



PROTOCOLS

For Evaluating and Designating Heirloom Cacao

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Protocols for Bean Submission

Bean Submission Requirements

ANONYMITY / HCP IDENTIFICATION NUMBER

Upon registering with Heirloom Cacao Preservation (HCP) and completing the application, the Applicant will be assigned an HCP Identification Number, which is used to anonymize the submission. This number and bean information are the only information the HCP Lab and Tasting Panel receives when processing and evaluating the submission.

QUANTITY OF BEANS NEEDED FOR EVALUATION

HCP requires SIX (6) kilograms of cleaned and dried cacao beans that represent the population of trees and commercial shipment quantity proposed for Heirloom designation. The HCP defines “cleaned” as having all broken beans and foreign material removed. For those Applicants who normally wash and polish beans after drying, the HCP considers washing and polishing part of the cleaning process.

The Applicant must receive written agreement from HCP in advance of submission if they are unable to provide the full 6kg of clean, dried beans. In the event that HCP permits an exception for less than the full 6kg, a minimum of 2kg of beans is required in order to process and evaluate the submission.

DESCRIPTION OF THE BEANS SUBMITTED

Submit only fully mature, ripe, un-diseased beans, that have been harvested during the normal crop cycle and are fully representative of long-term production. Six kilograms of clean, dried beans will require beans from 40-120 bearing trees representing the population being assessed. Trees should be marked or tagged so they can be assessed for genetic diversity should the Tasting Panel designate the submission as Heirloom.

QUANTITY OF BEANS

HCP requires this quantity to ensure sufficient beans for the primary Lab tasks, and to provide spare beans in case of problems in preparation or shipment. We assume the beans will be clean with no cleaning losses, and the yield of cleaned, roasted nibs from raw beans will be 65%.



Physical tests	175 g
Liquor for liquor evaluations	875 g
Liquor for chocolate evaluation	900 g
Total beans needed	1950 g 1.95kg (65% of 3kg)
Chocolate samples for designation event	remainder

Remaining beans are stored pending the Tasting Panel evaluation. If the submission is designated Heirloom, the remaining beans will be used to make chocolate samples for the designation award event.

Post-Harvest Requirements

FERMENTATION & DRYING

- Fermentation and drying must be done in a manner that is consistent with the larger scale (commercial) production of this bean type. HCP does not specify fermentation or drying practices, but does review these practices as part of the Virtual Site Visit.
- No fruit, fruit pulps, juices, spices, flavors, or any substance may be used to alter or enhance the flavor of the beans during fermentation.
- Beans should be dried until the moisture content measures 6.5 to 7.9%. The ideal moisture content of the beans is 7.0 to 7.5%.
- Following the completion of drying, samples must be stored for a minimum of six (6) weeks to allow the flavor to equilibrate and be representative of commercial shipments.

STORAGE

It is recommended that Applicants store a minimum of 13kg of beans under the following ideal storage conditions, retaining 5kg as an insurance against possible loss of sample during shipment or problems with the initial shipment.

- Beans should be stored in a breathable bag such as new, clean, odor-free burlap, jute, or cotton. Ensure any material used is free from any aromas that could impart odor or flavor to the beans.
- Beans should be stored at ambient conditions, but protected from excessive moisture or any off odors in the storage area. Care must be taken to avoid exposure to any conditions that might cause re-wetting or re-humidification of the beans, which can result in mold growth. The presence of mold in a cut test above the United States FDA standard is grounds for immediate rejection of the sample.
- Bagged samples should be stored in screened, breathable containers that will protect them from insect infestation. The mesh size of the screen should be small enough (like mosquito netting) to prevent the entry of moths and larvae. The presence of any insect infestation in the cut test is grounds for immediate rejection of the sample.

Shipping

Applicants must ensure that all necessary paperwork, including bill of lading, commercial invoices, customs declarations, and any United States FDA Prior Notice requirements are met. An account for Prior Notice can be created on the FDA website at <https://www.fda.gov/industry/prior-notice-imported-foods/filing-prior-notice-imported-foods>

SHIPPING REQUIREMENTS

Beans should be shipped in the same breathable bags in which they were stored. (See Storage, above). Plastic Ziploc bags or similar will not be accepted.

