

Protected food, drink or agricultural product name

Product specification for CACAO AMAZONAS PERU

A protected designation of origin (PDO)

Responsible country: Peru

This document sets out the elements of the product specification for information purposes.

Competent authority

The National Institute for the Defense of Competition and Protection of Intellectual Property (INDECOPI) is the Peruvian authority in charge of running the scheme of the appellations of origin and geographical indications.

Name: National Institute for the Defense of Competition and Protection of Intellectual Property (INDECOPI)

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Applicant group

Name: The Cacao Amazonas Peru's application was submitted by Cooperativa Central de Productores Agrarios de Amazonas (CEPROAA), from Peru. However, it must be noted that according to the Peruvian legislation, the Peruvian State is the exclusive owner of the Peruvian appellations of origin or geographical indications.

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Type of product (as in Annex XI Implementing Regulation 668/2014)

Other products listed in Annex 1 to the Treaty (class 1.8)

1. Product name(s)

Cacao Amazonas Peru

2. Description

Scientific name of the species that produces the fruit:

Theobroma cacao L. Var. "Native cocoa"

Product covered by the appellation of origin:

Fermented dry bean with shell.

Bean characteristics:

They are beans from tree-ripened pods or fruits - cocoa plants known as native - fermented, shell-dried (in a combination of sun and shade), selected and packaged (in jute bags).

The dry beans with shell designated as Cacao Amazonas Peru are distinguished in quality, for being in a proportion of 30% white almonds (grains) and 70% of violet almonds (grains) when they are extracted from the pods and put to fermentation. In addition, the violet grains have up to 23.3% hints of white. The beans also exhibit a series of qualitative and quantitative characters, among which are:

- The colour of the dry bean, predominantly reddish brown, tends to be chocolate brown, with a cracked appearance inside; consequence of the fermentation process.
- The longitudinal shape of the beans is predominantly of the elliptical type. In the cross-section shape, the intermediate between flattened and rounded predominates.
- Size of the beans: The size of the cocoa bean has been categorized into 3 types: 1 = small (22 mm). The beans of the designated product CACAO AMAZONAS PERU were large in 67.95% and medium in 32.05%.
- The average number of seeds or beans: in 100 grams are 68 units, with an acceptance range of 58.3 to 74.7 units.
- Weight: 100 dry beans are equivalent to 150.3 grams, with an acceptance range between 129.9 g to 170.2 g.

External aspects:

- Uniformly brown color, with reddish tendencies.
- Thin shell and easy peel off.
- Matte brown and somewhat rough surface.

Internal aspects:

- The shelled bean is shiny deep brown.
- Many cracks or fissures in the cotyledons, firm in texture due to the high lipid content, balanced with a medium degree of fibre content. Good fermentation.
- The shell is thin and comes off easily.

Smell and taste aspects: In sensorial analysis, the profile that has been drawn for dry beans is of a fresh smell. There are no unpleasant odours that indicate the presence of mould, poor fermentation, or storage.

The flavour is balanced, with a moderate citric astringent acidity, tending to neutral; medium low bitterness; medium high sweetness with nutty, fruity, and floral accents. There is also intense chocolate flavour that lasts for more than 20 minutes in the mouth. These qualities are correlated with the composition of the bean, which stands out for its high ash, fibre, proteins, medium levels of polyphenolic metabolites that determine its antioxidant capacity and therefore do not confer bitterness or unpleasant degrees of acidity in the product.

Bromatological composition of Cacao Amazonas Peru dry beans, at a 7% humidity

95% CONFIDENCE	LOWER VALUE (%)	HIGHER VALUE (%)
ASH (3.60 ± 0.11)	3.52	3.70
FAT OR LIPIDS (48.27 ± 2.79)	46.13	50.42
FIBER (10.76 ± 2.44)	8.88	12.64
PROTEINS (13.63 ± 0.54)	13.22	14.05
CARBOHYDRATES (27.70 ± 3.40)	24.88	30.11
ACIDITY (1.58 ± 0.18)	1.40	1.77
ANTIOXIDANT CAPACITY (µmol Trolox/g), (214.16 ± 9.32)	204.38	223.95
TOTAL PHENOLS CONTENT (mg Gallic Ac./G), (14.55 ± 0.92)	13.59	15.52
pH (5.60 ± 0.26)	5.09	6.11

