

Ecuador Trip Report
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Trip Overview and Objectives

After nearly twenty years of historic growth (GDP rose from \$18.3B to \$100.1B in real terms between 2000 and 2015 according to the World Bank), agriculture continues to be important to Ecuador, and is considered its largest employer (US Embassy). Ecuador has been exporting cacao for more than a century and it continues to be a key agricultural sector accounting for approximately 8% of GDP or US\$814 million (Ministry of Agriculture). Nearly all the production is exported due to little chocolate consumption by Ecuadorians, resulting in relatively low domestic demand (3% goes to local consumption, the rest to exports). Ecuador is now a global leader exporting cacao (5th largest in the world, behind Ivory Coast, Ghana, Indonesia and Cameroon)ⁱ. Ecuador's long history of producing cacao, and its current position as the largest cacao exporting nation in Latin America, provides an excellent backdrop for examining the current opportunities and challenges facing the cacao sector in Latin America and the best practices that have led to Ecuador's ascendance in the global marketplace.

During our week-long visit, we interviewed government officials, university faculty, researchers, producers, producer associations, exporters, traders, and NGO personnel among others (See Appendix for itinerary for trip). The original objectives for our trip were the following:

1. Understand the governmental support system that created a successful cacao supply chain
2. Determine how extension has played a role in the increase in cacao yield and acreage
3. Study the farmer producer organization structures that helped to create a favorable supply chain for cacao producers
4. Gain an appreciation for the financial mechanisms that have been put in place for the scaling up of the cacao sector in the country
5. Understand the role of cacao in poverty reduction strategies

Similar to Colombia, there are indigenous varieties (*Nacional* or *arriba*), which have been cultivated in a number of specific regions of the country (Esmeraldas, Amazonas, Manabí, and others). Although these varieties are highly prized because of their genotype and phenotype (genetic diversity, flavor profiles, potential disease resistance characteristics, etc.) by producers, government, research institutions, and others, they are often not as productive as the variety CCN51. So, while we collected information that pertains to each of these objectives, the prevailing discussions revolved around the viewpoints of factions that support the notion that *Nacional* varieties of cacao are the foundation for moving forward and those that see Ecuador's future in the CCN51 cacao variety developed in Ecuador in the 1960's. In this report, we provide an overview of our findings and discuss, at length, several pressing issues that we uncovered during our trip.

Overview of Cacao in Ecuador

Since 2000, Ecuador has seen huge increases in cacao exports, as total production went from 51,000 MT in 2000 to 265,000 MT in 2016, a 5-fold increase in a little over 15 years. There are a number of reasons for this increase, including governmental and non-governmental investments in programs focused on the cacao sector (for example, the Government of Ecuador, USAID, CRS and many others committed significant resources during this time) and private sector contributions that included upstream supply

chain innovations and the evolution of large scale plantations. In addition, Ecuador experienced an increase in plantings of CCN51, a prolific variety (yielding up to 2500 kilos per hectare) that has been tested for more than 50 years, is considered somewhat disease resistant, and can be produced with little to no shade. Along with the introduction of high yielding varieties, many new hectares of area were converted to cacao as production extended into multiple areas of the country, some of which had previously been in banana or cattle production. According to FAOSTAT, over 100,000 ha. of land where cacao is being harvested was added between 1999 and 2013, rising from 301,160 to 402,434 hectares harvested. Currently, the Ecuadorian sector can be best described as being in transition. In one respect, it is heavily vested in the past, relying on the flavor profiles and historic bond to traditional *Nacional (arriba)* cacao varieties that are being used to develop new niche products that are differentiated by origin at the regional level. On the other hand, farmers are realizing higher yields and benefiting from the resulting production gains through the adoption of CCN51 and introduction of international exporters interested in the marketing of bulk cacao on the global market. Based on our observations, a tension pervades the Ecuadorian cacao sector and the line is definitively drawn between *Nacional* and CCN51.

Nacional versus CCN51

For the ease of comparison, important variables for the Ecuadorian cacao industry are listed under separate CCN51 and Nacional columns in Table 1. The remainder of the report will follow the order of the variables listed in the table. Market outcomes are referred to throughout as many of the variables examined potentially have some effect on prices received.