To maintain anonymity, the bags must not contain any markings aside from the HCP Identification Number. Multiple different submissions must be shipped separately and require individual applications for each sample being submitted.

SHIPPING INFORMATION

Paperwork and bags of beans should be sent to the address provided when the HCP application has been completed.

The HCP Lab will log the receipt of the beans by their HCP Identification Number. The Applicant will be notified when this shipment is logged as received.

Prior to evaluation by the HCP Lab, beans will be stored in a temperature and humidity-controlled environment to ensure their stability, and will be stored separately from other cacao beans to minimize the opportunity for infestation.

Following receipt at the HCP Lab, beans will be scheduled for bean counting, cut tests, and raw bean moisture content testing, and prepared for processing into liquor and chocolate as covered in the next protocols.

Protocols for Raw Bean Characterization and Cut Testing

After the HCP Lab logs the HCP Identification Number and receipt of the cacao, the beans are stored in a temperature and humidity-controlled environment to ensure they remain stable until they are evaluated and tested. Bean information is used to determine the proper roasting conditions.

The HCP Lab will conduct the following tests on the Applicant's beans as they are prepared for processing into liquor and chocolate:

- Bean Count (Beans/100g)
- Cut Test (1x 50 beans)
- Raw Bean Moisture by Mettler loss in weight moisture balance calibrated to vacuum oven moistures
- Bean Quality Test

With the exception of testing for internal mold and infestation, the cut test is used to document the characteristics of the Applicant's beans. Mold and insect infestation must comply with the Proposed ISO Standard ISO/TC 34/SC "Cocoa Beans - Specification" (01/12/2012): maximum 3% moldy; maximum 3% infested.

The HCP Lab will photograph the cut tests. Photos will include a (MacBeth) ColorChecker or equivalent to allow standardization of the colors due to lighting differences.

The HCP Lab will also evaluate the Applicant's beans for obvious faults with fermentation, drying, storage, or shipping that would significantly impact the flavor of the liquor. Should the Lab identify such faults, they will send a sample of the beans to a third-party cacao specialist, who will independently evaluate the beans, document their findings, and report back to the HCP Lab. Should both the HCP Lab and the third-party determine that the beans are faulty, the HCP Lab will mark the beans as rejected. The HCP will then follow up with the Applicant to discuss the failure of the sample and any next steps.



IN THE UNLIKELY EVENT BEANS FAIL CUT TESTS

If all tests are passed, the HCP Lab will mark the tests as passed. Should a sample fail a Cut Test in the HCP Lab, the HCP Lab will mark the test as failed, and the Applicant will be notified. A second half Cut Test (1x 25 beans) will be performed by an HCP Specialist and the Cut Test information will be entered into the HCP Database.

- If the result of the Cut Tests passes the standard, the HCP Lab will mark the Cut Test as passed in the HCP Database and continue with the processing.
- If the result of the Cut Test still fails the standard, the HCP Lab will mark that bean as rejected in the HCP Database, which will email the Applicant to resubmit the beans at the Applicant's cost.

Once the beans are resubmitted following the standard HCP Submission Protocols, all tests will be performed again by the HCP Lab and if necessary the two additional Tasting Panel labs.

- If the results of the Cut Tests pass the standard at any point, the HCP Lab will mark the Cut Test as passed in the HCP Database and continue with the processing.
- If the result of the Cut Test fails the standard a second time, the HCP Lab will again mark that bean as rejected in the HCP Database.

If rejected a second time, the HCP Tasting Panel will review the data of all the tests performed and provide their final recommendation. If the consensus of the panel agrees with the Cut Test determinations then the HCP Lab will mark the beans as rejected. The HCP will then follow up with the Applicant to discuss the failure of the sample and any next steps.

Beans that pass the Cut Test are now processed into Liquor and Chocolate using the following Protocol.

Protocols for Liquor and Chocolate Preparation and Analysis

Processing of beans by the HCP has been standardized to ensure consistency for all submissions for Roasting, Liquor Milling, Chocolate Making, and Analyses of Liquor and Chocolate. Bean type information from the Applicant is essential to avoid delays in this protocol.

Roasting, Cracking, and Winnowing

OVEN SPECIFICATION

High efficiency convection ovens are required: a Binder laboratory convection oven Model FED-56, FD-53, or FD-56 (800 gm full load of beans) may be used per ISCOF standards as specified by Cacao of Excellence. Binder ovens have a recovery time of approximately 4.5 minutes.

