The Cocoa of Excellence and International Cocoa Awards Initiatives:

Rewarding Diversity and Excellence in Producing High-quality Cocoa Origins

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Abstract

The Cocoa of Excellence (CoE) and International Cocoa Awards (ICA) were launched by Bioversity International, CIRAD, and EVENT International in 2008. EVENT International is the organiser of the "Salon du Chocolat" in Paris every year and the International Cocoa Awards (ICA) ceremonies. The CoE/ICA was partially supported by the project: "*Cocoa of Excellence: Unravelling and celebrating diverse flavour qualities of cocoas to promote market differentiation"* from Oct. 2009 to Sept. 2011, funded by the Common Fund for Commodities (CFC) supervised by the International Cocoa Organization (ICCO). The partners in the *Cocoa of Excellence* CFC/ICCO project were Bioversity International (Project Executing Agency), CIRAD, Event International, ICCO, the Alliance of Cocoa Producing Countries Cocoa (COPAL), the World Cocoa Foundation (WCF), Mars Inc., Barry Callebaut, Belcolade and Cacao Atlanta (joined in 2011) with contributions in kind from the Cocoa Research Unit (now Cocoa Research Centre) of the University of the West Indies (CRC/UWI) and ICAM.

A total of 152, 147 and 119 bean samples were provided by individual farmers or farmers' organizations from 20, 19 and 22 cocoa producing countries to participate in the CoE/ICA in 2009, 2010 and 2011, respectively. Liquors were elaborated by CIRAD (2009 and 2010) and Mars (2011) from all samples, using agreed standard procedures. These liquors were characterised first by a Jury of International Expert for basic flavours (acidity, bitterness and astringency), for "positive" flavours (cocoa, fresh fruits, brown fruits, floral, nutty, sweetness, spicy and woody) and for "overall preference". The best 50 liquors from this first assessment were transformed into chocolates according to an agreed protocol and nominated for the ICA's at the Salon du Chocolat in Paris in 2009, 2010 and 2011. The 50 chocolate samples were evaluated by a second Jury comprised of approximately 20 chocolate professionals. ICA awards were attributed to samples from each of the four main cocoa producing regions: (1) Africa, (2) South-East Asia and the Pacific, (3) Central America and the Caribbean, and (4) South America. The ICA awards were handed to country representatives during special events at the Salon du Chocolat.

The CoE Programme triggered a strong interest in many cocoa producing countries due to the potential benefits of recognition of the quality of nominated and Awarded samples. The Awards are a very important recognition of the work of the many producers who all benefit, even if only one or a few of them end up winning an Award. Twenty-seven cocoa producing countries out of the 40 participated in at least one of the three CoE/ICA editions (2009, 2010 and 2011). Several countries have expressed an interest in organising a national selection process. The efficient and effective implementation of the CoE project relies on well-

functioning national organizations with capacity to coordinate the process at the national level and liaise efficiently with the many producers of cacao for fine chocolates. Bioversity, CIRAD, and EVENT are committed to continue the CoE Programme and are seeking interest from sponsorships. COPAL is considering taking on the role of interfacing with producing countries with Bioversity providing an overall coordination together with CIRAD and EVENT. Continuous engagement in the Programme was assured from the industry partners. The CoE/ICA editions will be carried out every two years and the next one will be in 2013. Visit www.cocoaofexcellence.org for all information on previous editions, technical guidelines, forms and contacts

Introduction

High-end chocolate makers are intent on reducing variations in the quality of their cocoa supplies to ensure consistently high product-quality for consumers. Thus an industry trend toward sourcing at origin is emerging. At the same time, cocoa producers are increasingly seeking opportunities to enhance their incomes through a transition into high-value, high-quality markets. Producers are recognizing that direct linkages with cocoa buyers allows them to build more sustainable and profitable relationships in which a primary focus on quality rather than costs becomes the overriding criteria. It is well known that differentiating an agricultural product in a consistent fashion for a high-end market gives producers more negotiating power and benefits.

