Plantain chips are breaking hearts in Africa

Going bananas about plantain records in global trade databases

The annoying thing about analysing Africa's international plantain trade is that the customs (HS) code for plantains – 080310 – is very often also used for bananas in many records. This is despite there being another code for bananas that excludes plantains – 080390.

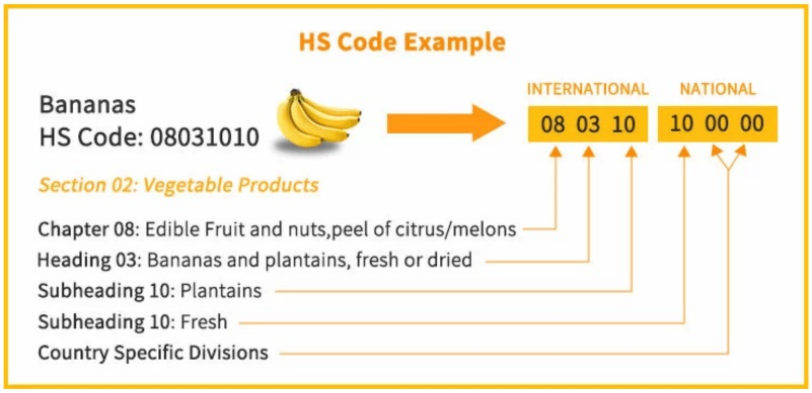


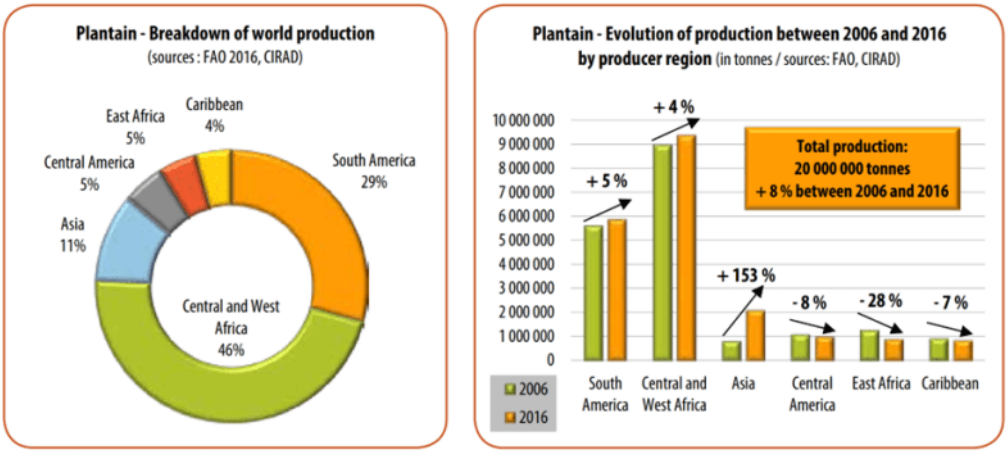
Chart Source: JiuFang

Whilst this conjunction would be shocking to many a person born and bred in Africa, elsewhere there is genuine confusion about the two crops, occasionally warranting explanations by chefs.

An irritating result of this needless confusion is that what should have been as easy as pulling and then sifting data from global trade databases like Comtrade and Eurostat can quickly degenerate into snooping around less established data sources and triangulating to get to the point.

The point being that Africa is super dominant in the world of plantains; yet, it is not a major exporter.

Worldwide, seven of the top plantain producers are in Africa.

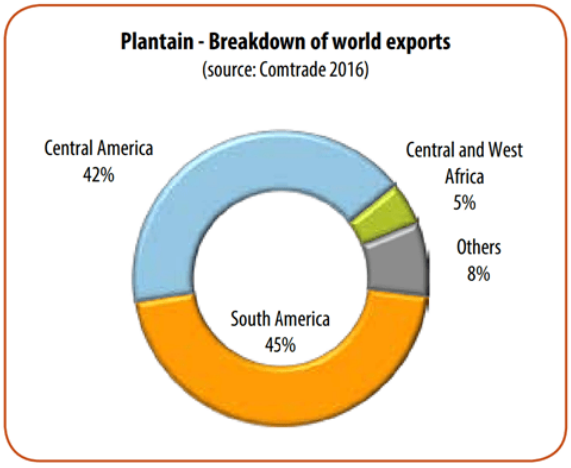


Source: FAO (via FruiTrop)

Ghana often gets mentioned as the world's second or third largest producer of the crop, depending on the year. This is despite plantains having one of the lowest yields among the country's major crops, right behind peppers, meaning that there is room to produce even far more from the same amount of land.

