The Crisis in Cocoa for Industry and Farmers
Help that Industry Needs and African Farmers Want

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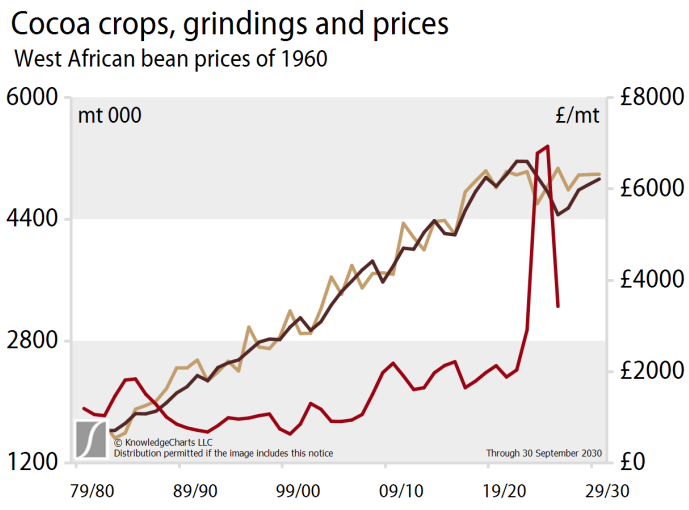
Part 1: History of the Crisis

Every person working in any cocoa-using industry knows the events of 2023-2025. Cocoa prices jumped from £2000 before these years to averages of £7000, with daily prices sometimes approaching £11,000 then fell almost as quickly as they had risen. The result has been steep increase in retail prices, shrinking packages, products disappearing from store shelves, firms disappearing or losing value,



excitement then despair among cocoa farmers, anger at marketing boards, and questions about the actions of speculators.

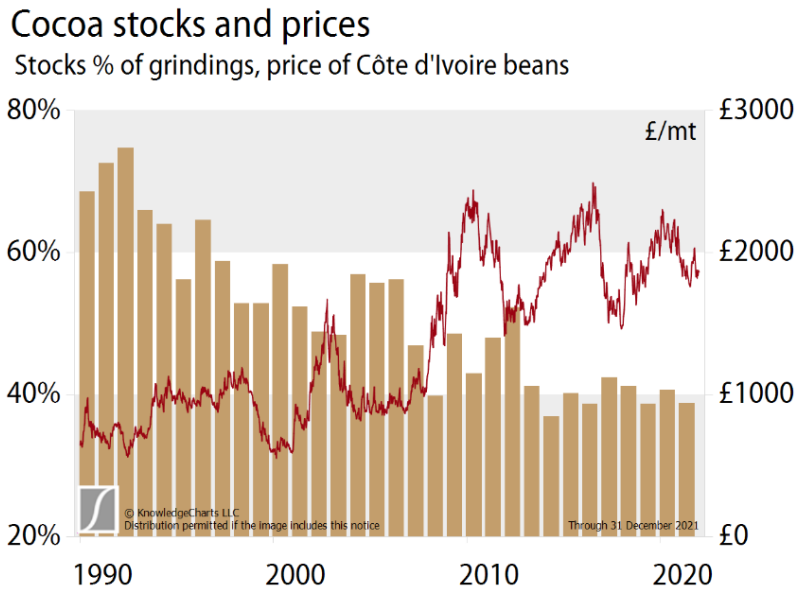
Behind the story of these years, and relevant to it, is a longer story of worsening crises. Some crises happened before the time of living market participants. This is that history. There were disputes in the 1930s between the U.K. confectionery industry and agents in Ghana who collected and exported cocoa beans. The fight led to the creation of an organization in Ghana that today is the Ghana Cocoa Marketing Board, Cocobod. In the 1960s one huge crop and low prices, followed a few years later by foolish taxation of cocoa farmers, led to a collapse of Ghana's crop. In the 1970s, there was a crisis not entirely different from 2023-2025. The declining crop in Ghana, strong consumption growth, some weather losses, and the economic chaos of the 1970s brought about a bull market. That bull market reached its peak in 1977, then fell for four years to a bottom in mid 1981. As prices fell, the governments of the origins persuaded some consuming countries to join them to organize the International Cocoa Organization (ICCO) with a provision for accumulating a buffer stock to support prices and farm incomes. Calls for improving indigenous farmers' incomes, including cocoa farmers, were starting. However, within a few years, the buffer stock was overwhelmed by general stocks that accumulated to amounts never expected. By 1991, end-of-season world-wide stocks were 1765 tmt and 75% of a year's grindings. In the late 1990s, the World Bank, IMF and other institutions proposed a different solution to the problem of low farm incomes. They argued that Côte d'Ivoire and Ghana could solve the problem of poor farm incomes by closings its marketing boards and allowing free markets. Côte d'Ivoire closed its Caisse de Stabilisation and allowed exporters to compete in buying from farmers. Ghana resisted and kept Cocobod open except to let private firms compete with Cocobod's Produce Buying Company (PBC) in collecting cocoa from farmers. Côte d'Ivoire brought back a marketing board in 2011, Le Conseil du Café-Cacao.