Ovens are loaded with two wide mesh trays centered on the axis of the circulation fan. Beans are loaded single bean depth across the loading area. Filler beans will be added as necessary to ensure the same loading for all roasts.

ROASTING CONDITIONS

Specific roasting conditions for the beans are designed to maximize the flavor potential for each type of cacao bean. Conditions are consistent with the Cacao of Excellence roasting conditions used by Guittard, and with international project evaluation conditions across a wide range of clones, geographical locations, and bean types:

- Trinitario Type (expected for most samples): 120°C for 25 minutes
- Forastero Type (typical of Amelonado types): 130°C for 25 minutes
- Ancient Criollo Types (eg. Porcelana, Guasare, etc.): 112°C for 25 minutes

All times are measured from -2°C of set point on oven recovery after insertion of the tray of beans into the oven. (Note: Binder ovens have a recovery time of 4.5 minutes for larger model above and 2.5 min for the smaller model).

Most beans will follow the Trinitario protocol, as they fall into the fruity/floral category. Modern Criollo (Criollo-leaning Trinitario) types will generally be roasted under Trinitario conditions, as their genetics and post-harvest process are much closer to traditional Trinitario beans than they are to Ancient Criollos. Unlike Modern Criollos, Ancient Criollo types require much lower temperatures to best express the nutty and caramel notes. The Forastero protocol is used for Forastero and Amelonado types to bring out the maximum chocolate intensity.

Based on the HCP Lab raw bean tests and information available from the Applicant, the HCP Lab and Tasting Panel Chair may choose to discuss the sample beans and what they know of them before roasting the quantity needed for liquor and chocolate evaluation. Based on this discussion, they may elect to do a pilot roast of 30-50g to make a small amount of liquor for them to taste and determine the proper roasting conditions. There may be some adjustment for bean size, moisture content, and any additional factors that can be gleaned from raw cut beans.

Bean type information from the Applicant is essential to avoid delays in this protocol. If the bean type is not provided or is unknown, the HCP Lab will consult with an HCP Tasting Panel member with access to a lab who will receive a 150g sample of the beans for cut test evaluation and roast recommendation. If that cut test is not sufficient in the judgments of the HCP Lab, the HCP will allocate an additional 175g of beans and do small scale roasting and liquor milling on 50g samples at all recommended roasting conditions in this protocol to determine the proper roasting condition based on flavor of the samples. The HCP Lab will then use the selected condition to produce the liquor for liquor and chocolate evaluations by the Panel.

ROASTING NEEDS

Amounts needed are based on supplying liquor to the HCP Tasting Panel for liquor flavor evaluation, retaining a sample by the HCP Lab, and providing sufficient nibs and therefore liquor for the preparation of the chocolate samples.

Total liquor required for Panelists	260 g
Liquor Retained Sample	150 g
Liquor loss in preparation (milling)	85 g
Total nib clean, shell free required	505 g
Raw beans roasted at 65% yield	775 g
Total chocolate required for Panelists	910 g
Chocolate making loss	50 g
Chocolate tempering loss	50 g
Liquor needs at 73% cacao with 70% liquor recipe (liquor losses included in liquor milling above)	640 g
Raw beans roasted at 65% yield	980 g

Unless absolutely necessary, roasting and liquor preparation is done in several batches run at the same time to create a uniform batch of liquor. This entails roasting 1.8 kg of raw beans, and depending on the roaster will require 3-5 roasting batches.

WINNOWING

Following roasting, beans are cracked and winnowed. Cracking can be accomplished in any suitable device (e.g., Limprimita breaker by Capco Test Equipment, UK) or by hand. Following cracking, beans are winnowed using typical winnowing equipment such as a John Gordon or Capco Test Equipment Winnower or equivalent.

Following winnowing, all nibs are combined and well mixed. All nibs will be handpicked to remove all traces of shell—both free shell and shell still stuck to the nibs. Winnowing and handpicking will be performed in an area governed by GMP practices and with an HACCP program in place to ensure the wholesomeness of the product.