3. Geographical area

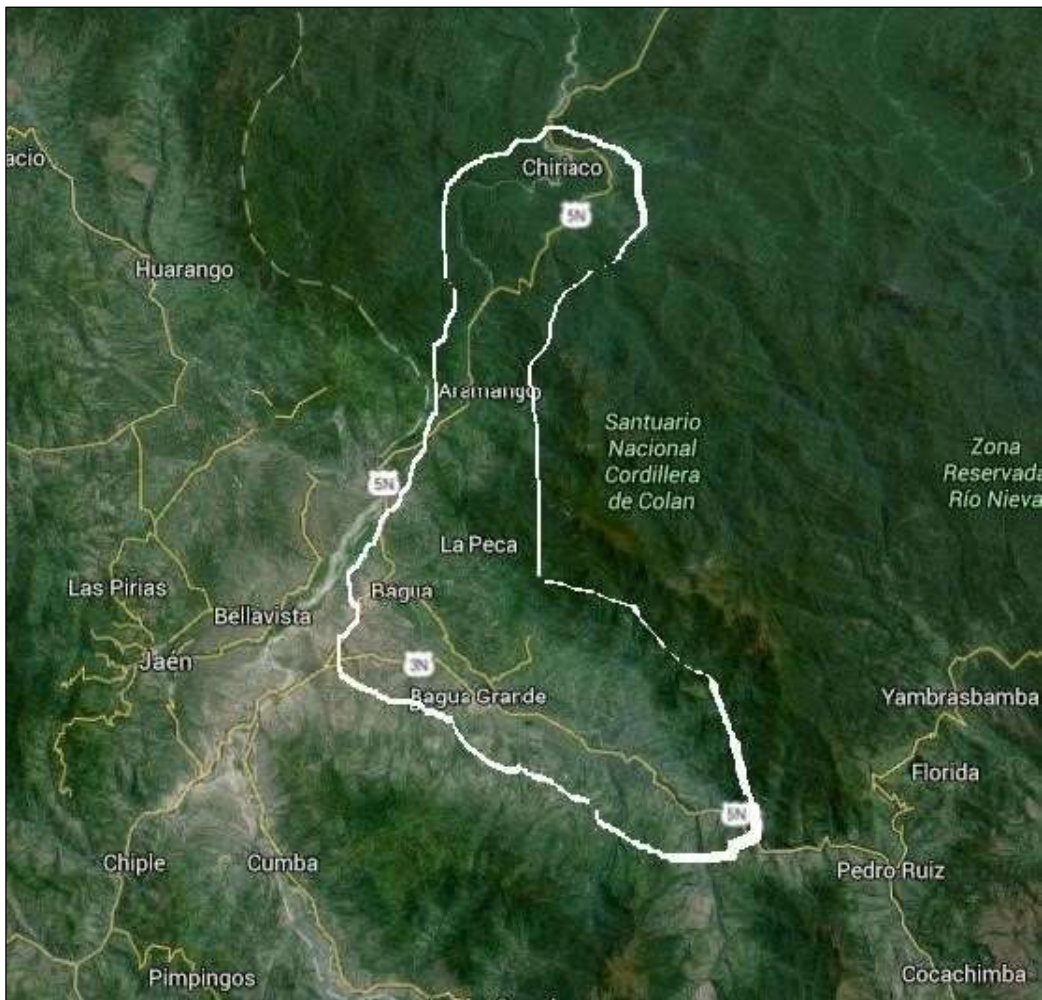
The production area of the appellation of origin Cacao Amazonas Peru covers: the provinces of Bagua and Utcubamba of the department of Amazonas.

Bagua includes the districts of Imaza, Copallin, La Peca, Aramango, El Parco and Bagua.

Utcubamba encompasses the districts of Cajaruro, Bagua Grande, Cumba, El Milagro and Lonya Grande.

In the province of Bagua, the districts with altitudes greater than 450 masl are the districts of Bagua, Imaza, Copallin, Aramango. In Utcubamba, the districts that meet the condition of

altitudes greater than or equal to 450 masl are the districts of Cajaruro, Bagua Grande, Cumba and El Milagro. In all cases, 1,200 masl is considered the upper limit for altitude.



Map. Area of the production zone of the appellation of origin Cacao Amazonas Peru. Source: Google Earth

4. Proof of origin

The Cacao Amazonas Peru producer family has organized itself into cooperatives and associations for post-harvest activities, which include fermenting, drying and shaking to standardize bean size and storage. This will allow the dry fermented cocoa bean to be uniform. It is worth mentioning that this post-harvest method has been in operation for more than 10 years in all producer organizations.

Cooperatives and associations have implemented a traceability system, made up of a documentary flow and a collection flow of slime and dry bean. Therefore, they receive the cocoa beans in slime, registering them based on the list of associates with a code, a report of the date of receipt and quantity of the product. The Base Committee proceeds to corroborate its physical qualities: whitish colour, absence of impurities, fresh smell, strange odours, whole beans not split and not affected by pests or diseases.

5. Method of production

The cultivation takes place in shade with flora such as rubber, banana, pacay and others. Moon phases are used as criteria for field activities.