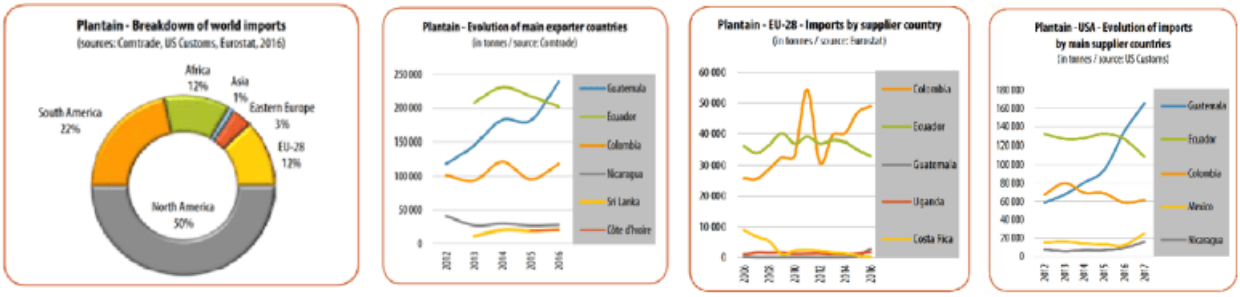
If the UN's FAO is to be believed, Ghana already topped the global production charts in 2019 by exceeding 4.9 million tonnes in output that year.

Africans may eat a lot of plantains (Cameroon and Ghana have been topping per capita consumption charts worldwide for a while now) but when it comes to exports, however, Africa doesn't make a good showing.



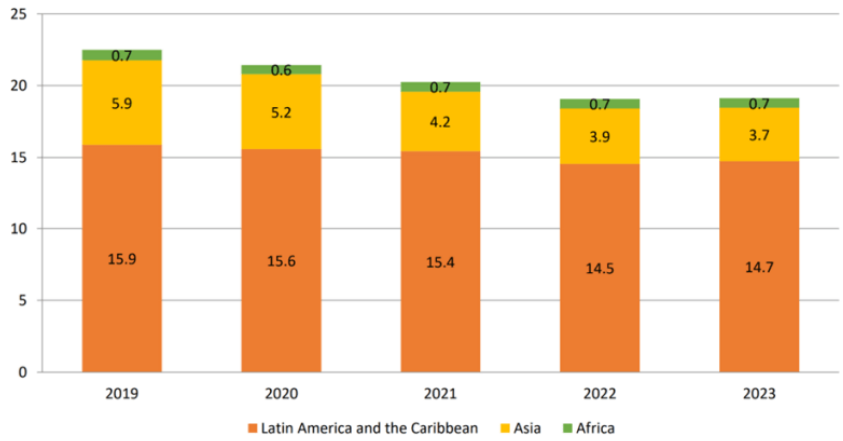
Source: FAO (via FruiTrop)

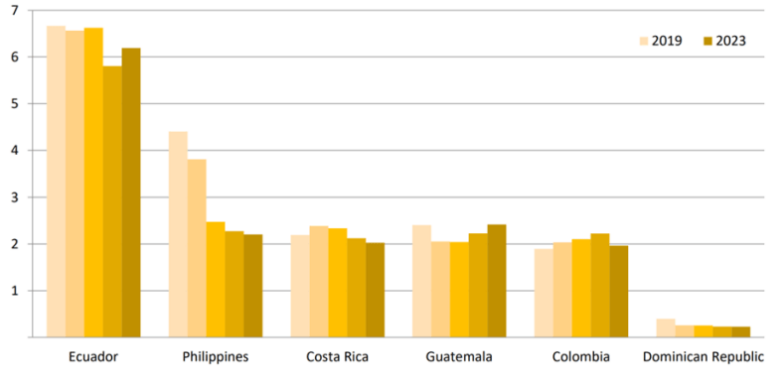
Historically, only a few African countries, like Cote D'Ivoire, long a bastion of commercial and plantation agriculture, have been major exporters of plantain.



Latin American and Asian countries that produce significantly fewer plantains routinely out-export giant African producers like Cameroon, Ghana, Nigeria, and the Democratic Republic of Congo (DRC). In the United States (US) especially, literally no African country has been able to break through into what is the world's largest import market.

