

## Chocolate Cheat Sheet

**Beans** – the seeds from cacao tree pods are fermented dried and shipped internationally to traders and brokers. Although they are called ‘beans’ they are not botanically related to legumes. In Spanish they are called ‘*granos*’ or grains, but this is a similar misnomer and they are not grasses either.

**Cacao** – *Theobroma cacao* is the scientific name of the small tree that bears pods on the branches and trunk, also known as cocoa in English.

**Cauliflora** – the phenomenon of tropical plants that have large, heavy fruits on the trunks and branches. Evolutionary botanists dispute if the large fruit had to migrate inward to keep from breaking the branches, or the inward migration over time allowed for larger fruits. Cacao exhibits cauliflora, but various other tropical plant families do as well, it is not unique to cacao.

**Conche** – the process of mixing cocoa liquor, cocoa butter, sugar and other additives to reduce the particle size and allow the acids or other undesirable flavors to ‘work out’ of the chocolate. Conching in a steel ball mill is completed in 8-10 hours.

**Fermentation** – the process of permitting bacteria to chemically alter tannins into flavonoids and polyphenol compounds. The temperature of a proper fermentation will kill the cotyledon of the cacao seed and transfer the color from a bright purple to deep chocolate brown. Fermentation levels (percentages of 100) describe the quality of the cacao beans for chocolate making. Less than 90% fermentation levels in the beans will translate into a chocolate that is bitter, astringent and possibly ashy in the flavor. Quality fermentation fosters woody, nutty, and robust chocolate notes.

**Melange** – the initial grinding and blending of cacao beans under high temperature (120° – 140°F) which turns them into a viscous liquid that turns solid at room temperature.

**Pod** – the fruit structure of cacao trees which has a thick, woody, shell that is cut open with a machete to access the 35-40 seeds inside.

**Tempering** – reducing the temperature of liquid chocolate from 120° to 84°F, and then heating it up again to 88.5°. This process eliminates undesirable crystal germs and guarantees that the result is a single crystal of the most stable chemical structure.

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## Look at the Label

### Percentages of cocoa solids:

Dark or bitter sweet chocolate may contain from 5 to 40% of cocoa-butter  
30 to 70% of cocoa liquor/mass and 15 to 50% of sugar.

The sum of the percentages of cocoa liquor/mass and butter you total percent of cocoa solids. The rest of mostly sugar. Vanilla and other flavors or additives are less than 5% on a gourmet chocolate.

Anti-oxidant levels are rated high in chocolate with 70% or more cocoa solids

### Additives:

- Artificial flavors
- Lecithin – soy product that is used as an emulsifier
- Milk (sweetened-condensed, powdered, or evaporated) – mask bitterness of low quality cacao
- Oils (Palm, coconut, corn, soy, and others) - inferior fat substitutes for cocoa butter
- Phosphates – preservatives to extend shelf life of chocolate

### Processes:

- Alkali solution exposure or ‘Dutch’ processing – used to reduce bitterness of low quality cacao, makes chocolate darker and harder
- Extended conching – used to work out acids from cocoa and blend flavors, reduces antioxidant and flavonoid compounds
- Fumigation of beans – if cocoa liquor/mass was not conched in producing region, the beans were fumigated, even if they were produced with organic certification

**Fair trade labels** – higher price to farmer organization than typical international corporate chocolate makers (Nestle, Hershey’s, Mars). Certification is costly for growers so label may say ‘fairly traded’ to avoid registration expenses and red-tape.

**Organic certification** – this label was designed to guarantee long term sustainable agricultural practices and prohibit GMO’s, but newer labels have appeared which are more lenient, especially USDA organic.

**Single Origin Varietals** – regional flavors and the genetic make up of cocoa beans determine flavors, especially good ones to look for are *Criollo* and *Trinitario*. Regional flavors include, *Chuao*, *Carenero*, and *Sur Del Lago* from Venezuela. Ecuador’s regional flare is called *Cacao Nacional*, *Nacional-Arriba* or *Arriba*.

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