Seeds

To obtain seeds, the producer family cuts the ripe fruits located close to the ground from the main stem of the plant, because they consider that this fruit is large and healthy, since it has absorbed all the nutrients from the root of the plant. For a hectare of new sowing, they harvest 60 to 75 fruits, that is, from 4 to 5 kg of slime seed.

Sowing and cultivation

The seeds are sown without slime, for this the growers gently rub them with sawdust. The sowing is done in black and sandy soil (never in yellow soil) and under shade, for 4 to 5 days, until the emission of the root is seen, then they sow one seed per bag in a vertical position with the root downwards. Cocoa-producing families consider this practice is key to obtaining a vigorous and healthy plantation, with an abundant flowering and with a minimum level of pests and diseases. Some plantations are over 100 years old. During the dry season, cocoa-producing families water once a week and at night, when the plant is in the phenological stage of maturation, which influences the sugar content of the cocoa bean. In the pre-harvest period, starting in August of each year, producing families carry good agricultural practices for CACAO AMAZONAS PERÚ, which consist of taking care of the attack of pests and diseases. They make foliar fertilizers and use pesticide plants. In addition, they prevent the formation or development of bug nests, destroy the places that are a source of food for pests and eliminate diseased fruits. They carry out weeding, foliar fertilization, soil fertilization and pruning, for pruning they use machetes, chainsaws, blades, etc. Pruning is accompanied by fertilizing with products that do not harm the environment including products made by the producers themselves, such as decomposed organic substance and preparations based on vegetables and animal waste.

Harvest

In the months of April, the cocoa-producing families, prepare to start the harvest, after having spent 7 months taking care of the plantations. They check each of the plants for the presence of cobs or ripe fruits. This activity is important because it influences the quality of the cocoa. Next, they manually cut one end of the peduncle close to the cob using scissors and taking care not to damage the flower buds, that will later become new fruits. After separating the fruit from the tree, all the harvested ripe cobs are piled on a blanket under the shade. They then proceed to break the cobs using a short blunt machete, trying not to damage the seeds (cocoa beans in slime) preventing them from being contaminated or infected by diseases to guarantee their quality. Once the cob is broken, the pulp and shell are separated from the cocoa beans in slime, which is the valuable part of the fruit. Dedication to this work is important, as it ensures that the bean in slime remains clean for a good fermentation process.

The beans in 'slime' are fermented in screw wood drawers for 7 days. The 48-hour protocol is followed in the first drawer and, in the rest of the drawers, for 24 hours in each. Then they are dried in the sun by exposing them on racks and in the shade as follows:

Day 1 - The beans are left for one hour in piles. Grooves are opened and left for another hour. They are then stored in the shade.

Day 2 - The beans are left exposed to the sun for 12 hours, and then stored in the shade.

Days 3 and 4 - The beans are left exposed to the sun all day and stored at night.

The humidity should be at 7%. The beans are sieved and packed in jute bags.

It should be noted that a particular and distinctive characteristic of CACAO AMAZONAS PERU is the tradition maintained by producers that the harvested grains are in the proportion of 70% and 30% purple and white grains, respectively. In addition, of the purple grains, 23.3% should contain white areas on their surface when cut longitudinally (these grains are called almonds with hints of white). This characteristic is traditional and is important for the aroma and flavour that this cocoa has and is a distinctive commercial aspect.

6. Link with the geographical area

The characteristics of CACAO AMAZONAS PERU result from the interaction of many natural factors, such as the climate (the product is grown in an environment of mixed microclimates with altitudes ranging from 450 masl to 1200 masl) that predominate in its production area. The number of hours of sunlight provide enough energy for the cocoa beans to accumulate the amount of fats that mark their distinctive characteristics. The CACAO AMAZONAS PERU cultivation area includes part of the ecoregion called low jungle an environmental setting composed of forests inhabited by flora which develops under the shade of native species such as rubber, banana, pacaes, laurel; complemented with the planting of legumes to keep the soil rich with nitrogen and native fauna. The water network is made up of a sector of the Marañon River that feeds on the thaws and continuous rainfall that occur in the Eastern Cordillera. It is characterized by meteorological variables that are favourable for the development of the cocoa tree, which in harmony with the other abiotic and human factors, lead to a bean with distinct organoleptic characteristics (aroma and taste of a pleasant bitterness), which give rise to its reputation.

