

Réf: 166-58sj-Rev.5
13/03/02

COCOA QUALITY

1. INTRODUCTION

CAOBISCO believes that the current, standard, commercial contracts for trading cocoa beans are inappropriate in meeting the legal and desirable standards necessary to protect and help develop the total cocoa industry. They require revision to take account of the views and attitudes of both consumers and legislators such that they satisfy both current and forecast needs.

Whilst any individual buyer may agree specific clauses in their own personal purchasing contract it is also necessary that the industry, as a whole, has a base contract which is robust from both a scientific and commercial viewpoint. It should act as a clear means of communication throughout the cocoa chain, helping and encouraging all participants to produce and market cocoa using the current best known practices.

The standard contract should not represent the lowest common denominator rather it should meet the needs of the current and developing market situation from both a legislative and consumer/customer attitudinal stance. Our industry should not operate in a responsive manner to legislation and attitudes but should act in a pre-emptive fashion, thereby ensuring continuing growth in demand.

2. CURRENT POSITION

Current commercial contracts basically require that Cocoa Beans be :

- fermented
- dry
- free from smoky, hammy and other abnormal odours
- reasonably free from flat beans, germinated beans, fragments and pieces of shell
- reasonably free from insect, rodent or any other type of infestation
- reasonably uniform in size
- virtually free from foreign matter and adulteration

However the methods for determining whether or not these criteria are met are rudimentary at best. The Good Fermented contract requires that there should be no more than 5% visibly mouldy or insect damaged beans and no more than 5% slaty beans. In addition it provides for the measurement of the average bean weight (size), expressed in terms of the number of beans per 100 grammes. There are no standard methods for determining uniformity of bean size, the moisture content of the beans, the uniformity of quality or the quality of the fat.

Such a contract could be acceptable, and workable if farmers were to consistently harvest, ferment and dry their cocoa in line with recommended practice, if the beans are then bagged and graded locally so that any mixing represents no more than a blend of properly prepared cocoas coming from broadly similar trees at the same time of year and if the cocoa is then stored properly and exported without any subsequent loss of integrity.

It is, however totally unacceptable today where many farmers are not preparing their cocoa properly, where cocoa is often moved to port before grading and cocoas of widely different qualities and bean size are blended to the limits which the current contracts allow.

The major contributor to this situation is the failure of the Cocoa Processing and Chocolate Industries to clearly state in their purchase contracts the key quality criteria, and the methodology for determining whether or not these criteria have been met.

This paper is intended as a means of setting out key quality criteria and proposing standard methods for their determination. It is recognised that, practically, all the criteria may not be met immediately, but they are intended to indicate the direction the Industry has to move and to set out clearly for farmers, and everyone involved in the cocoa trade, the quality requirements to meet the consumer needs and the increasing demands of legislation on food and raw materials.

These criteria are not difficult to achieve. They may be met by good farming practices. They do not require significant investment or additional inputs. What they do require is care, in particular in consistency of treatment, and awareness of all involved of the standards required.

The key cocoa quality criteria for both the processing and chocolate industries are :

- the absence of undesirable off flavours
- water (moisture) content of beans
- uniformity of bean size
- uniformity of quality as measured by the cut test
- the quality of the cocoa fat in the bean

The current standard commercial contracts already stipulate that cocoa shall be :

- free from smoky, hammy and other abnormal odours
- dry
- reasonably uniform in bean size

but do not specify the objective criteria and the methodology to be used in determining whether these criteria are met. They specify the average bean weight (size) and the average cut test criteria but not the uniformity of bean size or the need for consistency in quality. Nowhere in the contract is there any reference to the quality of the fat in the bean.

CAOBISCO is aware of the work of FCC and CAL to harmonize their physical bean contracts and considers that this paper identifies the key quality criteria and provides sound scientific methodologies for their determination.

The major problems appear to arise from inconsistent farming practices and the subsequent blending of beans of different qualities. The industry believes trade requirements can be met by the introduction of the following criteria and standard methods of testing into the standard cocoa contracts.

3. PROPOSALS

3.1. Off Flavours

Both the current FCC and CAL contracts require that beans be « free from smoky, hammy and other off flavours », but do not specify an objective methodology for testing such off flavours. Custom and practice is no more than that such off flavours should not be discernible if a handful of beans is sniffed. This is obviously subjective and disputable.

Clearly if off flavours are discernible by sniffing in a handful of beans the parcel must be unacceptable, but the key for the industry is whether they are discernible in the resultant liquor. IOCCC method n°44 provides an objective method, using trained tasting panels following standardised procedures, for determining whether or not such off flavours are present in the beans to the extent that they can be detected in the cocoa liquor. Such panels are already being used satisfactorily by some Exporters, in conjunction with a number of major chocolate manufacturers, in both the Ivory Coast and the Far East.

All that is necessary is that this method be stipulated in the contract as the methodology for determining whether or not off flavours are present and the FCC and CAL to accredit, after appropriate training, tasting panels in the major commercial centres. These panels will evaluate samples on the basis of standard control samples as stipulated by the FCC, CAL or other appropriate authority.