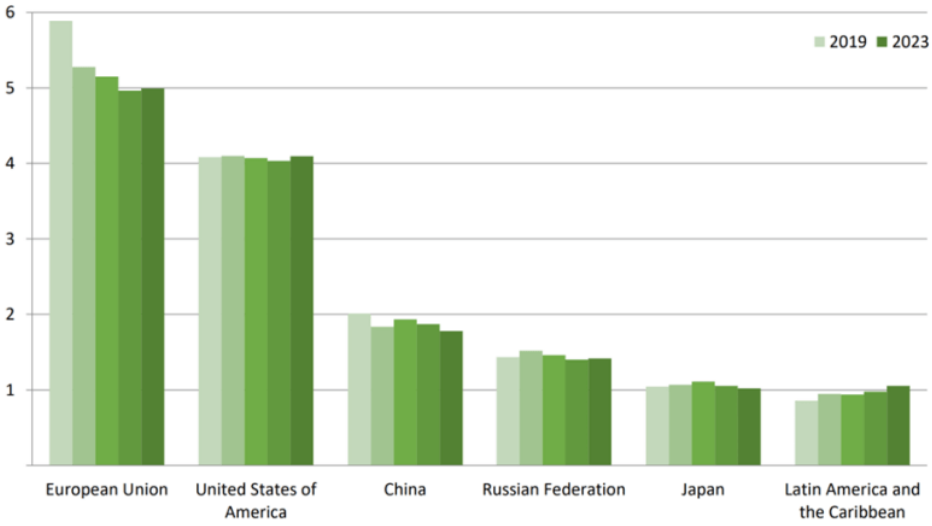
Major Latin America and Asian exporting countries seem to ride on the same value chains for bananas, where Africa has generally not been very significant. In 2023, Africa accounted for just 2% of the ~19 million tonnes of global banana imports.



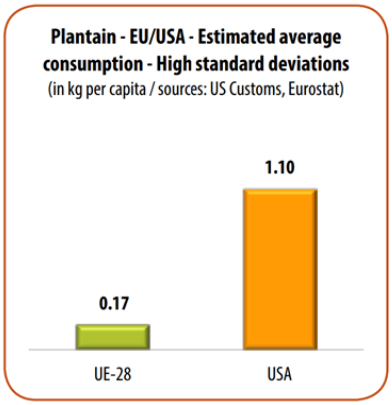


Source: FAO (2023)

Most African banana exports (from the likes of Cameroon and Cote D'Ivoire), same as for plantains, go to the European Union, rather than the US. In the banana domain, the EU is the undisputed consumption king.



For plantains, on the other hand, the US is champs.



Source: FAO via FruiTrop

Since bananas and plantains appear to have a very strong value chain correlation, it is not surprising that Africa's lack of presence in the US for bananas has tempered its capacity to break into plantain exports generally.

This essay is about plantain "chips", right?

But why are we talking about raw plantain exports when the endgame of economic transformation in every African country has been defined as value addition through industrialisation, which in the case of agro-commodities imply processing?

Well, it turns out that strong commodity value chains development generally is a useful, if also highly incomplete, precursor to building capacity to process for export.

The other homes of plantain

If you grew up in West Africa, the revelation that plantain chips is not the exclusive province of your home country would be shocking. They feel so native! Like fried bean cakes and jollof rice. Every corner you turn, there they are, in large pans balanced stolidly on elegant feminine heads.

Image source: Nybe Ponzio

Of course, like all nativisms, this one too is limited in truth and imagination.

Plantains themselves do not appear to have even originated in Africa. The current expert consensus is that they were first cultivated somewhere in India in the 6th Century BC and that they made their meandering way from Southeast Asia to Africa through the enterprise of Arab traders.

And, yes, many Latin American countries also have a "plantain chips as a light snack" culture. On top of that, plantain chips even have cute nicknames like chifles and platanitos! (This is the point where a few initially horrified Ghanaians, Togolese, and Nigerians finally stop shaking their heads, become curious, and start contemplating treachery against their own native chips).

Chifles: fried green plantain chips

 By Layla Pujol • Posted on March 28, 2023 • Updated on January 17, 2024 • 18 Comments

This is my easy recipe for homemade chifles or thin fried green plantain chips. These delicious crunchy chips are also known as mariquitas, chicharitas, platanutres or plataninas. All you need is green plantains, oil and salt. Plus your favorite dipping sauce.

For plantain chips, Latinos are on top

These background facts may or may not ease the blow from the reality that the global plantain chips export market is now heavily dominated by Latin America.

Though only estimated at ~$500 million today, a small piece of the broader ~$32 billion plantains market, it is growing rather rapidly. Market-scanning experts believe that plantain chips and similar "ethnic snacks" are now the fastest growing segment of the roughly $150 billion US snacks market, the largest in the world.

The thing is that in Latin America, food processors have long moved to industrialise production and over many decades refined their branding, marketing, and distribution strategies.

Even large industrial conglomerates, like Mexican coca cola bottler, Arca Continental, have got into the game, churning out heavily branded plantain chips by the ship-load.

The trade channel creativity and marketing sophistication of Latin American plantain chip makers knows no bounds. In 2022, after shifting chips production from the US to Latin America, Chifles, a fast-growing Miami-based snacks company, signed a deal with Jetblue, one of America's most dynamic airlines, to serve plantain chips to its millions of passengers.

Jetblue was quick to assert the Hispanic heritage of its new line of snacks, while still bigging it up as an experience to be enjoyed by all, thus showing off its cultural savviness.

