

COFFEE RESEARCH NEWSLETTER

www.coffeeresearch.org

November 20, 2000

Volume 1, Issue 2

Quality and Coffee Variety

The microclimate and the altitude have the greatest influence on the quality of a coffee. Beyond environmental factors processing plays a significant role in the flavor profile of a coffee. After these factors one of the most important considerations is the variety of coffee used. Coffee varieties are often chosen based upon production, resistance, and maintenance costs. Cup quality is rarely a determining factor for three reasons. First, the best tasting coffees, Bourbon



and Typica, are the most difficult to care for and have the least production among commercial varieties. Secondly, the other commercial varie-

ties used generally have an agreeable flavor profile, yet not as refined as a well cared for Bourbon or Typica. Thirdly, there is a lack of education

among consumers about the differences.

Studies have indicated that the chemical base

[Continued Page 2.](#)

Inside This Edition

- Quality and Variety. Page 1.
- Physical Characteristics of the Different Coffee Varieties. Page 2.
- Being a Coffee Expert. Pages 2-3.
- Growing coffee at home. Pages 3-4

Table 1. Organoleptic quality of Bourbon, Caturra, and Catuai in three different altitude ranges in Guatemala. Cupping performed by Anacafe (www.anacafe.org). High values correspond to potent characteristics.. See bibliography for source.

Altitude (feet)	Variety	Body (1-4)	Acidity (1-3)	Aroma (1-5)	Flavor (overall) (1-4)	Type
< 4000	Bourbon	1	2	1	1	SemiHB/HB
< 4000	Caturra	2	2	2	1	HB/SemiHB
< 4000	Catuai	1	1	1	1	SemiHB
4000-4800	Bourbon	3	2	3	1	HB/SHB
4000-4800	Caturra	3	2	4	3	HB/SHB
4000-4800	Catuai	1	2	1	1	HB
> 4800	Bourbon	4	3	5	4	SHB
> 4800	Caturra	4	2	5	3	SHB
> 4800	Catuai	2	2	3	1	HB/SHB

Coffee Variety and Quality Continued...

Continued from page 1

and organoleptic qualities of a coffee depend mainly on the area grown rather than the variety of coffee used. Some varieties have more potential than other coffee varieties for flavor, yet this flavor potential cannot be realized under all possible environmental conditions. In general, at higher altitudes, the bean growth is slower and therefore the bean is denser and usually has better cup characteristics. Table 1 shows a study undertaken in Guatemala to compare Bourbon, Caturra, and Catuai in three different altitude ranges.

Less than 4,000 feet Bourbon, Caturra, and Catuai show similar cup profiles, but Caturra has a better body, acidity, and aroma. From 4,000-4,800 feet the coffees are slightly more distinct. The body and aroma are augmented in Bourbon and Caturra in this altitude range, but there is little variation in acidity. The flavor of Caturra increases significantly and its overall organoleptic qualities are superior to either Bourbon or Catuai in this altitude range. In

areas greater than 4,800 feet the differences between the varieties is most potent. The body increases across the board, but the acidity stays almost the same. The aroma seems to improve slightly as does the overall flavor of the cup.

At low elevations there is little benefit of using varieties such as Bourbon when Catuai is more robust and more productive. The coffee with the best overall qualities at low altitudes was the Caturra. At higher altitudes the differences between the varieties become an important factor and Bourbon's potential can be realized. It is clear from Table 1 that the altitude and therefore the microclimate are the determining factors for the flavor profile of a coffee, but the variety used can add the finishing touches and should be taken into consideration when dealing with altitudes over 4,000 feet.

Bibliography. Anqueto, F.; Pena, H.; and Jimenez, H. *Influencia de las variedades en la calidad de taza del café*. Revista Agricultura. Año 1. No. 3. p 19-25.

Coffeeresearch.org Updates

The coffeeresearch.org website has undergone another series of updates. New videos have been added to the processing subsection under "Agriculture". My first Flash movie showing the development of a coffee bean from fertilization to the time of harvesting has been published under the Agriculture section. A new markets section has been added to the "Coffee Politics" main section and this subsection will increase dramatically.

Several of the new articles will appear in the newsletters since it is an easier way for readers to see the new content I have added.

After some initial technical difficulties I was able to add most of the videos and pictures to the web. Any videos over 25 Mb would not load due to timeout errors and will be added when I get back to the United States in July, 2001.

In future updates I plan to include a spotlight on Guatemala focusing on microclimates and flavor characteristics. I also plan to add another main section detailing the health aspects of coffee since no websites seem to keep updated on the current findings. I will continue to add videos and pictures as I take them.

Being a Coffee Expert

After three months studying coffee daily in Brazil and Guatemala I have learned one of the most important aspects for a coffee professional to possess: humbleness.

In my first report to the Watson Foundation I reported that I went into this trip a near expert in coffee...I will come out a mere nov-

ice. I have been impressed with the vast amounts of information possessed by various people in the coffee industry and I have realized that there will always be more to learn. Our understanding of coffee to this date is mainly based upon subjective observations. Somehow overconfident "coffee

experts" have convinced us that these observations are fact. The danger is that upon thinking something is a fact, the search slows or is completely halted.

A self-acclaimed coffee expert therefore is a person whose search for understanding coffee has

[Continued on Page 3.](#)

Being a Coffee Expert Continued...