After winnowing, nibs will be stored in a sealed bag. Every effort will be made to convert nibs into liquor within 48 hours of roasting. If the nibs cannot be liquor milled within 24 hours of roasting, they will be stored in a tightly sealed bag, preferably a multi-layer, barrier film vacuum seal type to provide barrier film protection without vacuuming. Nibs will not be stored longer than seven (7) calendar days (even in a sealed bag) prior to liquor milling. Storage temperature should be 10–24°C (50–75°F). If nibs are stored at temperatures less than 18°C (64°F), they must be allowed to warm to room temperature prior to opening the bag. The expected yield of cleaned roasted nibs from uniformly fermented and dried cacao beans will be 70%. The HCP has calculated its needs based on 65% to provide added insurance against loss.

Liquor Milling

Liquor milling may be accomplished in any suitable slow rotating stone or porcelain grinding mill. Metal milling (e.g., ball mills) or high-speed mills are not to be used. Milling will be performed in an area free of other odors and protected from environmental influences. GMP practices will be in place as well as an active HACCP program to insure wholesomeness of the product.

During milling, the mill will be held at warm room conditions to ensure that the liquor will not solidify during the milling process. The mill and nibs are pre-warmed to 40°C to facilitate milling. Milling temperature will not exceed 55°C (130°F).

It is impossible to specify exact liquor milling times, as this is dependent on a number of factors such as fat content of the nibs, degree of fermentation of the beans, specific mill used, condition of the stones in the mill, and other factors. But milling will be accomplished gently and without the addition of significant external mechanical pressure. The objective is to produce liquor that will have no discernible grit to the HCP Tasting Panel in their evaluation without being excessive. The balance between fineness and time will be determined by the HCP Lab.

Chocolate Making

The HCP Lab will determine the optimal bittersweet chocolate recipe for the submitted beans, typically between 66% and 72% cacao.

Chocolate Liquor	66.00% - 72.00%
Deodorized Cocoa Butter	3.00%
Sugar	31.00% - 25.00%

Cocoa butter used in this formulation will be neutral tasting so as to not shift the flavor inherent² in the liquor. The HCP Lab will verify by taste the use of neutral butter.

¹ Prior to use, the sugar must be assessed to ensure that it is neutral in taste and smell by placing 2-4 ounces of sugar in a jar twice that size, securely capping the jar, and holding for at least one hour. The sugar will then be uncapped and immediately smelled to determine that it has no inherent odor.²

The same protocol steps for liquor milling then apply to chocolate making:

- Chocolate milling may be accomplished in any suitable slow rotating stone or porcelain grinding mill. Metal milling (e.g., ball mills) or high-speed mills are not to be used.
- Milling will be performed in an area free of other odors and protected from environmental influences. GMP practices will be in place as well as an active HACCP program to insure wholesomeness of the product.
- During milling, the mill will be held at warm room conditions to ensure that the liquor will not solidify during the milling process. The mill is pre-warmed to 40°C to facilitate milling.
- Milling temperature will not exceed 55°C (130°F).

Like liquor milling, it is impossible to specify exact chocolate milling times. However, in the case of chocolate, finished fineness is critically important so priority is given to achieving the fineness. The required fineness is 12-15 microns (6.7 10,000ths inches). This will be verified by micrometer (AACT method or equivalent) of a sample of the mass being milled.

Once the requisite fineness is reached, milling is concluded.

Analyses of Liquor and Chocolate; Sample Storage

Following liquor milling, liquor will be checked either by PNMR or by NIR for total fat content. Following all analytical tests on the beans and processing into liquor and chocolate, the remainder of the beans will be stored in a temperature and humidity controlled environment until the HCP completes all its analyses, including genetic sampling and ensure sufficient time for all parties, including the Applicant, to review the HCP results, Once it is determined that no further sampling of these beans is needed, the beans may be discarded or the HCP will provide the HCP Lab with other directions.

Protocols for Liquor and Chocolate Samples, Storage, and Distribution

Liquor and Chocolate Sampling and Storage

SAMPLES - LIQUOR

The HCP Lab will pour melted and homogenized liquor into sample containers, VWR Polypropylene Wide Mouth Bottle, 30 ml (Cat No. 414004-122), or equivalent and tightly capped. Each sample bottle will be evaluated to insure they are free of any off odors. Liquor samples will be prepared in the following amounts for the HCP Tasting Panel and USDA, which can change based on the needs of those organizations:

- 6 (SIX) 20g containers 120g total
- 3 (THREE) 30g containers 90g total
- 2 (TWO) 25g containers 50g total

All samples will be labeled with the HCP Application Number and the date of liquor milling.