Table 1. Comparison between the cacao varieties CCN51 and *Nacional (arriba)*

Item	CCN51	<i>Nacional</i>
Planting Material	Private sector	Public and private sector
Farmer Groups	Few, if any	Grouped for certification and/or vertically integrated with exporter or manufacturer
Plantation	Smallholder and large-scale	Smallholder
Yield	High	Low
Production	Increasing	Stable to Decreasing
Fermentation	On farm	On farm / Collective
Acreage	Increasing	Stable to Decreasing
Flavor	Evolving	Fine and Flavor
Overall Quality	Increasing	Regionalization
Government Support	None	Research, Marketing, Plantation Management
International Community Support	None	Farmer group strengthening
Private Sector Support	Fermentation techniques, planting material, tech transfer	Supply chain development
Cacao Processing and Chocolate Manufacturing	Local / International	Local / International
Cacao Exports	Local / International	Local / International
Farmgate Price	SAME	

Planting Material

CCN51 – We visited Hacienda Cañas in Naranjal, Guayaquil. There we learned that CCN51 cuttings are grown for grafting and prepared for shipment across Ecuador and beyond. CCN51 plant material is only available through private sources such as Hacienda Cañas. While the source material is limited in origin, the quantities produced continue to face high demand (Figure 1).



Figure 1. Preparing the grafting material for CCN51 plantation at Hacienda Cañas.

Nacional – Planting material for these varieties are available through commercial and public outlets. The Government of Ecuador, through the research conducted by INIAP (El Instituto Nacional de Investigaciones Agropecuarias / National Institute for Agricultural Research), maintain clone variety trials on *Nacional* varieties. During our visit to INIAP at their Tropical Experiment Station in Pichilingue, we were introduced to the latest clones EETP-800 and EETP-801 (Figure 2). These high yielding clones are actually crosses between *Nacional* and CCN51. The difference is that these clones have a flavor profile that resembles *Nacional* and yields, during trials, that rival CNN51. It remains to be seen if these clones are widely adopted. There are multiple constraints facing adoption, such as continued trials across Ecuador’s diverse cacao growing regions to see how they respond to disease and differing management practices, as well as the resources at the government level available to commercialize these new clones.



Figure 2. New *Nacional* clones at INIAP experimental station in Pichilingue.

Farmer Groups

CNN51 – There are few, if any, farmer groups that focus their collective energies on CNN51. We were told that a more common scenario is that farmers have both *Nacional* and CNN51 on their farms. The variety, CNN51, is sold individually and, if part of a farmer group, the *Nacional* production is destined for market transactions mediated by the farmer group.

Nacional – We were told that no more than 10% of all Ecuadorian farmers maintain a membership in a producer group. Those that are members have access to markets directly mediated by Ecuadorian and international exporters and collective fermentation (necessitating the purchase of cacao *en baba*, seen Figure 3– cacao freshly removed from the cacao pod and still encased in mucilage - instead of individually fermented and dried), which is used as a quality control measure by downstream actors (Figure 4). This post-harvest practice is to ensure consistency, limit risk, and increase certification assurance as much of the output purchased through farmer groups carries some type of certification. Ecuadorian cacao processors, such as Cofina, work with farmer groups to ensure supply of a variety of certified cacao (organic, Fair Trade, Kosher, UTZ, Rainforest Alliance, etc.). Chocolate manufacturers, such as the Ecuadorian firms Pacari and Republica de Cacao, work with farmer groups in different regions to ensure that they have access to high quality cacao that carries the desired flavor profile. It was mentioned by several entities that work with farmer groups, that members often receive Extension-like technical assistance that is conducted by the entity directly and/or its partners.



Figure 3. Collection of wet cacao (*en baba*) at a community collection point to increase consistency and uniformity for quality control to meet certification requirements.



Figure 4. Communal fermentation boxes to increase the uniformity and consistency in the fermentation of *Nacional* cacao varieties to improve quality control.

While approximately 10% of Ecuadorian cacao producers are organized, one must keep in mind that they do not sell all of their output through the farmer organization. We were told that of the total amount of beans a producer might sell to an association, about 50% are sold through the association's channels, while the other 50% is sold individually by the producer.