A sequence of public relations crises started in the early 2000s. The calls to increase cocoa farmer income reached the news media and public awareness. The first lawsuit regarding child labor was filed in about 2005. More lawsuits regarding child labor and general slavery have followed from time to time. These consume years of litigation and generate press coverage. The first investigations into deforestation in cocoa-growing areas appeared in about 2017. As market participants know, these have expanded to become a common topic in the public media as well as in industry conversations, reports and meetings.

Less visible but today very important, stocks declined relative to need after 1991. Although tonnes of stocks were roughly stable from 1992 until 2022 tmt, they declined as a percentage of grindings from 75% in 1992 to 41% in 2018. Consumption had been

outpacing consumption for 30 years. After 2018, the tonnes of stocks also fell while consumption continued to rise.

Four cycles of rising then falling prices happened between 2000 and 2022. The cycles reached peaks of £1670 in October 2002 for Côte d'Ivoire beans CIF Europe, £2440 in January 2009, £2490 in February 2016, and £2470 in May 2020 (London second distant). Stocks relative to grindings declined in this period from around 49% to 40%. Global weather, the ENSO, probably was a factor once.*



The decline of prices during 2016/17 after the third bull market and the long history of the marketing boards and their impoverished farmers seeking higher prices merged into efforts of Côte d'Ivoire and Ghana to propose in 2019 to add a Living Income Differential (LID) on exports starting with the 21/22 season. Conflict with the cocoa-using industry followed. The industry agreed in public while fighting back in private. The rise of prices in early 2020 to £2304 happened in part because the LID meant a higher differential in the world market. The last rise ended as the Covid pandemic started. Although the LID continues in name, any effect on farm incomes ended soon after it came into effect.

The fifth bull market started in late 2022, continued through 2023, and reached peaks in 2024 just short of £10,000 and $12,200 (second distant). A major reason for the extreme movement was that market participants were coming to the view that the crops of Côte d'Ivoire and Ghana were in long-term decline. The crops probably had peaked in 2019/20. Speculators, including speculators from the cocoa trade and cocoa processor industry, accelerated the rise.

**A very strong El Niño occurred during 2015-16. It probably contributed to the third bull market cycle. The 2015/16 crops of Côte d'Ivoire, Ghana, and Ecuador were 425 tmt/14% less than in surrounding years. Global weather probably was not a factor in the other years. NOAA did not report either a La Niña or an El Niño before the 2002 peak although the crops declined 13%. NOAA reported a weak La Niña during 2008-09 before the 2009 peak. The crops declined 10% in 2008/09. NOAA reported a weak El Niño during 2018-19 before the 2020 peak. The 2018/19 crop rose 9% and the 2019/20 crop declined 3% from surrounding years.*

Results of the fifth cycle of the past 20+ years have been a 9% decline in worldwide consumption of cocoa in all forms, in races to replace chocolate confectionery with sugar confectionery, and in races to find substitutes for cocoa beans or its products. Firms that once specialized in bringing chocolate to consumers are not only diversifying into other snack foods (for societal reasons besides cocoa prices) but also are retreating from relying only on cocoa.