SAMPLES - CHOCOLATE

Following milling, all chocolate for evaluation will be homogenized, hand tempered, and molded into the HCP Lab's standard molds of approximately 10g each. Tempered bars will be allowed to equilibrate overnight and will then be vacuum-sealed in multi-layer, barrier film vacuum seal bags (e.g., FoodSaver or equivalent) allocated as follows:

Chocolate for HCP Tasting Panel (60g x 9 Panelists)	540g
USDA	20g

All samples will be labeled with the HCP Identification Number and the date of chocolate milling and molding.



Liquor and Chocolate Shipping and Long-Term Storage

LIQUOR AND CHOCOLATE SHIPPING FOR EVALUATION

The HCP Lab will use overnight shipping with heat protection, frozen packs, and/or any other methods deemed appropriate by the Lab to send samples to the Tasting panel and the USDA. (The HCP Lab based on the location of the Panelists will determine the best carrier. For shipments to Venezuela and Trinidad, FedEx is the preferred carrier due to delivery logistics within those countries.) For international shipments, packages will be labeled “research samples for evaluation” or something similar to avoid being held at customs or charged any duties.

Prior to shipping the HCP Lab or the chair of the HCP Tasting Panel will verify that Panelists are available to receive the sample shipment and to conduct the sensory evaluations in a timely manner.

STORAGE OF LIQUOR AND CHOCOLATE (FOLLOWING SHIPPING OF SAMPLES)

Following the shipment of liquor and chocolate samples to the HCP Tasting Panel and the USDA, all liquor and chocolate will be placed at refrigerator temperatures in an odor-free cooler at less than 13°C (50°F) until the HCP Tasting Panel completes its evaluation and samples are returned to the Applicant. (Retained liquor and chocolate samples may be disposed of following the same steps as beans in the previous protocol.)

If storage longer than 2 (TWO) months from date of milling is expected, samples will be transferred to odor-free frozen storage for long term holding. Any sample stored under these long-term conditions will be equilibrated to room temperature prior to opening the container/vacuum-sealed bag.

HCP TASTING PANEL RECEIVING AND STORAGE OF SAMPLES

Upon receipt of samples, if samples have been shipped with frozen packs, the HCP Panelist will open the package and remove the samples BUT keep them in their sealed containers and allowed to equilibrate to room temperature. No sample will be opened when cold temperatures would allow any moisture condensation.

Panelists will store samples during this time at ambient conditions (air-conditioned room temperature). If ambient conditions are too warm for the chocolate and pose risk of melting or bloom, then an odor-free refrigerator or wine cooler will be used to store the chocolate.

Panelists determine their own schedule for the evaluation of the samples but will attempt to provide turnaround of the evaluations within four weeks of receipt of the samples.

HCP Tasting Panel Evaluation Procedures are covered in the next protocol.



Protocols for Tasting Panel Evaluation and Heirloom Designation

The objective of our tasting panel is to identify cacao with specific genetics or combined genetics and terroir that has complex and distinctive positive flavors that do not normally exist in cacao that we find in the world. The international HCP Tasting Panel will consist of nine members, each of whom is an expert in evaluating the flavor of cacao beans, cacao liquor, and fine chocolate. Replacement members are selected after having demonstrated skill at evaluating flavor, a broad knowledge of the cacaos of the world, and an understanding of fine chocolate production across the globe.

EVALUATION

The HCP Tasting Panel's initial sensory evaluations of liquor and chocolate samples will be in the format they currently use. Panelists will then translate their evaluations into HCP global scores for flavor, write short written evaluations of the liquor and chocolate IN ENGLISH, and make a vote of "YES", "NO", or "RESUBMIT" for Heirloom designation based on this scoring and evaluation. A resubmit vote indicates that the Tasting Panel would support designation provided the Applicant addresses stated issues with the beans.