Plantation

CNN51 – This cacao variety is grown on both smallholder plots (typically less than 10 ha. and oftentimes less than 5 ha.) and much larger haciendas that cover hundreds of hectares. *CNN51* is usually grown as a monocrop with little shade and planted at relatively high densities (Figure 5). As Ecuador has become a major player in the global cacao trade, there has been an increase in the number of large scale plantations. No one in our group had ever seen the size and intensity of cacao plantations anywhere else in the world. The elimination of shade trees, density of tree plantings, and the extensive areas that have been planted were mind boggling. The planting of trees on an industrial basis has definitely had an impact on the overall production of the cacao sector in the country as well as the productivity on a per hectare basis.



Figure 5. Cacao Variety *CNN51* planted at Hacienda Cañas in Naranjal, Guayaquil

Nacional – The *Nacional* varieties are almost exclusively grown on smallholder farms that employ agroforestry systems which afford needed shade and a variety of economic opportunities for the farm household. Given the relatively low planting densities and small acreage, the diverse portfolio of output found in these systems offers much needed additional sources of income.

Yield

CNN51 – *CNN51* yields were quoted as anywhere between 800-2500 kg/ha. Producers have tended to prefer *CNN51* due to the resulting increased productivity (and the market at the farmgate not transmitting any price differentials based solely on variety).

Nacional - The yields for *Nacional* that were quoted to us varied between 200-500 kilos per hectare. As mentioned earlier, there were instances reported where these yields were reportedly higher than the national average (~450kg/ha, though this figure is highly contested by both sides).

As with most crops, planting density, along with variety, input use, farm management, prevailing weather conditions, etc. all play a role in determining yield.

Production

CNN51 - Undeniably, there has been a marked increase in *CCN51* production all over the country, with estimates running anywhere from 30-60% of total cacao production in the country. It is challenging to find the exact number since there isn't necessarily a market channel for only this variety. However, export data suggest that at least one third of all Ecuadorian cacao exports are *CCN51*. Given its use internally, the overall proportion of production is likely higher than the export data suggest. Based on our discussions with stakeholders, *CNN51* production is expected to continue to expand as farmers either convert away from *Nacional* or additional acreages are brought into production.

Nacional – Despite efforts aimed at staving off the decline of *Nacional* plantings and holdings, in addition to those focused on increasing demand for chocolate that requires use of *Nacional* varieties, *Nacional* production continues to decline. Partly a function of yields, *Nacional* doesn't appear to 'pencil out' at the farm level for a large number of farms, regardless of any existing price premiums. This is primarily due to the relatively low production of these varieties, which cannot be compensated for in any economically feasible way at the farmgate. The only farms that seem to be benefitting from a price premium are those that have a direct market to a "bean to bar" company or are connected to a producer organization that has invested in certifications. We were able to find with our research that very few producers benefit in a meaningful way from certifications, mainly because of the lack of a robust market in other countries for these products. As can be seen in Figure 6, this farmer association was paying an increased price for organic certification but only for a few days because there wasn't enough demand to purchase everything from the farmers.



Figure 6. Sign at the producer associations community post-harvest facilities, which states that they will stop purchasing cacao during the week of February 20-28, a peak period of farmers to sell cacao.

Fermentation

CCN51 - A considerable amount of time was spent during our trip discussing the poor quality of *CCN51*. The government sees *CCN51* as a “disease” and is at risk of jeopardizing the local treasure, the *arriba* varieties. Part of this is due to the perceived flavor profile of *CCN51*. As with all cacao, the fermentation process has a significant effect on the final flavor profile of the resulting fermented and dried cacao.

Compared to Nacional, *CCN51* has an increased amount of mucilage, which can easily convert to a vinegar tasting chocolate when it is fermented the traditional way in wooden boxes. INIAP, industry, and some producers have worked collaboratively to modify the fermentation process for *CCN51*. The new process helps to reduce the moisture from the beans in the first stages to eliminate the buildup of acetic acid and the astringent flavor profile that ensues (Figure 7). Properly fermented *CCN51* results in a flavor profile that is pleasant tasting and does not require blending of non-*CCN51* beans to make chocolate. Surprisingly (to us), we were treated to chocolate made purely with *CCN51* beans. Unlike our experience tasting unpalatable cacao liquor in Colombia, using poorly fermented *CCN51*, the *CCN51* dark chocolate we tasted in Ecuador was proudly being served to the public.