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Part 2: Yield and the Crisis

The lack of any significant improvement in the yield of cocoa trees, especially in the most successful area of cocoa cultivation, West Africa, ties together the crises of the past three decades. A comparison with wheat illustrates this. Chocolate first entered the middle-class diet of Great Britain in the 1850s. At that time, producing one bushel of wheat required 3 man-hours of labor. Today, 175 years later, producing one bushel requires around 2 *minutes* of labor. Large increases in yields have been achieved in probably every staple food crop for man and animals: corn, soy, oil seeds, barley, oats, beans, nuts, sugar, potatoes, rice, sorghum, vegetables, fruits, alfalfa and others. In contrast, probably more than 80% of the world's cocoa beans are cultivated in Africa and elsewhere by methods that have not changed significantly in 175 years. The entire chocolate confectionery industry, with its technologically advanced factories, computerized management systems,

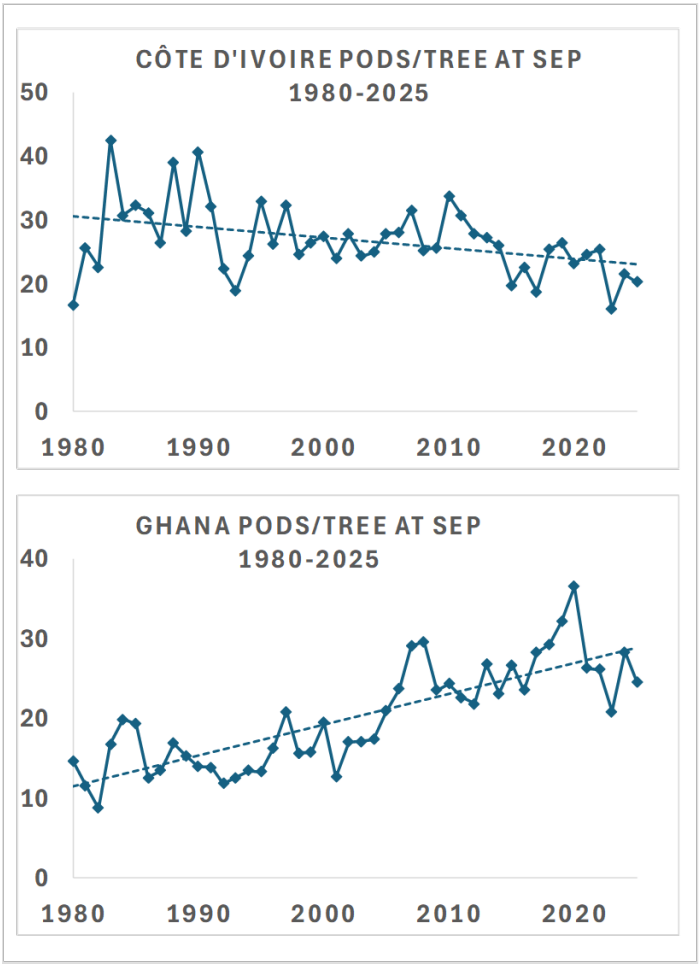
and sophisticated marketing departments, depends for its main feed stock on a workforce of mostly impoverished, often uneducated and illiterate, often recently immigrated, and often discriminated-against farmers working by hand.

The total yield of cocoa trees in Côte d'Ivoire and Ghana probably reached its peak in 2019/20 and has been declining about 75 tmt each year since. The declines in each country have been for different reasons. The following charts reveal important reasons. The charts show the number of pods counted on each cocoa tree during September of 1980-2025 by teams working in Côte d'Ivoire and Ghana. They show the number of pods at the time the main crop harvest was starting. Although counted by different people and on gradually changing sites, the results will be comparable across years because the number of sites was always about 100, the number of trees 500-600, and the sites were distributed widely through each country. A count during September is likely to be the most accurate of all counts made during a year because most pods are large enough to be seen. The total main crop harvest will be close to the number of pods per tree found in Sep multiplied by the number of trees in the country. The counts are measures of the average main crop yield per tree in each season.

The histories are very different.

