

## BRIEF COFFEE KNOWLEDGE FOCUSING ON QUALITY



For MOUNTAIN HIGH COFFEE COMPANY, the high Quality of the Coffee supplied by us is of utmost importance. In outlining the various items affecting the planting, harvesting and the final processing of the selected coffees, we are striving to illustrate our seriousness that the Quality of each cup of coffee must be of the highest level for the selected blend.

Coffee is grown in the tropical belts around the Globe. The coffee tree can typically grow to around three meters high and it takes approximately three years to gain the first crop when first planted. It is harvested only once a year. Three to four years after the coffee is planted sweetly smelling flowers grow in clusters in the axis of the leaves. Fruit is produced only in the new tissue.



Freshly planted coffee under protection

The quality of coffee is mainly dependant on the genetic structure and variety of the plant, the surrounding weather and climate, the soil it is growing on and ultimately the construction of the whole plantation.

There are two main commercially grown species of coffee tree, Robusta (Coffee Canephora) and Arabica coffee (Coffee Arabica). Robusta coffee accounts for around 30% of world production.



Arabica is the highest and most expensive standard of quality, grown in high mountainous regions across the world. It grows ideally between altitudes of 800 –1500 meters or higher, and when planted on slopes. Its acidity, full body and overall smooth taste distinguish Arabica. Its color can vary between yellow, green and blue. Generally more intense the blue, higher the altitude of growth.

Robusta is the lower quality, and grows best in altitudes of around 200- 800 meters.

It is more resistible as already mentioned, and also contains a higher percentage of caffeine at around 3 %.



## **Harvesting**

Each year coffee is harvested during the dry season when the coffee cherries are bright red, glossy, and firm. Ripe cherries selected for the MOUNTAIN HIGH PREMIUM COFFEES are picked by hand, stripped from the tree with both unripe and overripe beans.

To maximize the amount of ripe coffee harvested it is necessary to selectively pick the ripe beans from the tree by hand and leave behind unripe, green beans to be harvested at a later time.

It takes 2,000 handpicked coffee cherries to make a roasted pound of coffee - or approximately 4,000 beans. A mature coffee tree will produce one pound of coffee per growing season.

## **Field Processing**



Freshly picked coffee cherries

Coffee beans are the seeds of fruits that resemble cherries, with a red skin when ripe. Beneath the pulp, each surrounded by a parchment-like covering (the endocarp), laid two beans, flat sides together. When the fruit is ripe, a thin, slimy layer of mucilage surrounds the parchment. Underneath the parchment the beans are covered in another thinner membrane, the silver skin. Coffee beans must be removed from the fruit and dried before they can be roasted; this can be

done in two ways, known as the dry and the wet methods. When the process is complete the coffee beans are known as green coffee.

## **DRYING**

In our processes, all the ARABICA beans are dried using the wet method outlined below whereas the Robusta beans are dried by Dry method outlined.

### **In Dry Method**

The method involves drying the whole cherry. The three basic steps, cleaning, drying and hulling, are described below.

Firstly, the harvested cherries are usually sorted and cleaned, to separate the unripe, overripe and damaged cherries and to remove dirt, soil, twigs and leaves. Winnowing can do this, which in our process is done by hand, using a large sieve. Any unwanted cherries or other material not winnowed away can be picked out from the top of the sieve.



The coffee cherries are spread out in the sun on large concrete. As the cherries dry, they are raked or turned by hand to ensure even drying. It may take up to 4 weeks before the cherries are dried to the optimum 12.5% moisture content, depending on the weather conditions. On some of our larger plantations, machine drying is sometimes used to speed up the process after the coffee has been pre-dried in the sun for a few days.

The drying operation is the most important stage of the process, since it affects the final quality of the green coffee. A coffee that has been over dried will become brittle and produce too many broken beans during hulling (broken beans are considered defective beans). Coffee that has not been dried sufficiently will be too moist and prone to rapid deterioration caused by the attack of fungi and bacteria.

The dried cherries are stored in bulk in special silos until they are sent to the mill where hulling, sorting, grading and bagging take place.

### **Wet Method**

The wet method requires the use of specific equipment and substantial quantities of water, to ensure that the intrinsic qualities of the coffee beans are better preserved, producing a green coffee, which is homogeneous and has few defective beans. Coffee produced by this method is usually regarded as being of better quality.

As in the dry method, usually preliminary sorting and cleaning of the cherries is necessary. Washing the cherries in tanks filled with flowing water is employed for this operation. Screens are also used to improve the separation between the ripe and unripe, large and small, cherries.

After sorting and cleaning, the pulp is removed from the cherry.

The newly pulped beans are placed in large fermentation tanks in which the mucilage is broken down by natural enzymes until it is dispersible, when it can be washed away. Fermentation is carefully monitored to avoid the Coffee acquiring undesirable sour flavors.

When the fermentation is complete, the coffee is thoroughly washed with clean water in tanks or in special washing machines. The wet parchment coffee at this stage consists of approximately 57% moisture and is now sun dried on extensive flat concrete to reduce the moisture to an optimum 12.5%. Sun drying takes from 8 to 10 days, depending upon ambient temperature and humidity.

After drying, the wet-processed coffee, or parchment coffee as it is commonly known, is stored and remains in this form until shortly before processing for the market place.