Figure 7. Burlap bags are used to ferment *CCN51* cacao to increase the drainage of excess liquid from the mucilage and to change the fermentation process so the cacao does not taste like vinegar.

Whether they are employing the new fermentation technique or not, smallholder farmers typically sell CNN51 already fermented and dried. This is partly because CCN51 is currently destined for international 'bulk' markets and sold by individual farmers rather than farmer groups (who are more likely to be involved in collective fermentation arrangements). Large-scale plantations also sell fermented and dried beans, albeit in much larger and more frequent transactions. This output is fermented on much the same scale (or larger) as the collective fermentation units. The difference being that the cacao is owned by the same entity and simply aggregated from across the farm rather than individual farmers.

Nacional – As mentioned above, *Nacional* is either fermented collectively by the farmer group or the entity contracting with the farmer group. Individual farmers that do not belong to farmer groups ferment and dry their *Nacional* beans on their own.

Acreage

CCN51 – As discussed in the Production section, acreage of CCN51 is expected to continue to increase in Ecuador. The new acreage will likely be a combination of *Nacional* cacao farm conversion or conversion of non-cacao farms into CCN51 farms. Several of our interviewees expressed that far fewer acres would be brought into production through the conversion of forest.

Nacional – Acreage in *Nacional* is expected to stabilize or continue on its downward trend. This will be determined by market demand for *Nacional*, perceived profitability and the introduction of higher yielding *Nacional* varieties or *Nacional* production systems.

Flavor

CCN51 – As discussed in the Fermentation section, the flavor of CCN51 is partially a function of its genetics and partly due to the application of fermentation techniques that are appropriate for *Nacional*, but not CCN51. With appropriate fermentation techniques being refined and disseminated, oftentimes through CCN51 producer (commodity) groups and trainings held at large haciendas and the growing demand from international exporters, the quality of CCN51 from a flavor perspective should continue to increase.

Nacional – The government, non-governmental organizations, and private firms have put many resources into recognizing the organoleptic qualities of *Nacional* at the regional level. This push is aimed at developing high value niche markets that focus on the specific regional attributes of Ecuadorian *Nacional* (fruit, floral, etc.) cacao. While there are examples of successfully marketing such a product, the market is extremely small and the prices commanded at the retail level do not offer the opportunity for premiums that can overcome the relatively low production currently experienced in the traditional *Nacional* production system. At a more global scale, *Nacional* is the source of 'fine and flavor' cacao from Ecuador. Based on our secondary data analysis, Ecuador is positioned to be one of the leading purveyors of this differentiated cacao, but the production share of *Nacional* continues to decline. At this moment in Ecuador, based on official export data, the share of *Nacional* is roughly 27% of exports – a complete reversal from the ICCO's 'fine and flavor' benchmark of 75% 'fine and flavor' for Ecuador. Through the efforts of several Ecuadorian firms, processors, and chocolate manufacturers, market penetration for *Nacional* continues to occur as does investigation into find new and securing known flavor profiles.

Overall Quality

The quality measurements that show up in official export data for Ecuador are assigned much later in the supply chain, when the trader is planning on exporting. Traders will sample and sort their lots of beans and then sell based on the quality standards being met (see below). CCN51 beans are prized by processors for their relative size, larger beans have more cacao butter based on weight and *Nacional* beans are sought after for their organoleptic qualities.

Export data that was shared with us (from MAGAP) suggests that at least 34% of all exports are comprised of CCN51. This runs counter to the ICCO rule of thumb that 25% is not considered to be 'fine and flavor'. Additionally, the data suggests that, between January 2012 and September 2015, 72% of cacao exports were considered 'conventional' and the remainder met the A.S.S.S. or A.S.S. qualifications, quality standards that are based on bean weights that correlate to % fermentation. The higher the grade (A.S.S.S.), the higher percentage of beans that have been fermented (a cut test to determine if there were 75% well fermented) and heavier weight (130-135 grams per 100 beans). During this time, the overall difference between the unit value of conventional and the A.S.S.S. or A.S.S. designated cacao was approximately \$85.