- Through the 1980s and early 1990s, the number of pods on trees in Côte d'Ivoire was stable at about 30. Then the number began to decline. The number has continued to decline through 2025 and the decline may have accelerated in the last 10 years. In recent years, the average slipped to about 25 pods/tree.
- The pod load on Ghana's trees also was about stable in the 1980s but very low, around 14. It declined in the mid 1990s. Then it rose steadily and may have risen through 24/25

despite the 23/24 failure and weak 24/25 season when weather probably played a role. If the rise continues, it will reach the 30 pods/tree counted in Côte d'Ivoire forty years ago. The long-term rise in Ghana has been about three times as rapid as the long-term decline in Côte d'Ivoire. For every one pod that disappeared in Côte d'Ivoire across seasons, three pods appeared in Ghana.



The difference almost certainly reflects structural differences between Côte d'Ivoire and Ghana.

- Except for controlling prices and sales, Côte d'Ivoire never regulated closely its cocoa industry. Until a few years ago, it allowed farmers to migrate freely into native forests. The expansion of its crop depended on immigration from the Sahel of people without experience in cultivating cocoa. Côte d'Ivoire did not subsidize fertilizer or agrochemicals or make significant efforts to promote their use. It operated limited extension services for cocoa. There was some research and general service for agriculture under organizations called SATMACI (cocoa and coffee) and since the 1990s ANADER (all agriculture). Trees aged, farmers aged. Swollen Shoot invaded from Ghana if it was not already present, and recognition of its presence came only in about 2015.
- Besides controlling prices and sales, Ghana has been continuously involved through Cocobod in every phase of cocoa cultivation. It has subsidized fertilizer and agrochemicals, sometimes 100%, and has almost always been involved in importing and distributing them. It has maintained a large extension division (CHED-Cocoa Health and Education Division) or predecessors with comparable responsibilities, distributed equipment for spaying, pruning and weeding, and hired teams for these tasks. Cocobod's CRIG, Cocoa Research Institute of Ghana, dates from 1938. Swollen Shoot was recognized in Ghana during the 1930s. Programs to combat it started in the 1950s. These usually consisted of cutting out diseased trees, paying farmers for their

losses, and replanting. Campaigns against Swollen Shoot have happened every few years. Replanting often has been with new cultivars. They would have improved the tree stock and reduced its average age. Cocoa has been part of the culture and continues to be very important in the culture, for example, via competitions for best cocoa farmer.

Critics of Cocobod often complain about its inefficiency, mismanagement and corruption. The complaints have merit. At every election, Cocobod can be a tool for winning the farm vote. Factories that Cocobod finances are perennial money losers. Despite these real problems, the charts of yield/tree show that the existence of Cocobod and the cultural commitment to cocoa has accomplished something that Côte d'Ivoire has not accomplished.

Ghana's crop has declined because farmers switched to other crops or sold their land for galamsey (gold prospecting). The total land area planted with cocoa declined. In Côte d'Ivoire, the crop increased because farmers migrated to the forests. The area planted to cocoa expanded so fast that the decline in yields was hidden in the rising tonnes of arrivals at port.

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Part 3: Sustainability Programs, Yield and the Crisis

There have been sustainability programs directed at cocoa since 1987. These originated outside of West Africa, mostly in Europe, promoted by non-governmental organizations. Those named in searches were Rainforest Alliance, Fairtrade, and UTZ. Their goals were to protect the environment, establish agricultural standards, (probably focused on chemical use), promote the welfare of farmers, create certification and traceability systems, audit these, and monitor child labor. They were financed by government and industry. By paying to support these branded programs, industry bought permission to tell consumers that it was supporting sustainability. "Yield" was not included in any conspicuous way.

In the early 2000s, fighting child labor and other forms for slavery in cocoa cultivation became a major focus of these programs. Systematic surveys tried to discover the extent to which children were working in cocoa. Some of the surveys in Côte d'Ivoire found very high

numbers. Arguments about the numbers usually followed and new surveys were commissioned. The first lawsuits alleging that the major confectioners looked away from child slavery were filed in about 2005.