Continued from Page 2

slowed. They babble off “facts” until they believe them as factual. They read books from other “coffee experts” and spread these opinions. Just because something is printed in text does not mean it is true, nor does it mean it should be followed. If anything it should be tested and challenged. I am also surprised by the theories that continue to be spread simply because people do not keep searching. For example after the breakdown of the International Coffee Agreement many aspects of Brazilian coffee have changed and there has been a great push to improve quality. Yet most people will base their opinions today on antiquated theories and never give Brazil a chance. Brazil deserves a chance and its effort should be applauded. At the same time it should be realized that highly praised coffees such

as Kona, Jamaica Blue Mountain, and many Costa Rican coffees have been riding on their reputations and quality has suffered dramatically over the past several years.

Coffee experts are very opinionated. The irony is that most experts will disagree on a number of issues. How can one be an expert on coffee when many of the other experts will disagree with that person?

I believe the key is to first realize that there is no such thing as an expert on coffee. We do not even know enough about coffee to make this kind of blanket statement. On the other hand we know so much about coffee that it is nearly impossible for a person to be an expert on coffee agronomy, coffee history, coffee biology, coffee chemistry, coffee technology, the coffee market, and the social aspects of coffee. I believe a more appropriate definition for a

person who has dedicated their life to the pursuit of coffee would be a “coffee professional.” Even better, I prefer “coffee novice” because this implies a constant search. I have spent much of my life regurgitating coffee facts that have been fed. I hope to spend the rest of my life challenging these ideas in order to make progress.

By being a coffee novice I have opened my eyes a little more. I listen to other peoples opinions and instead of rejecting them because of something I read previously I accept it as a challenge to my previous conceptions.

With this being said I warn that most of the information on my website is based upon empirical evidence. Unfortunately, it is the best information we currently have on coffee. The key is not to accept what I teach as fact, but rather as a guideline that should be tested and verified.

Growing Coffee At Home



Growing a coffee plant at home is a rewarding experience that will help you learn and appreciate the work involved in producing a good cup of coffee. It is a very easy plant to take care of and is a great conversation piece, especially during flowering or cherry development.

Ideally you should start with a freshly picked coffee cherry, but unless you are in a producing country this will not be possible and you should skip to section 2.

Section 1. Harvesting and Preparing the Coffee Seeds.

[Continued on Page 4](#)

Home Coffee Growing Continued...

Continued from Page 3

Ripe cherries should be harvested and picked from trees with good production and without any disease or other affliction. The cherry is pulped by hand, washed with water, and fermented in a small container until the pulp is fermented off. This can be determined simply by rubbing the bean in your hands. Wash again with fresh water. Any coffee beans that float at any stage of washing should be discarded. The beans must then be dried to about 20% moisture content on mesh screen in open and dry air, but not in direct sunlight. After pulping a coffee will have between 60-70% moisture content so you can determine the appropriate stopping point simply by weighing the beans. Otherwise you can simply bite open a bean and ensure that it is dry on the outside and slightly soft and moist on the inside. Alternatively, a pulped bean can be used immediately for planting and in some areas this is considered advantageous.

Section 2. Germination.

If coffee cherries are not readily available green coffee can be purchased from a local supplier, but it is essential that the bean is of a recent crop and recent shipment. I would recommend ordering green coffee from www.sweetmarias.com and asking for the most recent crop. The potential for germination will continue for almost four months, but after this time the germination rate is several fold less and germination time is significantly longer. Fresh seeds should germinate in 2.5 months,

but old seeds can take as long as 6 months.

It is advisable to pregerminate the seeds. First soak the seeds in water for 24 hours. Then sow the seeds in damp sand or wet vermiculite in which the excess water has been drained. Alternatively, you can place the seeds between moist coffee sacks, which should be watered twice a day and well drained.

Once the seed germinates very carefully remove it from the sand, vermiculite, or burlap bags. A hole about 1.25 cm deep should be made into a soil of friable loam soil with a high humus content. Rotted manure, bone meal, and dried blood can also be added. If this type of soil is not readily available try a light weight and porous soil. Place the seed flat side down in the hole and sprinkle soil to cover the hole. Do not press the soil down firmly. Placing a 1/2 inch of mulched grass on top will help preserve moisture, but should be removed when the seed has fully germinated.

The seeds should be watered daily. Too much water or too little water will kill the seed. The soil should remain well drained, but moist at all times.

After germination the plant should either be left alone or carefully removed and planted in a soil with a low pH and high nitrogen content. The soil should be porous. Therefore, coarse sand or basalt gravel dust can be added. Manure can also be added. A fertilizer that is appropriate for orchids can be used sparingly for the coffee plant to maintain mineral levels and a low pH.

Section 3. Care.

The plant thrives under artificial plant lighting indoors. The outside temperature in countries outside the Tropic belt is too volatile and too cold to allow the tree to develop. I recommend watering the tree twice per week in what I call a full watering and a half watering. In a half watering, I simply add some water to the soil and allow it to drain. In a full watering I add water, allow it to drain, and then add water with fertilizer and allow it to drain. The key is to keep the soil moist, but well drained.

After two or three years flowering and possibly cherries can be expected, but do not expect high-quality coffee unless you are at a high altitude and are monitoring the conditions of the artificial microclimate carefully. For more details please see the rest of the agriculture section. In theory it is feasible to grow a high-quality coffee at home under the right conditions.

To spur flowering wait until the beginning of winter and significantly reduce watering for 2-3 months. When Spring begins water the plant well, which should shock it into producing flowers. From this point forward water well and regularly. Arabica coffee is self-fertilizing so you will not need to worry about pollinating.

Once the cherries mature you can harvest, pulp, ferment, dry, roast, and drink the coffee.