Based on 100 beans, from highest quality to lowest quality for *Nacional* beans:

A.S.S.S	130 - 135 grams	75% fermentation
A.S.S	120-125 grams	65% fermentation
A.S.N	110-115 grams	54% fermentation
A.S.E	105 - 110 grams	53% fermentation
CCN51	135 - 140 grams	76% fermentation

The buyer (for example ECOM or a farmer cooperative or producer association) sample the beans and "assume" the cost of sorting to achieve the desired grade. This is one of the reasons why beans are being purchased *en baba* and the processing is done by several middlemen or some cooperatives. The majority of farmers do not know about the quality standards (based only on weight and fermentation percentages), unless they receive a quality based payment. This practice is being reduced at most collection centers because a large percentage of buyers are purchasing *en baba* or paying the same price for all dried beans, regardless of whether they are well fermented or are CCN51 or a different variety.

There is little consistency and only physical quality measures are taken (to whether the beans have been well fermented and dried based on physical characteristics) when purchased. At this time, the market is not concerned about where the beans are coming from or what variety. The only time that a differentiation is made between *Nacional* and CCN51 is when the beans are sold through a producer association. There are very few farmers who are members of a producer association or cooperative (we were told less than 10% of all producers).

Government Support

CCN51 – Publicly funded research on CCN51 is essentially focused on using its genome to introduce positive attributes to new *Nacional* clones. Additional government support has been lent through research collaboration on fermentation methods.

Nacional – The Ecuadoran government has taken a particular interest in supporting the cacao sector. A governmental program for improving productivity of the *Nacional* variety, *Minga de Cacao*, was initiated to increase technical assistance for cacao producers, predominantly pruning cacao trees to increase yields. There is hope that the next governmental program will focus on post-harvest and quality as well as grinding potential in the country, currently they are only able to grind 2% of the production. At the experiment station level, research is being conducted on disease resistance and treatment, sustainable production systems, developing new cultivars and quality control. At the university level, some of the cutting edge research on cadmium in cacao is being conducted.

One issue that requires more attention is that collection and use of fees that were previously used by the Asociacion Nacional de Exportadores de Cacao (ANECACAO) are now a domain of MAGAP. The ‘best use’ of these resources should be examined and priorities set based on potential and actual impacts on the sector.

International Community Support

CCN51 – The international community has not been particularly interested in *CCN51*, despite its production potential. Though it was developed in Ecuador, *CCN51* does not appear to fit the non-governmental organization narrative as it is typically not grown in extensive agroforestry systems but rather in intensive monoculture system that can be scaled up well beyond the smallholder household (typically the focal point of international efforts).

Nacional – Virtually all current efforts funded by the international community are focused on positioning *Nacional* farmers to supply niche markets. This includes exercises that effectively shorten the supply chain, in an effort to increase margins for cacao farmers, and expand opportunities for farmers beyond simply selling their output to potentially unscrupulous intermediaries. Farmer groups are a key institutional ingredient for these efforts. As mentioned previously, the vast majority of Ecuadorian cacao farmers are not organized into farmer groups, and those that are oftentimes need additional capacity building. Lastly, most of the internationally funded efforts rely on certification in order to further differentiate the product. To that end, sourcing *Nacional* beans is a necessary but not sufficient condition.

Private Sector Support

CCN51 – Support for *CCN51* is almost exclusively the domain of the private sector. We met with *CCN51* ‘advocates’ from the production, processing, and export sectors. These entities are leading efforts to continue to refine the fermentation regime and production systems, including the scaling up to commercial, large-scale systems. The private sector is also actively working towards increasing market penetration for *CCN51* and advocating for *CCN51* amongst downstream actors. With so much effort being expended by governmental and non-governmental organizations focused on promoting *Nacional*, the private sector is recognizing that *CCN51* requires similar efforts. Several of the interviewees discussed the income potential for smallholder farmers that are converting, or should be converting to *CCN51*. They would like the conversation amongst all of the actors to focus on the economic outcomes at the farm household level given the prevailing agronomic conditions in Ecuador.