Also in the 2000s, industry members started to develop their own sustainability programs. The main reasons were to influence the otherwise autonomous programs and to reduce the costs of the programs. Preventing deforestation became another objective as the risks of Global Warming became prominent in the press. The industry's first programs were joint projects. The World Cocoa Foundation (WCF) has been an important vehicle of industry. It started in about 2000. Others have been the International Cocoa Initiative (2002), Cocoa Action (organized under the WCF in 2014), and Cocoa & Forests Initiative (2017). Mentions of yield and productivity increased. Nestlé started its Nestlé Cocoa Plan in 2009 to address agricultural practices, rejuvenate plantations, empower women, prevent child labor, certify cocoa, and improve education and social conditions. In 2016, Nestlé reported that it had distributed more than two million improved cocoa seedlings and had trained 57 thousand farmers. Most other large firms followed with sustainability programs: Mondelēz's Cocoa Life in 2012, Cargill's Cocoa Promise in 2012, Barry Callebaut's Forever Chocolate in 2016, Mars' Cocoa for Generations in 2018, Hershey's Cocoa For Good in 2018, Olam's (now Olam Food Ingredients) Cocoa Compass in 2019, Nestlé's Income Accelerator Program in 2022, and Hershey's Hershey Income Accelerator Program in 2023. There have been other programs developed by firms that trade in cocoa beans and products that could be added to this list.

Broadly, the first 20 years of sustainability programs, from 1987 to the late 2000s, were composed of independent, branded certification businesses. In the 2000s, the main firms of the cocoa industry began to work together, such as in the WCF. By the end of the 2000s, a migration to company operated individual programs had started and continues. The focus also migrated from certification alone to traceability, reducing child labor, stopping deforestation, and increasing farm incomes. CRA's searches returned only occasional mentions of yield or productivity.

Summaries generated by AI searches found that cocoa sustainability programs were responses to public pressure, first about child labor, later about the poverty of cocoa families, and then deforestation. While the industry certainly has been concerned about protecting the positive image that chocolate has enjoyed since it entered Britain's middle-class diet in the 1850s, later in the western diet everywhere, and now in almost every culture, CRA's view is that the criticism is unfair. While image protection certainly has been important in the industry's messaging to consumers and consumers' governments, there have been serious and well-meaning attempts to find solutions. Collectively, the largest

processors and users of cocoa beans have spent billions of dollars from about 2009, when Nestlé introduced the Nestlé Cocoa Plan, to train farmers in better techniques, reward them for adopting these better techniques, to provide higher yielding seedlings, and to build schools for their children.

Critics of the sustainability programs include the companies that themselves develop, maintain, and fund the programs. They have acknowledged that farm poverty has not improved, that productivity has not increased, that training farmers is insufficient, and that the industry's efforts, despite major investments toward reducing poverty, providing a living income, preventing child labor, and stopping deforestation have been insufficient. Whether the EUDR finally brings an end to deforestation remains to be seen. One of the common themes is that past programs have not succeeded, that then current levels of investment were not enough, and that collaboration is needed. The recent organization of the TogetherCocoa Foundation doubtless has resulted from the industry's introspection and searching.

The main reason given for the unsatisfactory outcome of billions spent has been that poverty is the root cause and that the size of most programs, even though the sizes have been measured in billions of dollars, has been too small for the number of farmers in Côte d'Ivoire and Ghana. Other problems have been listed – training reaching too few farmers, certification premiums too small, no collaboration between the programs, tiny farms. These are part of the required scale being too large. Estimates place the number of farmers in Côte d'Ivoire and Ghana at near two million (with more in a half dozen other countries where cocoa is grown). Corporate reports about sustainability programs tell of reaching some tens of thousands of farmers each year, that is, a few percent of the farmers. The reports are unclear because they give inconsistent measures. (They sometimes give the cumulative numbers reached over multiple years, or the number reached in all countries where the firm sponsors programs, or the number of individual contracts through the year.) Regardless of the lack of consistent measures, industry members themselves say that their outreach has been insufficient to accomplish the goals. For this reason, 2026 has seen discussion of collaborating and the launch of the TogetherCocoa Foundation.