The Cocoa of Excellence (CoE) and International Cocoa Awards (ICA) were launched by Bioversity International, CIRAD, and EVENT International in 2008. EVENT is the organiser of the "Salon du Chocolat" in Paris every year and the International Cocoa Awards (ICA) ceremonies. The CoE/ICA was partially supported by the project: "*Cocoa of Excellence: Unravelling and celebrating diverse flavour qualities of cocoas to promote market differentiation"* from Oct. 2009 to Sept. 2011, funded by the Common Fund for Commodities (CFC) supervised by the International Cocoa Organization (ICCO). The partners in the *Cocoa of Excellence* CFC/ICCO project were Bioversity International (Project Executing Agency), CIRAD, Event International, ICCO, the Alliance of Cocoa Producing Countries Cocoa (COPAL), the World Cocoa Foundation (WCF), Mars Inc., Barry Callebaut, Belcolade and Cacao Atlanta (joined in 2011) with contributions in kind from the Cocoa Research Unit (now Cocoa Research Centre) of the University of the West Indies (CRC/UWI) and ICAM.

A pilot CoE scheme was adopted in 2008/09. This was followed by the "Zero Edition" edition of the ICAs at the Salon du Chocolat in October 2009. This pilot scheme allowed for learning to be built into the 2009/10 CoE activities and into the First Edition of the ICAs at the Salon du Chocolat in October 2010.

The CoE project and ICAs aim to contribute towards greater diversification of cocoa markets through the identification and characterization of high-quality cocoa origins, enabling farmers to negotiate prices for their potentially good quality cocoa origins. The goal of the CoE project was to promote high quality cocoa origins.

The specific objectives were:

- To create awareness among producers and other operators in the national and international cocoa supply chain regarding the opportunities of high quality cocoa differentiation;
- To provide global recognition for these producers and "terroirs" (unique interaction of soil, climate and location) of high quality cocoa origins;
- To expose chocolate manufacturers and experienced consumers to the spectrum of flavours that exist in cocoa from different origins,
- To facilitate linkages between producers of quality cocoa origins and manufacturers of specialty chocolate products; and
- To stimulate, through the institutionalization of the CoE event, the capacity of producing countries to search for, to evaluate and to produce specialty cocoa types.

The key activities and steps of the CoE programme are the following:

1. Cacao producing countries are invited to submit samples representing the best flavour quality diversity and geographic and genetic origins, through a National Organization Committee.

2. Samples are received by the International Committee, documented and treated anonymously for evaluation as liquors and selection by experts in sensory evaluation.
3. The best 50 samples are produced into chocolates for further evaluation and are nominated for the International Cocoa Awards, an honourable distinction, without monetary value.
4. The best 12 chocolate samples representing the diversity of the 4 geographical regions are awarded the International Cocoa Awards during a ceremony at the Salon du Chocolat in Paris.
5. Information on the 50 nominated samples for the awards is publically available on the CoE website.
6. Feedback on all liquor evaluation is provided to the farmers via the National Organizing Committees.

International Organization Committee

The International Committee (Bioversity, CIRAD and EVENT) was responsible for:

- Contacting national research and sector development institutions to organize the National Organization Committees
- Overseeing the implementation of the CoE programme
- Establishing the Technical Committee
- Receiving the bean samples
- Ensuring that the rules and regulations are applied
- Ensuring that confidentiality is respected
- The evaluation of each sample
- Selecting the International Expert Panels in a transparent and fair manner
- Ensuring that anonymity is ensured during the evaluation process

National Organization Committees

Cocoa producing countries were contacted in 2008, 2009 and 2010 about their interest in participating in the CoE/ICA editions. Focal points were identified and each participating country was asked to set up a National Organization Committee with representatives of:

- Research and development institutions
- National Cocoa Boards
- Quality control centres
- NGO's
- Export promoting institutions, etc.

The aim was to ensure effective coordination at the national level and effective communication with the individual cocoa producers, to raise awareness of the CoE/ICA initiative, and to increase the capacity of producing countries to locate, evaluate and produce specialty cocoa types. The National Organising Committee was responsible for:

- Announcing the CoE at the national level
- Receiving samples from the producers
- Ensuring that samples provided represent the diverse geographic and genetic origins in the country.
- The quality of the information provided with each sample.
- Sending a minimum of 3 Kg of well fermented and dried bean samples to the International Committee as soon as they were available.