PepsiCo, another corporate behemoth, takes a more sustainability-focused approach to its marketing of Latin America sourced plantain chips, and places the emphasis on ethical and dignified sourcing of the plantains, linkages with other social programs, and environmentally sound production. Its emphasis on managing plantain peels to avoid environmental waste, for instance, dovetails neatly into an emerging trend to shift packaging towards biodegradable options like plantain leaves.

And it shows on the shopfloor…but the Asians, too, exist

Given the depth of value chain and consumer brand development of plantain chips in Latin America, I was not too surprised by what I found when I scanned the 252 types of plantain chips stocked in America's largest retail network, Walmart, and then carefully investigated the twenty brands under which they are sold. My excursions into the backgrounds of the founders and/or visionaries behind each brand, from Chifles' Tony Rivas (Cuban-born) to the Unanue family that controls Goya (Spanish-origin), reinforced what I knew already: the US plantain chips industry is a Latino-dominated one.

A careful look through supermarket inventories in the US and parts of Europe does, nonetheless, show that Southeast Asian

countries like Thailand, the Philippines, and Malaysia are actually growing quite strong in the packaged plantain chips game.

Only that the product is often called "banana chips" rather than "plantain chips". Yes, I know, the confusion that keeps giving. The so-called "saba banana chips" one sees in the region and overseas, for instance, are really just plantain chips.

For example, the popular "Banana Joe" brand of crispy chips one might find on the shelves of many Walmart outlets are not classified under plantain chips, but they really are. And they come from Thailand.

Asian plantain chips producers targeting the US and European markets are equally big on creative brand positioning and trade channel development. Pim Pritsangkul, co-founder of Banana Joe, for instance, has leveraged positive gender-entrepreneurial narratives, health-consciousness, and digital technology to massively drive uptake.

Still missing from the game, strangely, are African plantain chips producers.

This is surprising as there is no shortage of awareness on the continent, certainly in West African countries like Ghana and Nigeria, about the prospects of this delicious snacks. Study upon study have shown that plantain chips are a potentially massive winner. With net margins upwards of 50%.

Types of Plantain product	Revenue ₦/ha	Cost of tradeable input ₦/ha	Cost of domestic factors ₦/ha	Net private profitability ₦/ha	Private cost Ratio
Plantain Chips	833,329	334,008	64,773.32	434,543.68	0.13
Plantain flour	714,300.04	240,426.40	48,285.85	425,587.79	0.10

Note 1$= ₦160 at the time of the analysis.

Types of Product	Revenue ₦/ha	Cost of tradeable input ₦/ha	Cost of domestic factors ₦/ha	Net social profitability ₦/ha	Domestic Resource Cost ratio	Social cost Benefit Ratio
Plantain flour	855,822.46	239,089.25	37,662	579,070.25	0.06	0.32
Plantain chip	1,162,000	333,198	55,222.67	773,579.33	0.07	0.33

On the export side the math is even easier to follow. One kilogram of plantains cost about $1.3 in the US wholesale market. On the Walmart shopfloor, one kilogram of plantain chips could fetch $35.

Even the popular press has caught on, and has been extolling plantain chips' poverty-redeeming features.

To the point where hub-like operators are emerging, like Accra's Koko D'Luv, which is now trying to extend its tentacles into neighbouring countries to support plantain chip entrepreneurs up their game. Agricultural institutes in Nigeria are offering bespoke courses in frying them into golden-crisp form. Value-chain accelerators are pushing to develop farming cooperatives and ensure tight coordination with fryers.

What's more, charismatic preachers are being enlisted to add a dash of inspiration to a rapid stream of ads on TikTok offering quick guruship in the craft. To confirm the authenticity of the trend, nice rags-to-riches memes spread occasionally, such as this one about a Nigerian entrepreneur who started out with less than $100 but now owns three houses.

African governments seem well aware that there is something here

Nor have African governments been found wanting in recognising the potential of turning a primarily domestic food item into an internationally tradable hot foreign exchange (forex) earner. Nigerian states, like Delta, are putting some tax money behind some of the training programs. Ghana's principal industrialisation initiative, 1D1F, is doing something similar and offering equipment to boot. I count at least 30 different district governments in Ghana offering one training program or the other in plantain chips frying.

Some readers may find these efforts somewhat meagre, but there have been more ambitious plans.

In 2015, entrepreneur Maxwell Agyeman launched a $73 million dollar plantain chips production effort on 60-hectares of land in Ghana's Ashanti Region (Ejisu). The strategy was to export tons of plantain chips to the US and EU under the brand name, TANO, and reap tens of millions of dollars over a couple of years. Maxwell promised to directly employ a thousand people in the community at his processing factory.

The dream to take his Juaboso Agro Processing Company to these dizzy heights had taken more than a decade to get to that point. The trial production run happened as far back as 2007.

Ghana's Ministry of Trade was fully on board as supporting financier, ecosystem facilitator, and policy enabler. The government's "district industrialisation program" and "public-private partnership" policies were all invoked to drive expected outcomes.