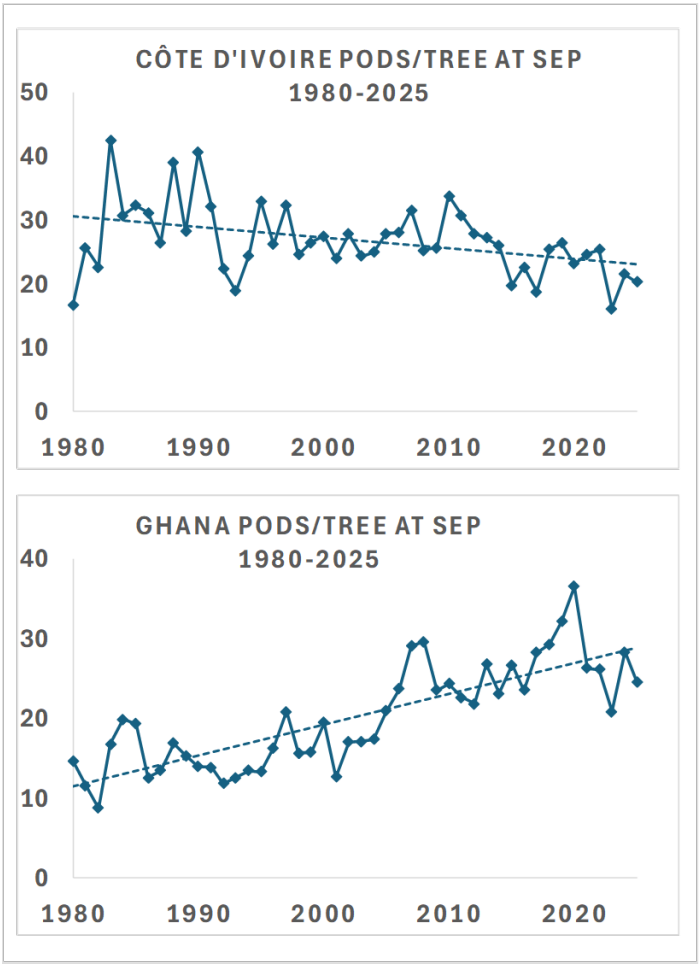
CRA sees additional reasons for industry's disappointment. These generally are not recognized or articulated.

- The relationships between the farmers and the industry are inherently adversarial. The farmers understand that the industry wants lower prices and that these lead to lower farm incomes. The certification programs pay the farmers for meeting goals set by the industry or by the certification programs working for the industry. The goals are set in Europe or the U.S. by NGOs, governments, or industry technical staffs. The industry

does not buy from farmers. It buys from exporters, exporters' employees or contractors that are fighting to pay the lowest possible price to the farmers. Year after year, anecdotes circulate about how actual buyers find ways to pay the farmers less than the official farm prices. Although a few exporters that have started sustainability programs now both work with farmers and buy their harvest, credible stories of price gauging persist. This is the reality of what has been happening on the ground for a century or longer. From time to time, the adversarial nature of the industry-farmer relationship spills into the open. An example was the industry's reaction to the LID, which praised the LID in public and promised cooperation, but fought it privately, for example, by demanding an offset in the origin differential. All programs intended to help the farmers are viewed by the farmers against this background.

- There are cultural differences between farmers and the mostly European and American cocoa industry. For around 50 years, many new cocoa farmers in Côte d'Ivoire came from the Sahel countries north of Côte d'Ivoire – primarily Mali and Burkina Faso. They brought with them religion that combined Islamic and/or Christian practice with traditional African beliefs and customs. This sometimes has come into conflict with agricultural practices that the cocoa industry has recommended. CRA once learned from a colleague that farmers had resisted cloning or pruning trees because they feared that the tree would feel the injury.
- Sometimes there is outright cruelty toward farmers through no fault of their own. The demands for stopping deforestation come from countries outside of West Africa where there is panic over global warming. Through their connections to the world, people of Africa know that Europe and North America cut down their forests long ago and that firms in Asia and South America still are cutting down forests. Under pressure from outside Africa, the military of at least Côte d'Ivoire has periodically invaded the villages of migrants who are farming cocoa in forests, destroying their villages and possessions, sometimes injuring them or sometimes even killing them. Some of the anger and fear will be directed at the cocoa industry.
- There has been too little emphasis on yields and productivity, and no emphasis on weather, Global Warming, or how oceanic cycles such as the El Niño Southern Oscillation (ENSO), Indian Ocean Dipole (IOD), and Guinea Current affect West African Weather. The charts presented by CRA in its discussion of cocoa yields show that there have been major differences between the yields of Côte d'Ivoire and Ghana. The number of pods per tree in Côte d'Ivoire has fallen over 45 years from around 30 to 25 or less. The number in Ghana has risen from 12 to 28 with a dip possible in recent years. Against this background, it is unclear what the productivity claims of some