If the buyer makes a claim that a parcel is unacceptable due to off-flavours, then the arbitration panel would send not less than 660 grammes of beans, from the 30% sample, to an accredited laboratory for off flavour assessment in accordance with IOCCC method n°44.

It should be noted that the majority of off-flavours arise from failure to conform to good farming and logistical practices and may be readily eliminated using normal procedures.

3.2. Moisture

The CAL contract already requires that cocoa be dry. The FCC contract does not do so explicitly, but the limits of 8% on shipment and 7.5% on arrival, are widely recognised. In neither contract are the limits made explicit, nor is the methodology for sampling and measurement stipulated.

Moisture limits have to be explicit in all contracts and the limits proposed are :

1. If the moisture is to be determined on shipment the maximum allowed moisture level should be 8%.
2. If the moisture is to be determined on arrival the maximum allowed moisture level should be 7.5%.

with the arbitrators being able to make an appropriate award if these levels are exceeded.

IOCCC method n°43 provides the necessary methodology for determining moisture levels and the following wording should be inserted into contracts :

« moisture samples, taken in accordance with [the appropriate] contract rule, shall be analysed at an accredited laboratory in accordance with IOCCC method n°43 the moisture level being expressed as the percentage of moisture by weight ».

Where an origin has traditionally shipped on the basis of lower limits, e.g. Ghana ships on the basis of 7.5% on shipment and 7% on arrival, it would be appropriate for this origin to retain these lower limits as a standard, which contributes to the premiums obtained for these beans.

3.3. Homogeneity

(a) Bean Size Distribution

Current FCC and CAL contracts both require the parcel to be reasonably uniform size and for the average bean size to be determined by bean count. A sample of not less than 300 grammes of whole beans, irrespective of size but not including flat beans, are counted to obtain a number of beans per 100 grammes. This, however, only finds the average bean weight (size), it does not indicate whether the parcel is reasonably uniform. The uniformity of the parcel in terms of bean size may be determined by examining the bean size distribution of a representative sample.

It is proposed that in addition to the bean count, samples will also be analysed by a sieve test which is described in the IOCCC method 47. The contract will stipulate not only bean size but also bean size distribution using the standard deviation as a measure of conformity.

(b) Homogeneity of Quality

It is also important that the quality, as measured by the cut test, is also homogeneous. In the event that a buyer considers that a parcel is not homogenous, i.e. that the sample is not representative of the total parcel. The standard means of testing for homogeneity will be IOCCC method n°45 which requires taking 25 separate samples from 25 separate bags in parcels up to 500 tonnes, (and an additional bag per 20 tonnes above that level) and the results on each of these samples are looked at separately. The results are compared with statistical tables setting out the distribution one can expect to find on the basis of a normal distribution. If the results are outside the statistical norms the buyer will have claim for lack of homogeneity.

Clearly, there will be extra costs associated with the more extensive sampling and analysis involved, and any such sampling would only be done if a buyer is concerned about the homogeneity of the parcel and the buyer will bear the additional costs incurred, unless his claims are upheld.

3.4. Fat Quality, FFA level

Present commercial contracts make no reference to fat quality. It is believed that adherence to the quality criteria listed above will have a beneficial effect on this issue and ensure that FFA levels are constant and low.

However, the FFA level being critical as it indicates bad farming or logistical practices, there needs to be provision within the standard contract, for stipulating a maximum FFA level for the fat in the cocoa beans, as measured by IOCCC method n°42.

Cocoa prepared and handled in line with the recommended guidelines will have an FFA limit of less than 1.00 in the fat and be well within the legal limit on the FFA of cocoa butter used for human consumption, both within Europe and Internationally, of 1.75%.

It is proposed that a standard figure of 1.25% be introduced into the bean contract. Buyers prepared to accept cocoa beans with FFA up to 1.75% (in the fat phase) may make a contract amendment and agreed allowances.

If a buyer who has bought with an FFA limit in the contract makes a claim about the FFA level, then the arbitration panel will send not less than 100 grammes, from the 30% sample, to an accredited laboratory for determination of the free fatty acid content of the fat, expressed as oleic acid, in accordance with IOCCC method n°42. In cases of a parcel being non homogenous, more extensive sampling will be necessary.

Jute bags

Good manufacturing practices and food laws forbid manufacturers of food items intended for human consumption to use contaminated raw materials. It is therefore essential that the bags used for the transport of cocoa beans (and other food products) are food grade bags.

The current CAL contract states that 'Cocoa Beans should be packed in new, clean, non-returnable bags of sufficient strength to withstand the transit and storage which are woven from natural fibres and which are suitable for food contact use'.

The contract should clearly stipulate that « Export bags used to transport cocoa beans should meet the IOCCC specifications ref. 136-46 (June 1999) for sacks made of jute and sisal fabric for food contact uses (as well as IJO standard 98/01)».

*