No more than one sample per producer and no more samples than the indicated quota per country was sent to the CoE. If more samples were sent, the International Organization Committee reserved the right to eliminate samples according to the proposed country quotas and criteria.

In total, 27 cocoa producing countries participated in at least one of the three CoE/ICA editions: 2009, 2010 and 2011.

Quality Cacao Samples Provided

Providers of cocoa samples for the CoE could be individual cocoa farmers, groups of cocoa farmers, cooperatives or cocoa estates or national research centres that showed an interest to participate and were able to produce high quality cocoa batches.

For logistical reasons, the International Committee limited the total number of samples to be received to a maximum of 220. Individual country quotas varied between 5-15 per country, based on an expert assessment of existing genetic diversity and capacity to produce samples on a commercial scale.

Over 400 bean samples were provided by farmers to participate in the 3 ICAs editions of 2009, 2010 and 2011, from 27 countries from the 4 cocoa producing regions (see Table 1 for details):

- Africa
- Central America and the Caribbean
- South America
- South-East Asia and the Pacific

Information on Each Bean Sample

All bean samples were accompanied by a completed ("Passport data") form with all information available on the origin and mode of preparation of each sample, using a provided MS Excel© Spreadsheet format. The availability of the full information helped to interpret findings of the quality analysis. Minimum data required was also indicated and included the following:

- Full name of sender, Organization, Country name and Email address
- Date information sent
- Sample number: identification of the bean sample
- Type of sample: Commercial or Experimental
- Full name of producer of the sample
- Location of the farm or plantation
- Type of farming: Traditional / Certified organic/ Rainforest Alliance / UTZ/ Fairtrade or Others
- Local name(s) of variety
- Sample characteristics
- Fermentation method
- Solar drying
- Artificial drying

The National Organization Committee was responsible for the quality of the information provided with each sample. The aim was to classify the samples correctly and to facilitate reproducibility of obtaining samples with the same quality profile and interpret findings of the quality analysis. Samples that were not accompanied with a duly filled template were not traceable and could not be considered.

Quality and Types of Bean Samples

Only samples of beans from ripe, healthy and undamaged pods, harvested the main harvesting season, and well fermented, well dried and uniform in size were considered for submission to the CoE. Samples with obvious defects in preparation were eliminated by the National Organization Committee. Mouldy, smokey and under- or over-fermented bean samples could not be accepted for evaluation by the International Expert Panels. The recommendations were that the evaluation with the cut test (100 beans) should have less than 3% slaty beans, 3% mouldy beans (with white mould inside beans), and 3% beans with other defects (broken, insect damaged, germinated, rotten or empty beans). A phytosanitary certificate from the authorities of the country of origin was desirable.

More than 95% of the bean samples provided did not present any apparent defects, showing that the providers had taken special care in preparing the submitted samples.

Submitted samples were of two types, (1) Commercial samples and (2) Experimental samples:

1. ***Commercial samples*:** Samples prepared by cocoa producers from existing commercial plantations, or group of plantations, representing traditional or improved/modern cocoa varieties from different geographic/climatic origins. It should be possible to reproduce the same quality cocoa at commercial scale (several tonnes per year) in subsequent years.
2. ***Experimental samples:*** Samples derived from interesting new varieties (newly selected varieties or materials with special quality traits) or through new post-harvest processes (e.g. novel fermentation method, etc.). These potentially interesting experimental samples may not be available yet for commercial scale production, but may become so within a few years time. These samples may be prepared by cocoa farmers or by research institutes.

No more than 30% of samples per country could be experimental samples.