The HCP Panel Chair will prepare a summary of the HCP Panelists' scores, written evaluations, and recommendations, and circulate it to the HCP Panelists and to the HCP Administrator. Panelists will conduct all evaluations independently and only discuss each other's assessments after the entire Panel's evaluations are complete. While the names of the HCP Tasting Panel are public, individual panelists' scores, evaluations, and recommendations will be blinded to the Applicant; Applicants will only be able to see unattributed individual scores, chocolate and liquor flavor and evaluations, and recommendations.

GLOBAL SCORING

In addition to a written Sensory Evaluation of Liquor and Chocolate, Panelists will make two standard attribute evaluations from 1-10 (10=maximum) for:

- Overall Flavor (Quality and Balance); and
- Unique Flavor (distinctive or unusual flavor profile of long-term value to the community of cacao worthy of preservation).



Tasting Panel Scoring and Recommendation (Yes / No / Resubmit)

Based on scoring and evaluation, each Panelist will cast a Yes/No/Resubmit vote for Heirloom designation.

While individual scores should play a part in making that designation, Panelists are NOT required to correlate their recommendations to a score (i.e., one Panelist could score a sample a “5” and another a “9” and both could vote yes, no, or split on Heirloom designation).

After the evaluations are received, the Panel Chair will schedule a conference call to review the results with the Panel and prepare a final report. Full Panel participation in this call is preferable but not mandatory.

Supermajority Vote FOR Heirloom Designation

If a supermajority (70% or more) of the HCP Tasting Panelists vote yes, the sample will receive HCP designation as Heirloom flavor.

Majority but not Supermajority Vote FOR Heirloom Designation

If a majority but not a supermajority recommendation is made for Heirloom designation or the Panel is split, the HCP Tasting Panel Chair will take one or both of the following steps:

- If any Panelists were unavailable for the initial evaluation but are now available in a reasonable time frame to make an evaluation, the Panel Chair can hold the final result until one or more of those Panelists make an evaluation. If the recommendation(s) create(s) a supermajority or minority vote for Heirloom designation, the Panel Chair will follow the steps outlined above.
- If no Panelist is missing or missing Panelists are unavailable, AFTER the evaluations are received, the Panel Chair will schedule a conference call to review the results with the Panel and an HCP representative will prepare a final report. The Panel Chair during the Panel discussion will see if any Panelist wants to re-taste the beans based on the discussion. If a re-tasting results in a Panelist vote for designation that creates a supermajority, the Panel Chair will follow the steps outlined for the supermajority. (Only the final consensus of the Panel will be made public.) If the Panel remains unchanged, the Panel Chair will take the steps that follow.



Simple Majority, Tie, or Minority Vote AGAINST Heirloom Designation

If a simple majority of the HCP Tasting Panel votes yes, the Panel is tied, or a minority vote for Heirloom designation, the sample will NOT receive HCP designation as Heirloom flavor but will receive a score from the Panel.

IF the Panel perceives that the beans display the POTENTIAL for heirloom, regardless of whether there are any processing issues, the Panel may vote to allow the Applicant to re-submit the beans for re-evaluation under the rules under “Evaluation Troubleshooting.”

Upon completion of this call and report, the Panel will notify the HCP and the HCP Administration will notify the Applicant.

Official Designation of HCP Status

While Heirloom designation by the HCP is not contingent on genetics, unless a problem with the beans is detected (see “Troubleshooting” section), official designation as Heirloom flavor is contingent on the completion of a Virtual Site Visit to verify the trees and the post-harvest process, and submission of cacao shell samples to the USDA or its representative.

If any beans or processes are found or suspected to be in violation of any of the HCP Submission Protocols at any time prior to designation, the HCP will withhold HCP Heirloom designation pending further discussion by the Tasting Panel, Lab, and Board.



Virtual Site Visit

Official designation as Heirloom by the HCP is contingent on completion of a Virtual Site Visit of the Applicant's field site to HCP and review of the Virtual Site Visit by HCP. The HCP will request the virtual site visit be conducted as soon as designation is final. Ideally, this visit will be done during production, but in a reasonable amount of time as to not unnecessarily delay the announcement of the HCP designation.

If upon or after review of the Virtual Site Visit materials, a violation is suspected that would affect designation and cannot be resolved by consultation, the HCP will withhold Heirloom designation pending further discussion by the Tasting Panel, Virtual Site Visit Review Team, Lab, and Board.