Nacional – Private sector support for *Nacional* appears to originate from the downstream actors, especially processors and chocolate manufacturers. In contrast, the export sector is less divided by cacao variety and more focused on the local versus international exporter divide.

The Mars Company recently purchased a farm in Ecuador and is working to improve efficiency, including determine better ways to shape trees to use an automatic picker, and improving cacao farming systems to ensure a supply of cacao to their factories. This could be thought of as a risk management strategy that combines large-scale production with intensive research that can be disseminated to smallholders as well as large-scale plantations.

Cacao Processing and Chocolate Manufacturing

The processing and chocolate manufacturing industries in Ecuador continue to evolve. Firms like Cofina, process Ecuadorian cacao to meet demand for butter, powder and paste in Ecuador and beyond its borders. Other firms, such as Universal Sweet Industries (Chocolates la Universal), seek 'bulk' cacao to process for their needs. While other firms intensively seek out specialized batches of cacao for specific products.

As mentioned previously, some private firms and the government of Ecuador have truly taken on the idea of embracing regional diversity. Ecuadorian Bean to Bar companies (Pacari, Republica de Cacao, etc.) have seen the need to identify, highlight, and market the regional differences in cacao to satisfy a growing, albeit relatively small, consumer demand. Where price differentials are paid for those varieties, producers are able to continue to preserve these varieties, but the actual metric tons that are needed for these markets is extremely small (impacting hundreds, not thousands of producers) and it is highly unlikely this niche will grow sufficiently to become significant in the global export market in the future.

Cacao Exports

The Ecuadorian export sector has been in significant flux over the past few years. Traditionally, ANECACAO, the exporter association, was primarily made up of members that were Ecuadorian. The introduction of ECOM and OLAM, along with the bankruptcy of Transmar, has significantly impacted the export sector.

Both ECOM and OLAM are large trading houses that export cacao from all over the globe. Both have a relatively large presence in Ecuador. Both are exporting certified and bulk cacao. ECOM has reached into the cacao growing regions relatively further than OLAM. Both rely primarily on intermediaries to secure cacao supplies.

While the two major international exporters have secured market share, there are still many Ecuadorian exporters, many of which are extremely small. Based on data shared with us upon our return, it appears that the top five exporters had roughly 40% of the market, leaving 60% to be shared amongst nearly sixty other entities between 2012 and September 2015. Based on our interviews, this has potentially tightened a bit with Transmar's departure from the market and OLAM and ECON are expanding their reach.

Seemingly, because of the issue of inconsistent fermentation in CCN51 and the negative image the variety has in the region, Ecuador has seen a reduction in the amount of cacao that is classified and exported as 'fine and flavor'. Among our research team, there is real concern that the 'fine and flavor' percentages for each country is a political issue and not so much an actual objective criterion based system. We heard the opposite sentiment from government officials in Ecuador. They are committed to carrying the mantle of *Nacional* and, by association, 'fine and flavor'. However, even if Ecuador could

reverse the trend and claim 100% of all cacao exported is 'fine and flavor', it is unclear (unlikely) that the market is available to absorb the additional output at premium prices.

Farmgate Price

At this point in time, Ecuadorian cacao beans purchased at the farmgate are a reflection of what the farmer has planted; a mixture of CCN51 and *Nacional* or plantings of one or the other. We were told that when cacao is purchased from the farmers, over 90% of the time farmers are not compensated for high quality or 'fine and flavor' beans. Farmers are simply paid based on how much the cacao weighs and the form that it is sold in (dried and fermented or *en baba*). There is little to no selection process that occurs at the time of sale. A price is set for dried beans in those areas that do not have the capacity to collectively ferment and dry or a separate price is set for *en baba*, wet beans that have not been fermented nor dried. Subsequent to our return, one of our local contacts shared market transaction data that differentiates between province, district and form (dried/fermented or *baba*). The basic conclusions were:

- 'Fine and flavor' receives a higher price than CCN51 (3% to 5%) when sold dried.
- 'Fine and flavor' receives a lower price than CCN51 when sold wet or *en baba*.
- The 3% to 5% price difference cannot compete with the returns associated with higher yields (+/- 20%) from CCN51, net gain seems higher from CCN51 (considering same planting density).

