



## Cocoa bean – Sourcing and testing

Good cocoa beans are essential to make sophisticated cocoa ingredients such as cocoa liquor, butter and powder. Our expertise in cocoa bean sourcing as well as the solid infrastructure we have set up in the major growing areas allows us to select the best beans that are available. With a market share of over 40% Ivory Coast is the world's leading producer of cocoa. This newsletter provides information about our organization and bean sourcing operations in this important region.

In Ivory Coast more than 800.000 farmers produce cocoa beans. Most of these farms are very small, on average 3-5 hectares. The annual production of cocoa beans fluctuates between 1500 and 2000 kilograms per year only. Despite this small scale, the farmer plays an important role in the quality level of the beans. Whereas weeding and pruning will increase the yield of the cocoa trees, the post harvest activities such as fermenting and proper drying are essential for the quality of the products made from these beans.

Since the liberalization of the supply chain at the beginning of this century, it has been the objective of Cargill to buy the beans directly from cooperatives. This allows us to discuss quality issues directly with the producers. With practical advice we help the farmer to produce better quality beans and this allows the farmer to increase his income. These cooperatives lack the size as well as the financial means to transport the cocoa to the ports. To facilitate the flow of cocoa we have three so-called upcountry buying stations in operation. The cooperatives but also small traders can deliver their produce to these buying stations where the quality will be checked. These buying stations receive sufficient volume to transport the cocoa to the ports in an efficient way. About 50% of all the cocoa we buy from this country originates from cooperatives. The other half is bought from the traditional traders called pisteurs and traitants. It is not easy to increase the share we buy from the cooperatives. We must rely on the stability and reliability of these organizations, which in a country like Ivory Coast, cannot be taken for granted.

The cocoa beans we purchase undergo many analyses: at the buying stations or at our export terminals each individual bag is sampled at the top and at the bottom. But extensive testing also takes place just prior to processing in our plants. Our central Zaandam laboratory plays an important role in all the quality testing.



The quality controls are carried out in Cargill laboratories. The analysis includes among others moisture content, odor evaluation and a so-called cutting test. Beans with high moisture content have been dried insufficiently and therefore have a short shelf life. Experts can tell the quality of post-harvest treatment from the color of the inside of the bean and odor of the beans. The absence of smoky or hammy off-flavors is determined. The number of beans per 100 g is counted (bean count) as well as the % of double beans. Finally also the % dust and foreign matter has to be within maximum limits. The final test concerns the so-called cutting test where 300 beans are split into halves (see picture cutting test) and the color of the cross section is judged. Among others, the percentage of slate and violet colored beans is determined. Violet beans have not been sufficiently fermented, while slaty beans have not been fermented at all (see picture slaty & violet bean). After final approval these cocoa beans are transported to our (local) factories of prepared for export.



*Cutting Test This is a visual inspection of cut beans. Color deviations are detectable which are indicative of fermentation problems or spoilage (moulds).*

### **Ready for export**

All beans that we purchase must meet our quality standards. They are transported to our factories in Ivory Coast, Europe, Brazil and the United States. Prior to shipment we make export lots of 25 MT. From each lot we draw a 6 kg sample. This sample is tested once more for moisture, appearance and odor. In addition 4 samples are combined and are tested chemically. Fat content, pH and the free fatty acid (FFA) content is determined. The fat content is important for the production of cocoa mass. The pH value is indicative for proper fermentation, which in turn allows the processor to produce cocoas with the desired cocoa flavor and color. The FFA content in cocoa butter has to meet legal maximum values, and should therefore be low in the cocoa beans. High FFA may also impact the chocolate flavor.

Most exported cocoa is stored at destination for a period of several months. High quality manufacturers like Cargill prefer to use main crop cocoa, produced only during a few months of the year. Before the processing starts, the beans are sampled again. This time automated sampling techniques are used to ensure homogeneous samples. The analyses are in fact a repetition of the sampling that took place before the beans were shipped. In addition our laboratory produces cocoa mass on a small scale to determine that the quality will be in accordance with our standards.

Finally we have registered all relevant information about the quality of each shipment and lot in our detailed bean database. We are happy to share our knowledge with you. Because we believe that you will benefit from our data. It is an important cornerstone of the consistency and quality of our products. Please feel free to contact your account manager if this newsletter leads to questions or remarks. We are happy explain the world of cocoa bean in every detail.

**Cargill Cocoa: More than you think!**