Fermentation and Drying of Samples

The fermentation process used should have been according to the best available technologies that bring out the intrinsic qualities of the samples and follow these guidelines:

- Only seeds from healthy pods should be used for fermentation.
- Removal of the placentas, empty and diseases beans ideally after pod breaking.
- Fermentation in large enough amount (minimum amount of wet beans of 100 kg = 1,000 pods). to allow for adequate fermentation conditions.
- Heap or box fermentation.
- Fermentation mass to be covered with banana leaves and jute bags and protected from rain and/or cold.
- Duration of fermentation will depend on the variety and local conditions (between 2-6 days).
- Turning of the fermentation mass in an appropriate way, depending on cocoa variety. If unknown use 24, 48 and 96 hrs after initiation of fermentation.
- Only experimental samples could be prepared through a "micro-fermentation" method (in mesh bags placed inside large cocoa fermentation masses).

Recommendations on selection of fermented and dried bean samples were provided to the National Organization Committees. To assess any fermentation problem and the potential flavour attributes, the testa should be removed of at least 30 fermented and dried beans, the cotyledons crushed in a mortar and the paste smelled and/or tasted. The final moisture content of the samples should be less than 8% and follow these guidelines:

- Sun-drying recommended (when possible)
- Protection from rain during the drying process
- Covering of beans required during the night
- Thickness of layer of drying between 3 and 5 cm to avoid mouldiness or over-fermentation
- Optimum drying is to 6.5 - 7.8% humidity (with duration of 5 to 10 days, generally)
- Drying is complete when beans are crispy and have lost elasticity when pressed in the hand

Collecting, Storage of Shipping of Samples

The National Organization Committee was responsible for the collection and receipt of the cocoa bean samples at the country level and to store the sample in adequate conditions before shipping to Bioversity or CIRAD. It was recommended to National Committees that samples received should be verified to ensure that the moisture content, cut tests, presence of defective beans, mouldiness, smoky flavours, etc. of the fermented beans are all within acceptable limits. The samples prepared should then immediately be blind tasted (to avoid disappearance of volatile flavours) by 2-3 experienced cocoa bean tasters (best is to have three experienced tasters nominated among local experts by the National Organization Committee) for the basic flavour attributes mentioned above.

Liquor Evaluations

Cocoa liquor samples were elaborated by CIRAD (2009 and 2010) and Mars Inc. (2011) from all samples by using standardized working procedures, applying the following fundamental three roasting regime adjustments to samples of beans based on their expectation of flavour profile:

- Full Roast: Chocolate / cocoa defining beans
- Gentle Roast: Fruit, and floral defining beans
- Low Roast: Caramel / nut defining beans

Liquors were evaluated and characterised by a jury of international experts in sensory evaluation, using agreed standard procedures and based on the following flavour traits selection:

- Olfactory aroma intensity and preference (volatile aroma assessed by smelling the crushed cotyledons)
- Fresh fruit flavour (citrus, pear, raspberry,..)
- Brown fruit flavour (prunes, raisins, apricots, dates, ..)
- Nutty flavours (walnuts, hazelnuts, Brazil nuts, almonds,..)
- Spicy flavours (vanilla, cinnamon, liquorice, black pepper, ginger,..)
- Woody flavours (woody tastes like of oak wood, typical for bulk/Amelonado cocoas)
- Sweetness (sugar, caramel, honey,..)
- Floral ("light-floral" of jasmine and orange flowers like a summer ladies perfume, typical for Nacional cocoa types; or "heavy-floral" like of ladies winter perfume)
- Overall quality

High scores for overall quality were either based on high scores for a few specific flavour traits or on a balanced mixture of average scores for several flavour traits.

In the pilot CoE/ICA in 2009, the results of the liquor evaluations were used to identify 40 samples with outstanding flavour attributes identified out of 85 samples received from the Latin America and Caribbean regions. This was decided because the other cocoa producing countries, particularly in Africa (including Côte d'Ivoire and Ghana) were largely underrepresented, especially in view of the fact that Africa is the main cocoa producing region.

Chocolate Evaluation

Fifty liquors, representing the best flavour quality diversity and geographic and genetic origins, were transformed into chocolate according to an agreed protocol, and nominated for the ICAs. In the pilot Edition of 2009, Barry Callebaut processed the liquors into chocolate. For the 2010 and 2011 Editions, the chocolates processing was shared between Barry Callebaut and Mars Inc with Barry Callebaut processing 25 samples from Africa, Asia and the Pacific and Mars Inc processing 25 samples from South and Central America and the Caribbean.