sustainability programs contribute. Where there is a claim, it usually is based on comparison with a control group. The claim does not mean that the increase continued year after year or that it could be transferred to all farms. CRA's charts sample broadly each country and ask about events watches over 45 years. The histories of Côte d'Ivoire and Ghana show that there is much to be learned about improving yield. The first conclusion appears to be that the persistent engagement of Cocobod with farmers, despite its many defects, has been very important for increasing yields.



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Part 4: CRA's Offer to the Industry

The staff of Commodities Risk Analysis has served the cocoa industry with data and economic analysis for 45 years. CRA maintains and seeks to increase its collection of useful data. This activity led to a recognition that weather data for cocoa growing areas did not exist except at some airports and often was not reliable or timely. These airports also were often far from where cocoa grows. Unlike weather in Europe and North America, weather conditions tend to be local. Weather from airports therefore was not useful even when it existed.

CRA found that weather stations offered for sale were expensive, attracted theft, needed frequent maintenance and were not prepared to take advantage of the spread of mobile services into cocoa growing areas. CRA therefore set about to create a weather station

appropriate to the need, and with it, a communication network and on-ground staff to ensure a continuous and prompt flow of data.

This Veriground network of stations reports from cocoa areas in Côte d'Ivoire, Ghana and Ecuador. Reports can be reached at the Veriground website, www.veriground.io. Reports that show summaries for each country are on the home page. Reports that show rain by region of each cocoa growing area are free for giving one's email address. Other free pages show maps of where stations are. Raw data by site are available via API (Application Program Interface) and many charts that show and compare data over years and across regions are available. One can peruse examples of the charts. At the "News" page, CRA is posting white papers that report on topics such as comparing reports from Veriground stations with reports from other sources such as satellites.

CRA's network can help the farmers increase their yields, help the cocoa industry's sustainability programs become more effective, and create good will between the industry and farmers. It can do this in these ways:

- Veriground can provide local weather forecasts to help farmers raise yields by improving the effectiveness of any fertilizer or agrochemicals they now use. The Veriground stations provide hourly weather data to a major European forecasting service. CRA distributes the forecasts to farmers in the vicinity of the stations. This makes possible weather forecasts for African farmers that are as accurate as forecasts available to European farmers. It is widely recognized that forecasts made including local weather are more accurate than forecasts without this extra information. While building its network in Ghana, Veriground worked with extension officers in a district of Cocobod's Cocoa Health and Education Division (CHED) to get the forecasts to farmers. Farmers were eager for the forecasts. The CHED officers created ways to distribute the forecasts efficiently. Both farmers and CHED officers have reported that the forecasts reduced fertilizer waste and increased yields. The data that is available support their judgements.

- Veriground can build cooperative relationships between industry and farmers. A weakness of the sustainability programs is that their relationships with farmers are mostly adversarial. The certification programs tell farmers the standards that they must meet. The premiums for meeting the standards often are low. The farmers know that the main interest of the industry is in getting cocoa as cheaply as possible and that they usually must sell to buyers who do not represent the sponsors of the sustainability programs. CRA provides the forecasts to farmers without cost. Farmers receive

something that is free to them, comes without strings attached, and is provided by the industry.