The unique characteristics of the cocoa are strongly influenced by the agronomic, harvest and post-harvest management carried out by the families who work with the cacao. These families are members of committees and constitute the organizational base of the cooperatives or associations of producers, so that they function in an organized way to fulfil the development of all the techniques and processes indicated in the Manuals of Good Agricultural Practices (GAP). Cocoa-producing families have been dedicated for many years to the production of the crop. Each member of the family is assigned a role in the cocoa production, which they carry out in harmony with the native species, taking care of the water sources, the soil, without the application of toxic pesticides, etc. Likewise, they preserve the practices of their ancestral beliefs, which enrich the production of CACAO AMAZONAS PERÚ. These practices relate to the lunar phases, mainly in the stages of sowing, pruning, fertilizing, weeding, and harvesting. The cocoa-producing families consider each of the lunar phases in relation to the sap of the cocoa plant. For example, when the moon is in the last quarter phase, they carry out pest control, pruning, planting and weed control activities, in order to avoid severe attack by pests and diseases. In the full moon phase, they carry out foliar fertilization, weeding and harvesting. In the waning moon, the application of fertilizers to the ground. The cocoa-producing families carry out grafting during the three days after

the crescent moon and three days after the full moon. The tasks of pruning and cleaning diseased trees are centralized in the phase of the waning moon and first quarter, avoiding rotting and obtaining a faster and better healing. Plant transplantation is carried out between the phases of the new moon and the crescent moon. To obtain seeds, the producer family cuts the ripe fruits located close to the ground from the main stem of the plant, because they consider that this fruit is large and healthy, since it has absorbed all the nutrients from the root of the plant. For a hectare of new sowing, they harvest 60 to 75 fruits, that is, from 4 to 5 kg of slime seed. The seeds are sown without slime, for this the growers gently rub them with sawdust. The sowing is done in black and sandy soil (never in yellow soil) and under shade, for 4 to 5 days, until the emission of the root is seen, then they sow one seed per bag in a vertical position with the root downwards. Cocoa-producing families consider this practice is key to obtaining a vigorous and healthy plantation, with an abundant flowering and with a minimum level of pests and diseases. Some plantations are over 100 years old. During the dry season, cocoa-producing families water once a week and at night, when the plant is in the phenological stage of maturation, which influences the sugar content of the cocoa bean. In the pre-harvest period, starting in August of each year, producing families carry good agricultural practices for CACAO AMAZONAS PERÚ, which consist of taking care of the attack of pests and diseases. They make foliar fertilizers and use pesticide plants. In addition, they prevent the formation or development of bug nests, destroy the places that are a source of food for pests and eliminate diseased fruits. They carry out weeding, foliar fertilization, soil fertilization and pruning, for pruning they use machetes, chainsaws, blades, etc. Pruning is accompanied by fertilizing with products that do not harm the environment including products made by the producers themselves, such as decomposed organic substance and preparations based on vegetables and animal waste. In the months of April, the cocoa-producing families, prepare to start the harvest, after having spent 7 months taking care of the plantations. They check each of the plants for the presence of cobs or ripe fruits. This activity is important because it influences the quality of the cocoa. Next, they manually cut one end of the peduncle close to the cob using scissors and taking care not to damage the flower buds, that will later become new fruits. After separating the fruit from the tree, all the harvested ripe cobs are piled on a blanket under the shade. They then proceed to break the cobs using a short blunt machete, trying not to damage the seeds (cocoa beans in slime) preventing them from being contaminated or infected by diseases to guarantee their quality. Once the cob is broken, the pulp and shell are separated from the cocoa beans in slime, which is the valuable part of the fruit. Dedication to this work is important, as it ensures that the bean in slime remains clean for a good fermentation process. The seeds are then put in permeable jute bags that help drain the slime for a period of 12 hours before being taken to the fermentation centres of the cooperatives or associations. It should be noted that a particular and distinctive characteristic of CACAO AMAZONAS PERU is the tradition maintained by producers that the harvested grains are in the proportion of 70% and 30% purple and white grains, respectively. In addition, of the purple grains, 23.3% should contain white areas on their surface when cut longitudinally (these grains are called almonds with hints of white). This characteristic is traditional and is important for the aroma and flavour that this cocoa has and is a distinctive commercial aspect. Also, The cocoa-producing families of CACAO AMAZONAS PERU have organized themselves into cooperatives and associations for post-harvest activities, which include fermenting, drying, and shaking to standardize bean size and storage. This will allow to give uniformity to the dry fermented cocoa bean. This post-harvest method has been in operation for more than 10 years in all producer organizations. Finally, the cocoa-producing families, together with

their cooperatives and associations, value the genetic makeup of CACAO AMAZONAS PERU. The cocoa-producers passion, knowledge and skills contribute the products unique characterises. The good management of cocoa makes it sustainable over time, preserving ancestral customs.

7. Inspection body

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8. Labelling

Peruvian Metrological Standard NMP 001: 2019 "Requirements for the labelling of pre-packages" - 5th edition, as applicable.