VIRTUAL SITE VISIT PROCESS

The representative will follow the HCP Virtual Site Visit Information Sheet, gathering supplemental data about each tree (tree height, pod characteristics, bean color, yield, tree age, tree origin, disease resistance/susceptibility, etc.) and submit this information using the HCP data sheet.

Upon receipt of the Virtual Site Visit data from the Applicant, the HCP will appoint a team of two reviewers to examine and assess the Virtual Site visit. Approval by either reviewer is sufficient to accept the Virtual Site Visit for designation.

POST-HARVEST PROCESSING

The Applicant will video record all aspects of the post-harvest processing used to process the beans submitted to the HCP.

The applicant will record information regarding the fermentation times and temperature, drying methods, and other relevant post-harvest data, as well as production and agronomic data, including fertilizer use, soil characteristics, topography, and climate. A list of basic information to collect in addition to other observations will be provided to the applicant. The applicant will provide photos of the process, along with GPS coordinates of the farm (not the cooperative). Unless specified by the applicant, photos and video will be considered to be proprietary information, and will not be shared outside of the HCP.



Processing of Genetic Samples; Notification

Once the bean samples arrive at the USDA, they will be processed and sent to the DNA testing facilities for analysis.

DNA will be extracted and analyzed with standard markers and compared to all known reference types. Parentage and sibling analysis will be done to determine what groups, hybrids, or clones are involved in the genetic makeup of the sampled trees.

The results of the genetic analysis will be sent to the Applicant and placed into a secure part of the HCP database for a period of five (5) years. This database will be the repository for genetic diversity population analysis, GIS population locations, bean quality traits, and flavor analysis. After that period, it will be incorporated into the HCP public database. Until then, the public database will be the storage area for all of the international reference types, and after the designated time period, for all cacao types designated as Heirloom.

Once the samples have been received and tested, the DNA has been confirmed to match (within reason) the DNA of the originally submitted beans, and a USDA representative signs off on the virtual site visit report, the HCP will provide the Applicant with the "Permission to Disclose" form in order to proceed with the announcement of Heirloom designation.



Protocols for Application and Evaluation Troubleshooting

PERCEIVED POSTHARVEST PROCESSING PROBLEM/VOTE FOR RESUBMISSION

If the HCP Lab or Panelists perceive a failure in the sample due to post-harvest processing and feel that the liquor and chocolate display some desired attributes, the Panel will recommend the beans be resubmitted for re-evaluation by the Applicant as soon as new beans are available.

PERCEIVED HCP LAB PROCESSING PROBLEM

If in the unlikely event Panelists perceive a failure in the sample due to the processing of the beans into liquor and chocolate by the HCP Lab AND feel that the liquor and chocolate have reasonable potential for displaying HCP desired attributes, those Panelists will immediately inform the Panel Chair and may request another sample of liquor and chocolate along with the beans be re-sent for evaluation, if needed, to make a final recommendation. If after re-evaluation Panelist(s) detect the same problems, the Chair will review the comments and rationale and convene a Panel discussion as appropriate.

If a Panelist perceives a failure in the sample due to processing of the beans into liquor and chocolate but feels that the sample does not have Heirloom potential, no action will be taken and the Panelist will vote “No”.

PERCEIVED FERMENTATION ALTERATION

If the HCP Lab or any Panelist perceives a sample has been altered in any way during fermentation – a direct violation of the HCP Submission protocols – And feels that the liquor and chocolate display HCP desired attributes, the Panelist will immediately inform the Chair and the HCP Lab and the Chair will convene a Panel discussion as appropriate and decide what, if any, action to take. The HCP Tasting Panel Chair may recommend Heirloom designation be withheld pending a site visit and genetic testing.

If the Lab or a Panelist perceives the sample has been altered in any way and feels that the sample does not have Heirloom potential, no action will be taken and the Panelist will vote “No”.

HCP PANELIST UNAVAILABLE

The HCP strives to have all Panelists provide evaluation input but recognizes there may be times when, due to travel, holidays, or emergencies, Panelists may not be available for an extended period of time. The HCP Tasting Panel Chair will be responsible for determining whether a panel will proceed at these times or whether it will wait to send out samples.

In no case will the panel proceed with fewer than five Panelists.