The ingredients in the chocolate recipe were the following

- Cocoa mass: 61%
- Sugar (beet): 33.5%
- Deodorized cocoa butter : 5%
- Emulsifier: lecithin of soya: 0.5%
- Smoothness: 16-20 microns

The protocol agreed was the following for manufacturing on a set pilot line:

- Weighing the ingredients
- Mixing the ingredients which will be crushed in a kneader in a "Z" way
- Cacao mass: 34%
- Sugar: 33.5%
- Crushing in a 3 cylinder crushing machine
- Dry conching at 60-65°C for 2 hours in a kneader in a "Z" way
- Refining with the Guedu: 30 minutes after the addition of:
    - Fine cocoa mass: 27%
    - Cocoa butter: 5%
    - Lecithin: 0.5%

The chocolates obtained were moulded in mini-tablets of approximately 5g. Forty packages of 4 mini-tablets were made (1 package of 20g/jury), clearly labelled (codification given by CIRAD). The remaining quantity of chocolates were moulded in mini-tablets (to constitute a reserve batch) and sent in bulk.

International Cocoa Awards

The chocolates were tasted blindly by a professional jury of chocolate manufacturers and by an informed public jury of experienced amateurs from gastronomy, at the Salon du Chocolat, Paris in 2009, 2010 and 2011.

A total of 140 cocoa samples were nominated for the ICAs in 2009 (40), 2010 (50) and 2011 (50). Of these, 68 samples received Awards handed to country representatives during the ceremonies at the Salon in Paris (40 for the pilot edition of 2009, 12 for the 2012 edition and 16 for the 2011 editioin). See Table 2 for details.

For the first Edition of 2009, African countries (including Côte d'Ivoire and Ghana) were largely underrepresented, especially in view of the fact that Africa is the main cocoa producing continent. Eighty-five of the total 152 samples were received from Latin America and the Caribbean regions. These were also the most diverse according to genetic origin and flavour traits. Therefore, it was decided by the PIC that this trial Edition would include only the Latin America and the Caribbean samples. This allowed to celebrate the diversity of cocoa quality from these regions as a start and also to fulfill the obligations towards the SdC in 2009. Forty samples were selected, based on the highest scores for global preference, of the 85 samples provided by the Latin American and Caribbean regions.

For the 2010 and 2011 Editios, three prizes were attributed to each of the four cocoa producing regions based on the mean scores for global quality appreciation by the 25 members of the jury. The most expressed positive flavour attributes for each of the prized samples was mentioned for each winning sample. For the 2011 Edition, 4 additional prizes were awarded, mainly based on overall preference of the chocolates, as evaluated by a 5-7 member jury of professionals, amateurs and journalists for the seven best samples of each of the four cocoa producing regions during the Salon du Chocolat in Paris on 20 October 2011.

During the Salon du Chocolat, the producing countries were invited to visit the CoE project stand to taste chocolates of their nominated cocoa samples. Chocolate manufacturers and other professionals were invited to meet producers and were encouraged to taste samples of any of the 50 nominated samples processed into chocolate.

Distribution of Results

Bioversity made information on all nominated and awarded chocolates in 2009, 2010 and 2011 available on the CoE website.

Feedback on raw bean evaluation and liquor flavour profiles of samples were given to the National Organising Committees to be transmitted to the providers of samples, to increase awareness regarding flavour quality attributes at the farm-level and help to improve on quality. Information was used for scientific analysis and reporting while ensuring anonymity.

Following the Salon du Chocolat, samples of chocolates were sent to interested chocolate makers. EVENT International included information on the ICAs into a substantial press release provided to more than 5,000 contacts after each Edition.

Impact of the Project

The CoE/ICA editions were successfully implemented in 2009, 2010 and 2011, and a total of 40, 50 and 50 samples were nominated for the International Cocoa Awards, respectively. The results of the 2009 pilot CoE/ICA edition were very useful for the implementation of the 2010 and 2011 editions.