Long story short, the project failed for simple inability to line up all the components effectively, especially on the export offtake and trade financing side.

As of 2019, the plantain chips for export initiative was still firmly on the district development plan of Juaboso, the original site, albeit uncompleted.

2016	Economic development	Trade, Tourism and Industrial development	Plantain Chips processing	0	1	0	Not implemeted
2017			Processing of cocoa bye product (Potash)	0	1	0	Not implemeted
			Facilitate and enhance private partnership in agro processing	0	4	0	Not implemeted

It is safe to say that Maxwell Agyeman's 20-year dream to turn his beloved Juaboso and adopted Ejisu hubs into plantain chips export powerhouses have been dashed. When a due diligence team visited the Ejisu area in 2020 to locate remnants of the infrastructure, everything had dissolved into the mists. Local folks had no knowledge of any active production.

Regarding vanishing plantain chips factories in Ghana, another curious example is the Agogo plant, which was meant to start production in December 2021 with imported equipment from Brazil. Plantain nirvana hopes have been so high in the area that a plantain festival has been instituted. Exporting fine chips was meant to be the jewel in the crown. Once again, a recent due diligence visit failed to confirm production.

Sometimes, government-backed projects do go far. Delta State for instance has been able to back local processors of non-traditional commodities like yams and plantains all the way through. Unfortunately, in that instance, strict phytosanitary standards in Europe blocked further progress on the exports front.

Which raises the issue of technological and regulatory capacity.

There is no doubt that enabling local processors to attain technological and regulatory sophistication, once commercial feasibility has been established, could help address some of the continent's export challenges. African governments, such as the ones in Ghana and Nigeria, and other stakeholders in these markets, do know this and have made some efforts in the general direction of capacity building.

Ghana's GRATIS and Nigeria's FIIRO all have government-supported projects and programs to boost the assimilation of technology to support shelf-life, preservation, packaging, taste control, hygiene, and other quality and presentation functions.

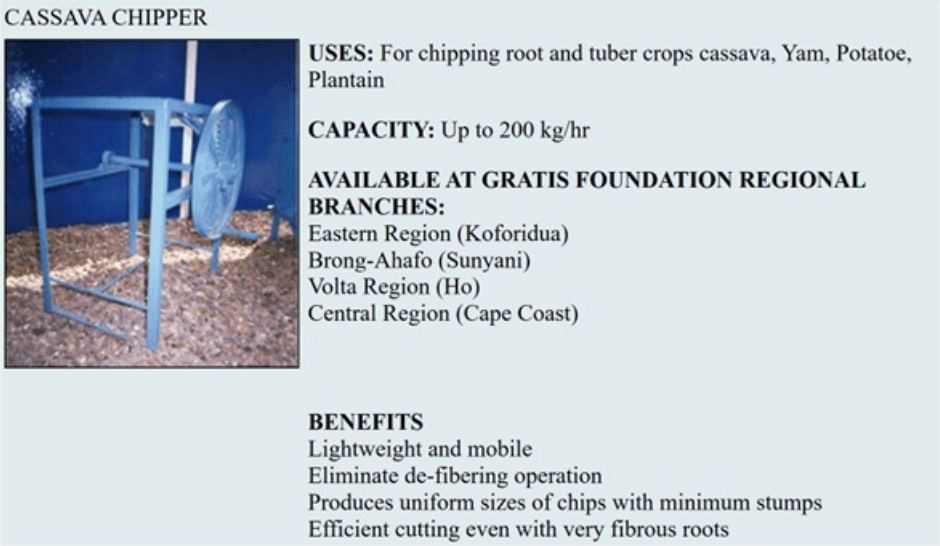
In my analysis of the situation in these countries, the problem appears to be one of fragmented thinking and an inability to design

and execute policies and strategies based on strong, continuous, feedback from the intermediate user and consumer side of the spectrum.

Export-driven industrial policy in places like Ghana and Nigeria is disproportionately supply-side focused and driven by people with narrow technical abilities in specific domains. Generalists able to connect dots, spot trends, and effect step-changes in approach are completely missing.

There is, furthermore, an absence of what I call ***transmediation*** capacity. Industrial engineers knock up devices with a situation-centric specification and government bureaucrats look at the world from a country lens. A woeful inability to translate across different opportunity mindsets leads to much wasted effort as policy-need fits at the local level fail completely to scale into international opportunity gaps.

Ghana's GRATIS' processing equipment for plantain and non-traditional commodities, for instance, focuses entirely on incremental expansion of output volumes.



Nigeria's FIIRO is a few steps ahead of GRATIS in that it is strong in complementary services. It even has a functioning e-commerce site, as compared to GRATIS that is still struggling to host an online catalog.

The lack of end-user testing and iterative feedback loops, however, mean that the FIIRO e-commerce portal has no dynamic interface, and so orders must be placed by manually entering product descriptions and pricing (it is not clear from where).