The other striking difference with other cacao producing areas in the world is the purchasing of *en baba* (wet cacao beans) to better control the quality and consistency of cacao being sold. Farmers who are members of associations that sell certified beans (UTZ, organic, Fair Trade, Rainforest Alliance), bring their wet cacao beans to a centralized fermentation and drying facility. The price that they receive would be less than what they would normally receive if they held on to the beans and did the processes themselves, but because the beans are certified, they are able to get a higher price (due to the certification process). These beans are normally only for *Nacional* varieties but because of the fermentation issues with CCN51, this process is becoming more prevalent with those beans as well (Cofina discussed this at length as well as with Eduardo Marquez de la Plata and Vincent Zeller).

Premiums were only mentioned in the context of specific certifications (UTZ, organic, etc.) and for overall quality (for output from a large CCN51 plantation that has sorting capacity and relatively large volumes). Additionally, there appears to be some benefit accruing to farmer organizations, and potentially to their members, through arrangements with private firms that provide some services (technical assistance, inputs, forward contracting, etc.). There has been an increased level of regionalization in terms of markets, flavor profiles, and other factors fostered by government-led research and marketing.

In many ways, the country is well positioned to increase price premiums due to consistency, quality, and quantity because they have been able to produce large quantities that lead to more companies contracting cacao purchases in the country. However, at this point in time most of the increased prices being attributed to quality are due to certification programs, such as Free Trade, UTZ, organic, or Rainforest Alliance. These markets are incredibly small, even if they are growing, and still impact hundreds and not thousands of cacao producers in the region.

In any case, we uncovered no evidence of farmers receiving premiums for their cacao based on the quality designation that was ultimately received at the port, nor was there evidence that their cacao was being discounted solely because it was from the CCN51 variety.

Conclusion

Because of the yield differentials but no price differentials, there seems to be an ongoing war that has pitted the *arriba* varieties and CCN51. People across the country line up on one side or the other. The issue is that both can be important tools for development strategies in the country. What needs to occur is some real technical assistance for producers to either ferment CCN51 well or bring the beans to fermentation and drying stations where trained people can take on the task of ensuring the quality of the beans. Leaving the system the way it is, or continuing the war, will not help the country to move beyond the problems since CCN51 is not going away, the productivity of the variety and the fact that it has been in production for decades and all over the country, makes it the choice for many producers. The new higher yielding *arriba* hybrids (some even crossed with CCN51) need to be tested over a longer period of time and in different ecological zones and nursery programs need to be scaled up to be able to meet the demands and needs of the producers.

In this vein, there is some interest with regionalization and diversification to maintain genetic pools throughout the country for disease resistance, pest issues, or flavor profiles. This makes sense, but this should be the responsibility of the government or chocolate corporations since the farmers are not compensated for the reduced yields. In other words, the current yields of *arriba* systems are so low that any existing premiums do not come close to making up the difference in revenue relative to farmers who are farming in higher yielding systems (ie. CCN51). We do not expect corn producers in the USA to give up their hybrid corn varieties to maintain genetic diversity in the fields. We expect that to happen at research institutions and through funding from the corn industry.

Most Ecuadorian cacao is sold for mass market chocolate and some large corporations, who hold most of the market share, will pay market price or a little amount more (\$100 – 300 MT) for certification, quality or a special story. All of our conversations in Ecuador and Colombia have led us to believe that this market is small and growing but could not absorb the thousands of MT needed to raise thousands of cacao producer's incomes through stable price premiums. Given this situation, along with the tangible yield differences, it is not clear if simply embracing regional diversity can raise farm income at the same magnitude or rate as using high yielding varieties, irrespective of their flavor profile.