The CoE Programme triggered a strong interest in many cocoa producing countries due to the potential benefits of recognition of the quality of Awarded and nominated samples. The Awards are a very important recognition of the work of the many producers who all benefit, even if only one or a few of them end up winning an Award.

Twenty-seven cocoa producing countries out of the 40 participated in at least one of the three CoE/ICA editions (2009, 2010 and 2011). Several countries have expressed an interest in organising a national selection process.

Improvements to be Made

The efficient and effective implementation of the CoE project relies on well-functioning national organizations with capacity to coordinate the process at the national level and liaise efficiently with the many producers of cacao for fine chocolates. In cases where participation was lower than anticipated, it was mainly due to the lack of national coordination and of entities with a clear mandate for coordinating this project at the national level. We need to ensure that National Organising Committees are in place. We need more interactions and feedback from producers and manufacturers and chocolate makers.

Towards a Sustainable CoE Programme

Bioversity, CIRAD, and EVENT International are committed to continue the CoE Programme and are seeking interest from sponsorships. COPAL is considering taking on the role of interfacing with producing countries with Bioversity providing an overall coordination together with CIRAD and EVENT International. Continuous engagement in the Programme was assured from the industry partners. The Programme is developing a membership system facilitating the participation and involvement of the industries and artisans. The CoE/ICA editions will be carried out every two years and the next one will be in 2013.

Visit www.cocoaofexcellence.org for all information on previous editions, technical guidelines, forms and contacts.

Table 1. Countries and samples provided for the 2009,2010 and 2011 editions of the CoE projet.

	Countries/Regions	**2009**	**2010**	**2011**
1.	Cameroon	20	4	5
2.	Cote d'Ivoire		15	12
3.	Gabon	3	3	5
4.	Ghana		5	6
5.	Madagascar		5	
6.	Saõ Tomé		1	1
7.	Togo			2
	SUBTOTAL Africa	**23**	**33**	**31**
8.	Fiji	3		
9.	Indonesia	11		
10.	Malaysia	11	13	7
11.	Papua New Guinea	7	11	10
12.	Solomon Islands	5		4
13.	Vanuatu	2		
14.	VietNam	5		
	SUBTOTAL Asia & Pacific	**44**	**24**	**21**
15.	Bolivia	8	4	4
16.	Brazil	10	22	20
17.	Colombia	13	10	5
18.	Ecuador	12	13	6
19.	Peru	5	10	4
20.	Venezuela	14		4
	SUBTOTAL South America	**62**	**59**	**43**
21.	Costa Rica	2	7	4
22.	Cuba			1
23.	Dominican Republic	3	10	5
24.	Honduras	1	1	1
25.	Jamaica		2	5
26.	Mexico	6	1	2
27.	Trinidad & Tobago	11	10	6
	SUBTOTAL Central America & Caribbean	**23**	**31**	**24**
	Grand Total	**152**	**147**	**119**

Table 2: Countries with International Cocoa Awards for the 2009, 2010 and 2011 Editions.

	Countries/Regions	**2009 Pilot Edition**	**2010 Top 12**	**2011 Top 12**	**2011 Top 4**
1.	Cameroon		1	1	1
2.	Cote d'Ivoire		1	1	
3.	Ghana		1		
4.	Madagascar		1		
5.	Togo			1	
	TOTAL Africa	**0**	**4**	**3**	**1**
6.	Malaysia			2	1
7.	Papua New guinea		2	1	
	TOTAL Asia & Pacific	**0**	**2**	**3**	**1**
8.	Bolivia	3			
9.	Brazil		1	1	
10.	Colombia		1	1	
11.	Ecuador	9	1	1	1
12.	Peru	4			
13.	Venezuela	13			
	TOTAL South America	**29**	**3**	**3**	**1**
14.	Costa Rica	2			1
15.	Dominican Republic			1	
16.	Jamaica		1		
17.	Mexico	3		1	
18.	Trinidad & Tobago	6	2	1	
	TOTAL Central America & Caribbean	**11**	**3**	**3**	**1**
	Grand Total	**40**	**12**	**12**	**4**