FIIRO's plantain chips machine (one of 82 devices it fabricates in its labs) costs about $1600, not cheap but not outrageous either. Still, precious little effort has been made to explain how it adds value to the savvy end-consumer. The only value proposition FIIRO markets is *old-school industrial*: it can fry 200 kilograms of plantain chips an hour.

Item	Unit	Capacity	Unit Cost (₦'000)	Total Cost (₦'000)
Motorized Plantain Slicer (Twin Feed)	2	1T/Day	350.00	700.00
Deep Stainless Steel with Mesh and Burner	4	20kg/Batch	350.00	1,400.00
Pedal Type Sealing Machine	2		100.00	200.00
Weighing Machine (Digital Table Top)	4	-	50.00	200.00

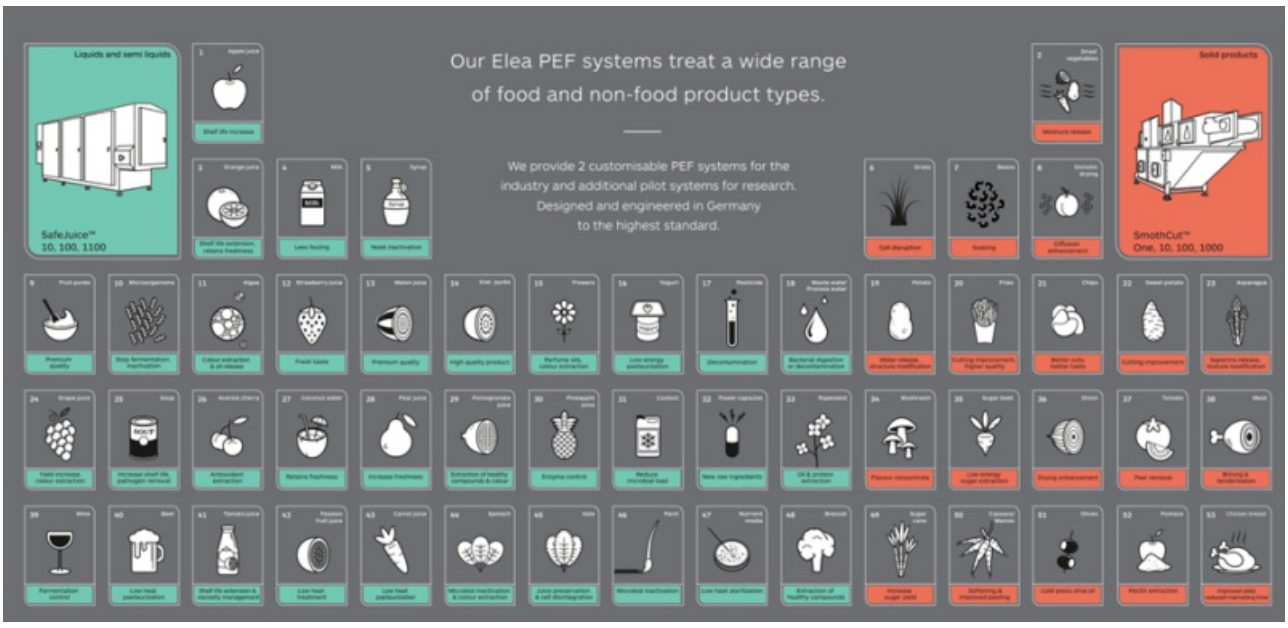
The prices of these machinery & equipment above are tentatives and subject to confirmation at the Institute. For further enquiry please call: 08023415016; 08027155981; 08082429082; 08038010362; 08023284509; 08034545899; 08023653752 and 08035202434.

When you compare where Latin American producers are in similar areas of endeavour, the scale of the effort needed in Africa to catch up becomes more apparent.

Take Inka Crops, the maker of the Inka line of plantain chips and other ethnic snacks in Peru, for instance.

Quite apart from the advanced trade channel development that Latin American producers tend to invest in (it has a dedicated marketing vehicle in the US, Inka Foods), Inka has invested into a relationship with Elea Technologies to introduce the Pulsed Electrical Field (PEF) range of production systems to its production plants, becoming one of the first plantain chips companies to adopt the approach.

PEF standardises a broad range of production functions, from peeling to drying; and minimises production errors and quality defects.



From its start in the lab, it is now taking on a new sheen of importance in the food business based on the charisma of the technologists commercialising it in Europe and America.

What is even more remarkable is that Stephen Toepfl, the founder-inventor of Elea, does not present PEF as an efficiency play, despite all the process-enhancement elements listed in its manuals.

Instead, Stephen talks about food safety, energy reduction, crop integrity, and of course the quality of new-age diets and its impact on human health. He insists, for instance, that using PEF automatically assures 15% less oil use.