The final stages of preparation of the coffee, known as 'curing', usually take place at a special plant just before the coffee is prepared for consumption. The coffee is hulled, to remove the parchment, then passes through a number of



cleaning, screening, sorting and grading operations that are common to both wet- and dry-processed coffee.

In practice, the quality of coffee depends on the standardization of the process. For example de-pulping can cause broken beans, fermentation can cause “stinkers“, drying can be done on streets so therefore bags can contain stones and dirt when exported. There are many possibilities in decreasing the quality during production. At Mountain High Coffee Company, a great care is taken to ensure the correct application of above process to assure the High Quality that you would expect from a quality supplier such as Mountain High Coffee Company.

### **Analysis and Cup Testing Procedures within our Laboratories**

At Mountain High Coffee Company, we undertake numerous steps in order to deliver a high quality product to our customers. Our coffee specialists working in the laboratory are contributing towards this effort by constantly analyzing quality.

Production samples of the previous day (roast) are cup tested every day. Analysis is done by picture and by cup.



A cupping session takes place every day in the morning. Attendants are the Laboratory staff and on a rotational basis staff from the production line. In the afternoon, all qualities produced on that day would be cup tested by filter according to final consumption method. Once a week flavored coffee produced during that week is cup tested.

All of the above allows us to ensure that all coffee is checked before being packed and even more important, before it leaves our production facilities.

### **Main procedures when analyzing**

#### **Counting defects (picking)**

Picking defects means sorting out poor quality beans from good quality beans that affect the quality of the coffee negatively. Sorted beans of our suppliers are carefully weighed and percentages are noted.

#### **Primary Defect**

Full Black      Medium Stones

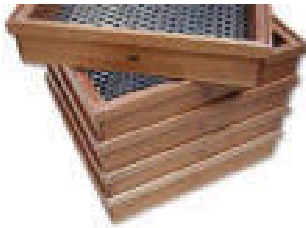
#### **Secondary defects**

Parchment      Floater



Full Sour	Large Sticks	Hull/Husk	Shell
Cherry	Medium Sticks	Broken/Chipped	Small Stones
Large Stones	Stinker	Insect Damage	Small sticks
		Partial Black	Insect damage

**Size classification**



It has been well established that there is a correlation between size, density, and quality. However, this correlation has numerous exceptions and size classification should only be used to verify that the coffee lot is uniform in size that helps ensure a uniform roast. At Mountain High Coffee Company we employ Sieves shown to sort our beans by size so that a consistent Quality may be achieved by size.

**Sieves**

When sieving, the necessary sizes of sieves are stacked and the beans are placed on the top. While shaking back and forth, the beans will fill the appropriate sieve(s).

For us, sieving is especially important for blends that will be sold as whole beans.

**Measuring the moisture content**

A simple device can analyze the moisture content of green coffee. For a roaster, it should not be above 12.5% before entering production. If the moisture is too high, coffee can develop toxins when stocked. At Mountain High Coffee Company we make sure that the coffee beans that we select contain no more than 12.5% moisture.



**Roasting**

Sample roaster as a roast darkens, oils are brought to the surface of the bean, and caffeine and acidity decrease proportionately. Dark roasts will exhibit more of a smoky, charred flavor, rather than the flavor of the bean.

The roast is ready once the beans start popping more heavily and they develop a slight shiny color due to the oils. The beans should crack slightly when pressed between the



fingers. If they shatter the roast is too dark. If they are too hard, the bean may still be green inside leading to a “green” taste. Roasting requires a lot of experience. Our roasters always color test the material.

There are several variables that affect each roast. Time and temperature plays an essential role. Coffee beans from different regions of the world require different roasting techniques. Only a highly trained roaster can monitor air temperature, humidity and make adjustments to obtain the desired results.

## **Cup Testing and Preparation**

The condition of the cupping room is very important to the results achieved during cupping. The room should have natural light since dim light is said to depress the sense of smell. Ideally the room would be between 68-77°F and have a humidity of 50-70% since excessive dryness depresses the sense of smell.

Before the coffee is ground we remove all silver skins. The coffee is ground using always the same grade. (The ground should not be too rough or too fine - just right to be nicely absorbed by the water and develop necessary tastes when cup tested).

2 standard sized cups (200 ml) are filled with 11 grams of roast each. Water is boiled, and a few minutes later poured into the cups filling it with half of its volume. Immediately after, the cups are stirred thoroughly. After 5 minutes this procedure is repeated. The top layer of the cup consisting of mainly silver skins and other unclean particles is removed. After further 10-20 minutes, when the cup reaches the right temperature for the cup tester (we always test at body temperature - 120 degrees), cup testing can begin.

Our cup testers distinguish between acidity, body, and special tastes and off tastes. They are aware of the different tastes and most importantly detect possible defects.

## **Tastes of Arabica and Robusta**



Robusta can have a very strong and bitter taste. Therefore, when cup testing Robusta, it is separated into 5 different categories of strength. These vary from light to strong. Robusta never has any acidity. It may have some sourness when it is fresh. When cup testing Arabica, tastes are completely different than Robusta. Here we analyze two different tastes. These are body and acidity. The body and acidity levels vary over 5 categories- from light to strong. The body is defined as the overall strength of the cup. It is difficult to describe this, however the body is no certain taste, it just states the dominance of the cup. Acidity is easier to detect. If it is strong, the coffee can also be seen as sour.



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