- CRA has arranged ways to reach every farmer. CRA's automated distribution system allows a farmer to ask to receive forecasts in their language and to even the most basic phones. The main system is operating in Ghana now. CRA has planned efficient ways to tell farmers about the availability of forecasts, mostly through posters at buying centers or coops, broadcasts over village ratio networks, and word of mouth or farmer to farmer text. Initial staff is available to handle distribution and methods have been tested. Veriground staff probably reach already more of the cocoa growing area in Côte d'Ivoire and Ghana than others because Veriground stations are distributed much more widely than fixed pod count routes. One of the methods that they have originated is to give t-shirts that any farmer can use to access forecasts. The shirts have delighted the farmers.

- The transmission system implements the principles of effective advertising. These principles are to earn the attention of an audience by offering them something that they want, add the advertiser's messages, and repeat consistently in many settings. For example, "Rain is coming. Tomorrow is a good day to fertilize. Brought to you by _____" or "No rain expected. This is a good time to prune a few trees. Pruned trees will produce more cocoa. A reminder from _____." The difference is that, instead of promoting a product, the messages remind and encourage the farmer. The farmer has the freedom to choose whether to seek them. Veriground's experience has found that the farmers are eager for the forecasts. The Veriground system customizes messages to farmers according to the station closest to them, the time of year, and other factors. The firms that sponsor the sustainability programs recognize that the difficulty of maintaining relationships and contacts with farmers has constrained the programs' effectiveness. Veriground offers industry a way to break through this constraint. Veriground provides supply chain innovation at the first link of the chain.
- While helping the farmers and helping the industry maintain close contact with the farmers, Veriground also can provide industry with valuable information about the condition of its cocoa feedstock in these critical origins. The extensive network of

stations that would be involved, about 500 sites in Côte d'Ivoire and 400 sites in Ghana, will provide data for assessing rain in specific sourcing areas, relate pod counts to weather reports, report rain intensity as well as amount, identify areas were Black Pod or cherelle loss are likely, and show the progression and intensity of the Harmattan.

The Crisis in Cocoa for Industry and Farmers
Help that Industry Needs and African Farmers Want

Conclusion

Today, the entire chocolate confectionery industry, with its technologically advanced factories, computerized management systems, and sophisticated marketing departments, depends for its main feed stock on a workforce of mostly impoverished, often uneducated and illiterate, often recently immigrated, and often discriminated-against farmers. Calls for "supply chain innovation" are entering industry conversation. This often refers to offering or using alternatives to cocoa as ingredients in consumer products. The history of cocoa shows that it is very difficult to replace cocoa powder and cocoa liquor. While a surprise is possible, the attempts now underway at costs reaching many millions of dollars must prove their relevance. Furthermore, every tonne of cocoa powder replaced reduces the need for grinding 2.2 tonnes of cocoa beans. Declining grindings will contribute to collapsing cocoa bean prices and cocoa stock accumulations like those of the 1990s. Low cocoa bean prices probably will make the alternatives not worth their cost. "Supply chain innovation" benefits by paying attention to the starting point of the supply chain, the yield of cocoa beans from the farm.

Opportunities for more professional cocoa cultivation are increasing, even in Africa. Mechanized farms, where machines cultivate fields and even collect cocoa pods, are appearing in Brazil. Besides its cocoa heritage, residents of Ghana are starting to recognize the possibilities for expanded agriculture of all kinds, including cocoa. The Volta River, its Lake Volta, and two tributaries run north to south mostly outside of the cocoa belt. Large projects are being planned with irrigation for many crops along Lake Volta in the Eastern and Ashanti regions, and along the Black Volta in Brong Ahafo. Cocoa plantations in Brazil are cultivating cocoa successfully away from the traditional areas. Examples of mechanized cultivation and harvesting are appearing there. A major advantage of irrigated cocoa cultivation in Ghana north of the forest is that Swollen Shoot and Black Pod will diminish. The mealy bug species responsible for spreading Swollen Shoot is reported to favor humid, warm conditions. Outside of the forest the species might be uncommon. Outbreaks of Black Pod certainly will be less common, if even possible. Plantation cultivation of cocoa in Ghana appears to be practical. As farmers age and retire, and as their children move to the cities, both of which are happening, plantation cultivation of cocoa in Ghana can be possible and might become a new center for cocoa in Africa. Water resources in Côte d'Ivoire are less, but probably can be sufficient for cultivation in a band north of the main cocoa area.