Consumer obsession

An obsessive focus on the trends shaping the lifestyles of end-consumers thus pervade the entire value chain logic of sophisticated plantain chips producers, percolating into even their equipment suppliers. It really helps that some of the top producers, like Chifles, started off initially working as distributors and thus built an intimate awareness of subtle market shifts.

Latin American and Asian producers market their chips as gluten-free, paleo, cholesterol-free, etc., feeding into powerful trends that resonate with key export markets like Europe and the United States. Banana Joe has even added the whole "prebiotic" and "probiotic" shill. Some influential health writers have bought into the narrative and declared plantains a "superfood".

No wonder the "healthy snacks" segment is projected to grow into a $150 billion market by 2030 on account of this whole push. Increasingly, plantain chips buyers in the Middle East and Near East also expect similar promises.

Cultural intangibles

Peruvian producers even go further to blend a healthy dose of cultural heritage into the mix. Inka's brands, for instance, drip with ancient Mesoamerican chic.

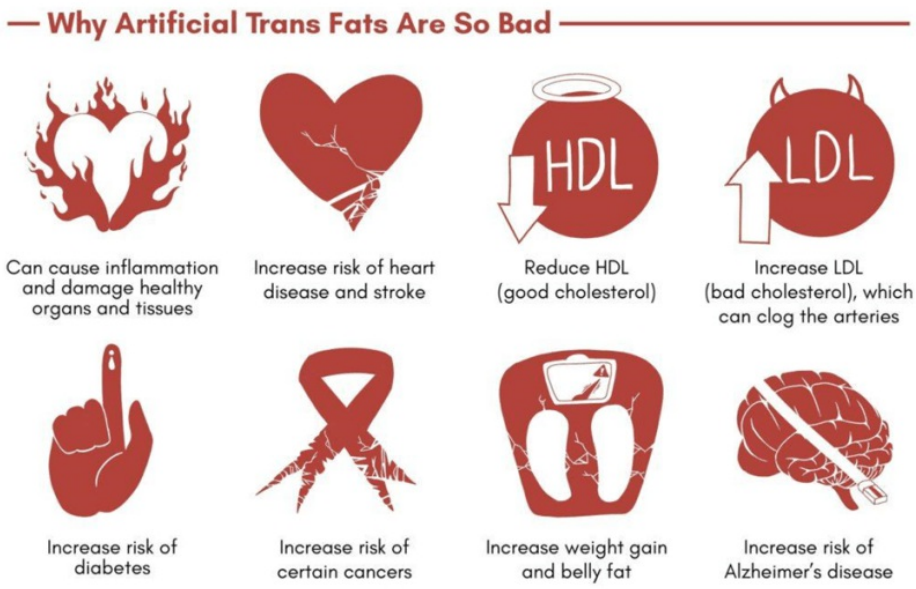
Where there is heritage, tourism cannot be far off. Peruvian country-brand marketers have thus doubled-down on interweaving gastronomical tourism with national branding in ways that extend to individual exports. For example, rare crops found in corners of the Andes and native recipes fuse into exotic snack brands like the increasingly popular Andina crisps.

Source: Libre Entrerios

Source: Andina Snacks

The degree to which mainstream African producers have been lagging this trend is evident in perennial concerns about polythene being mixed with frying oil and the need for regulators to issue periodic reassurances about locally produced plantain chips.

It is also evident in studies that find excessive trans-fats due to repeated use of the same oil volume to fry multiple batches of chips. Trans-fats are some of the most demonised food substances in modern food discourse.



Source: Flipscience

Latin American producers, like Chiffles, on the other hand, go to great lengths to present themselves as trans-fats free and generally superior, health-wise, to mainstream chip brands.

Nutrient	Chifles Original Plantain Chips	Difference	Average/Median Chips
Calories	170kcal	+10%	152kcal / 155kcal
Carbohydrates	20g	+14%	17g / 17g
Sugar	~	-100%	1g / 1g
Dietary Fiber	3g	+118%	2g / 1g
Total Fat	8g	+10%	8g / 9g
Saturated Fat	2g	+45%	2g / 1g
Trans Fat	~	~	0g / ~
Cholesterol	~	~	1mg / ~
Sodium	30mg	-84%	196mg / 184mg
Protein	~	-100%	2g / 2g
Vitamin C	4mg	-24%	6mg / 5mg
Calcium	~	-100%	20mg / 10mg
Iron	~	-100%	1mg / 0mg
Potassium	206mg	-27%	257mg / 284mg

Nutrition comparison between Chifles Original Plantain Chips and the average chips, 1 serving (30g).

And, now, for the shining stars

Luckily, there are important trend-buckers whose work stops this story from ending on one note: a pure lamentation about the lost cause of Africa's plantain chips prospects, and the ambitious hearts the failure to capture export markets have broken.

Thelma Oviasu, the Nigerian-American founder of Tehiti Foods, producers of the Tehiti brand of plantain chips, is one such trend-bucker who has long understood the game.

