectives on Processing

Historically, little investigative attention has been paid to Robusta, but this neglect has little to do with the plant's genet-

ics and much more to do with its taste. But, perhaps even this most basic assumption about Robusta—that it has an unpleasantly harsh flavor—is not entirely the fault of the plant.

Researchers, importers, exporters and roasters are only beginning to tease out how much of Robusta's flavor has to do with the species itself and how much has to do with how Robusta is handled. The overwhelming majority of Robustas grown around the world are processed naturally, with the seed and pulp left to dry as one and then later hulled to expose

directly in the dirt, subject to the negative effects of animal scat, agrochemical runoff from nearby fields, and the additional destructiveness of mildew and rot.

Robustas are also processed as Pulped Naturals, where the pulp (skin) is removed immediately after harvest and beans are left to dry without washing off the slimy layer of sugary mucilage. Just as Arabica producers have been experimenting with the spectrum of available processing techniques, Robusta growers are taking advantage of the same gamut of variables to elevate

Development Authority (UCDA) is a case study in the wealth of Robusta's untapped potential. Edmund Kananura Kyerere, quality control and regulatory manager with UCDA, highlights what sets Uganda's Robustas apart.

"It is believed that Robusta originated from Uganda, along the shores of Lake Victoria, and we still have those indigenous trees in the country. We have a very big genetic pool of Robusta species. Ugandan Robusta is high altitude grown, from 900 to about 1600 meters above sea level, which enhances its sweetness and acidity—this is not common with Robustas," said Kyerere.

He noted that Uganda annually exports an average of 3.5 million bags of which 80 percent is Robusta. The common species are Nganda and Erecta. Robusta farming supports about 1.3 million families across the country. "Uganda will soon be home to the Center of Robusta Excellence (CORE). At CORE, we will be conducting research related to issues surrounding Robusta, one of which is the protection of genetic material," Kyerere said, adding, "we will also be looking at productivity and quality."

CQI, which has been working with UCDA since 2003, when it expressed an interest in CQI's Q-grader program, will be the main partner in getting CORE operational. UCDA approached CQI with idea of creating a market for fine Robustas parallel to that for fine Arabicas, treating Robusta not as a commodity, which Andrew Hetzel, longtime CQI Q- and R-grader trainer and lead consultant on the CORE project, sees as "really revolutionary."

CORE will aggregate training, development and research projects at one central location in Kampala with a director who will coordinate with UCDA, CQI and research organizations around the world. The Center will create more than 1,000 new positions, including additional extension officers to cover the expanded thematic "territory." The Center is set to open in 2015, with curriculum and projects initiating this year, including an updated version of CQI's R-grader cupping protocol.



Meticulously washed, revolutionarily processed Robusta beans.

the green bean. It is common practice across growing regions for farmers to leave Robusta cherries to dry on the ground, exposed to a host of unwelcome contaminants that can be absorbed into the beans as they dry.

The explosion in popularity of attentively processed Natural Arabicas demonstrates that naturally-processed coffees can be complexly sweet and exhibit none of the defects with which they used to be (and are still usually) synonymous. This is because not all natural processes are created equal. Drying coffee—both Arabicas and Robustas—on raised beds and constantly turning beans to ensure uniform drying and eliminate opportunities for mold growth is a far cry from leaving cherries unattended on a sheet of zinc or

and improve their products.

Meticulous natural processing is one way to differentiate Robustas, but some Robusta producers are investing in washing stations, knowing that washed Robustas will offer a clean uniformity usually reserved for descriptions of fine Arabicas. Mandanna commented, "All of Elkhill's Robustas are wet-processed based on the demand. However, we have also been offering Pulped Naturals. Our entire production of Washed Robusta has found a home over the last 20 years."

Robusta Steps into the Spotlight

Robusta is entering the spotlight on the stage of one of its countries of origin: the east African nation of Uganda. There, the work of the Uganda Coffee

Photo courtesy of Andrew Hetzel



Andrew Hetzel (center) with Uganda Coffee Development Authority (UCDA) members.

Hetzel explained how Robusta can teach us more about all coffees. “There are lots of things we can learn from Robusta that can help with Arabica. Because R-grading was developed after and is newer than Q-grading, it serves as a “test ground” for new ideas. The new R grading scoresheet is designed to take into account differences in processing; the changes may be an improvement on existing methods, with potential to be applied to existing Q standards.”

No Where to Go But Up

If Arabica producers are starting to see

cause for panic, Robusta producers are entering an age of optimism. “Robusta being lowest of the low, there’s nowhere to go but up. Right now we need a better quality product, it needs to be branded correctly, and it needs to be communicated. There’s a negative impression around Robusta that needs to be overcome, but I absolutely believe we can do it. Robusta is intriguing because it evolves on its own and adapts to conditions,” said Hetzel. “In Uganda, we’ve found some Robusta that tastes nothing like other Robustas anywhere else on the planet because its environment has been undisturbed.

Somewhere there’s a dinosaur that holds lots of answers, but right now no one is looking for it.”

For some, “Specialty” or “Premium” Robusta might always ring oxymoronic, and we’re still probably years away from seeing Robustas touted on single-origin menus. Still, even if the best Robustas are destined for blends, they can be headed for elevated blends, significantly raising their bar of contribution.

Hetzel also noted that, unlike other industries that are concerned with patents and exclusivity in seeds, coffee, particularly the self-adapting Robusta, is inextricably linked to the places it grows. In the case of *Coffea canephoras*, provenance is not just a marketing tool, it’s an active genetic driver. Building the blends of the future might involve less tinkering in laboratories and on cupping tables and more in-the-jungle exploration of what coffee is already doing all on its own. ☕

Rachel Northrop is the author of “When Coffee Speaks: Stories from and of Latin American Coffeepeople,” a compilation of interviews with people working along the coffee production chain. Visit: whencoffeespeaks.com for more information and to order copies of the book.



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