Monday, February 13

9:00 AM: Meeting with US Ambassador Todd Chapman, FAS Ag Attaché Kirsten Luxbacher, FAS Ag Specialist Henry Vega, US Embassy, Avigiras E12-170 y Ave Eloy Alfaro

10:30 AM: Jorge Gaibor and Marco Fernando Guilcapi, (MAGAP - Gerente de Proyectos de Reactivacion de Cacao y Café), Avenida Eloy Alfaro y Amazonas, 13° Piso, Edificio MAGAP, Centro de Quito

1:30 PM: Leonor Zambrano, La Gran Minga de Cacao Nacional, Hernando de la Cruz, N32-153 y Av. Atahualpa, Quito (<http://www.mingadelcacao.com>)

3:00 PM: Jose Luis Zambrano, INIAP, Avenida Eloy Alfaro y Amazonas, 4^{to} Piso, Edificio MAGAP, Centro de Quito

4:30 PM: Juan Rodriguez, Programa ProCambio, Pedro Ramírez, Programa Amazonia Norte, GIZ, 2^{do} Piso, Edificio MAGAP, Centro de Quito

Tuesday, February 14

9:00 AM: Regula Chavez, Swiss Contact, Av. Orellana E11-14 y Coruña, Edificio M. Gabriela, 5° piso, Quito

10:30 AM: Gabriela Paredes, Project Management, Pacari, Julio Zaldumbide N24-676 y Miravalle, La Floresta

1:30 PM: Thomas Hollywood, Alex Moncada, Jairo Andrade, Catholic Relief Services, De los Naranjos N44-491 y Las Azucenas, Quito

4:00 PM: Gonzalo José Chiriboga, Republica de Cacao, Ave. Colón E8-85 y Yanez Pinzon Edificio El Dorado, Piso 3, Quito

Wednesday, February 15

8:30 AM Juan Pablo Zuñiga and Merlyn Casanova, ANECACAO, Asociacion Nacional de Exportadores de Cacao, Avenida Miguel H. Alcivar, Edificio Torres del Norte, Torre B, Local 6

10:00 AM: Lina Marcela Naranjo, Chocolates La Universal, Eloy Alfaro 1103 y Gomez Rendon, Guayaquil

11:30 AM: Luis Valverde, Vice Minister of Agriculture for Ecuador and Patricia Fietz, Consul General, US Consulate, Av Rodriguez Bonin, Guayaquil

12:30 PM: Lunch and Meeting with Roberto Granja, Jose Carbo, OLAM, Vignesh Thirukonda, OLAM and Aldo Zolezzi, Barry Callebaut at Lo Nuestro, Victor Emilio Estrada 903, Guayaquil

3:30 PM: Renato Proaño, Coordinator of Sustainable Development, and Ricardo Zambrano, Vice President of Cofina, Km 11 ½ via Durán Tambo (300 metros despues del peaje)

6:30 PM: Dinner with Kate Cavallin, Randall Camacho, Pam Schreier, Patricio Espinoza ECOM, Hector Ballesteros, Andino Veco Km. 4.5 Via Duran Yaguachi

Thursday, February 16

9:30 AM: Danilo Vera, Rey Gastón and Juan Jimenéz, Programa de Cacao, INIAP, Km 5 de la vía Quevedo - El Empalme

1:00 PM: Producer associations (Ricardo Alvarez from INIAP is setting up)

4:00 PM: Intermediaries or Points of Sale (Ricardo Alvarez from INIAP is setting up)

Friday, February 17

8:00 AM: Dr. Paola Calle Delgado, Deputy Dean of the Faculty of Life Sciences, Ramon Espinel, Dean of the Faculty of Life Sciences, ESPOL, Kilómetro 30.5 Vía Perimetral, Campus Gustavo Galindo - Prosperina. Facultad Ciencias de la Vida

11:30 AM: Sergio Cedeño Amador, Farm Administrator, Hacienda Cañas, Naranjal

2:30 PM: Lorena Vera, Administrator for producer organization, APROCAFA

6:00 PM: Dinner with Eduardo Marquez de la Plata and Vincent Zeller, Brokers and Exporters, Hilton Hotel in Guayaquil Centro

ⁱ Source:

http://www.coffeenetwork.com/Portal/Entities/_ShowContent.aspx?Eid=735&lid=176436&Path=Documents/News/2016-12/735/ICCO%20quarterly%20bulletin%20dec%2020%202016.doc&ContentType=application/msword