She is promoting the concept of "formed" chips as a way to boost the nutritional profile of Tehiti chips since forming allows the addition of more healthy ingredients.

Jamie Saleeby may complain about the excruciatingly challenging supply chain issues interfering with scaling (he has tried to source all Sankofa's plantains from Ghana), but he and his crew are determined to make Sankofa Chips a household name in the US.

His most darling pitch is that Sankofa Chips are "heart food". The marketing language radiates with antioxidant joys about transcending the aches and sorrows of digestive problems and blocked arteries. And, of course, there is enough flavour to overwhelm an oriental feast.

Even on the technological front, Asian modular suppliers are coming to the rescue. For example, Sherry Liu of Henan Gelgoog Machinery spends quite a bit of her waking hours trying to capture the attention of African plantain manufacturers.

To keep things simple, Henan Gelgoog has created dedicated marketing portals and service channels for specific value chains, such as plantain chips. Each archetypal setup can be purchased piecemeal or in integrated form, providing immense flexibility to capital-constrained African entrepreneurs.

So, even if the likes of GRATIS and FIIRO fail to step up, there is ample opportunity for serious producers to turn to Asia for more responsive tools and technical support. It is definitely not all doom and gloom.

A few parting notes on value addition

For me, it goes without saying that industrial policy premised on export competitiveness is an essential step on the African transformation ladder. The evidence in support of this view is now quite compelling.

It also seems trite to me that the bulk of the value in any value addition matrix these days has shifted towards *demand-side transformations*. Production efficiencies centered primarily on fixing country-level capacity issues that do not proceed in close contact with iterative feedback from the main export markets would simply fail to support commercial feasibility at operational scale.

At the heart of many a value-transformation effort in Africa's industrial policy landscape is the positioning of commodities, especially agro- and mineral commodities. Far too often, policymakers and their development advisors obsess about things like yield and marginal efficiency. These are important but not sufficient criteria for success.

When you take cocoa for instance, what was a quirky bitter drink in pre-colonial South America was first made tradable due to entrepreneurial beverage vendors in Europe determined to create a category to compete with coffee and tea.

The subsequent turn to chocolate that made cocoa a mass commodity was entirely mediated by a series of technological inventions that created a whole new world of value to consumers, very little of which could have been contemplated in origin countries.

On the path to chocolate, cocoa was branded in a thousand value-conferring guises. As an aphrodisiac (as well as genital disease dispeller), hair growth stimulant, breastmilk enhancer, dental cleanser, and fertility promoter.

But, as chocolate, the ante needed to be upped. Chocolate demand was stimulated by having hospitals stock them for compounding purposes to create bespoke medical prescriptions. As one commentator has noted, the brown stuff eventually came to be prescribed and dispensed like aspirin.

After a while, it became clear that too much emphasis on the morbidity of diseases and their cures was limiting, so new story flavours of the narrative had to be found. Chocolate became a romantic charm. A veritable Cupid's arrow. Even the Church was

eventually seduced.

Thus, while it is true that improvements in agronomic techniques, marketing boards, one mysterious beans smuggler, and innovations in commodity derivatives have all had a role to play in boosting cocoa production in origin countries, the demand shifts in consuming countries were perhaps just as critical and more scale-determining, which is probably why most of the value still stay there.

Cocoa did not become a mega-commodity due to inherent attributes alone, or only because production was stimulated. Nor has value differentiation into chocolate merely emerged as a consequence of processing improvements. It would seem, then, that "creating" a mega commodity export is a matter of conscious, long-term, demand-transformational exercises.

In particular, the chocolate technological curve, starting with 19th century industrial interventions by the likes of Conrad Van Houten and Henri Nestle, appear to have been shaped predominantly on the demand side, thereby reinforcing the distribution in favour of importing countries. This is obviously not exactly the case in, say, semiconductors, where close-coupled innovation between exporters and importers has allowed a reasonable balance.

Especially critical in these demand-side shifts are the role of "transmediation" systems that allow innovation, entrepreneurship, and technical invention, to meet with marketing, distribution, and narrative-formation. The Quakers, a small Christian community driven by a passion to supplant alcohol, for instance, were absolutely vital for providing the medium for the chocolate confectionary industry to blossom.

It should be clear to my dear reader by now that "plantain chips" was merely the canvas we chose to have a more wide-ranging conversation about what it takes to truly drive export-driven value-addition in the current consumer-centric environment.

Whether our focus is on cashews, chocolate, or, indeed, plantain chips, the key lesson we must take away is the need to pay as much attention to the ***intangibles*** as we do to the material tangibles in the value chain. In these times, the intangibles are stacked on the demand-side where most of the true value addition become clearer and ripe for crystallisation.

Plantain chips need not break any more African entrepreneurial hearts. The world still awaits their daring.