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Coffee (Coffea Arabica): A New Plant/Crop for Southern California

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What about Coffee? A Few Facts and Figures: Coffee is second only to oil as the world's most traded commodity with a value of more than $100 billion annually. Five hundred (500) billion cups of coffee are drank daily (14 billion Italian espressos) and coffee farms support 25 million people worldwide (it is grown in 50 countries in Asia, Africa, South America, Central America & the Caribbean) with 67 % of all coffee grown in the Americas (Business Insider's 11 Incredible Facts about the Global Coffee Industry http://www.businessinsider.com/). According to the Specialty Coffee Association of America, over half of Americans over 18 drink coffee daily and American coffee drinkers consume an average of 3.5 cups a day. Interest in coffee has increased dramatically over the past few years and more people are interested in coffee as a drink and also in growing the plants. Coffee plants propagate from seed and are relatively easy to grow and maintain, either indoors or outdoors. They make great houseplants because of their shiny green foliage, white jasmine-scented aromatic flowers, colorful fruit (berries) and the chance to grow, harvest and roast your own cup of coffee!

Coffee Types and Origin – Arabica vs. Bourbon: Coffee is indigenous to Ethiopia and was taken from there to Yemen and to Reunion Island (formerly Island of Bourbon) which resulted in two lines or cultivars (Arabica and Bourbon) that spread all over the world. Most old coffee varieties cultivated in Latin America and Hawaii are mutations, selections or crosses of Arabica or Bourbon coffee cultivars and are all considered Arabica Coffees.

Climatic Requirements: Coffee is usually grown as an understory crop but adapts well to full sun in tropical environments. Optimum temperatures range for coffee range from 59 to 75 F (15-24 C), so it should grow well in most frost-free microclimates in Southern California. The plants will be damaged or killed by freezing temperatures, extreme heat and high winds so coffee must be planted in wind protected, partially shaded areas to minimize exposure to direct sunlight or near a window, away from direct sunlight if grown indoors. Coffee plants like high humidity with well-defined rainy and dry seasons. Arabica Coffee grows better at altitudes between 1800-3600 feet; whereas Robusta grows from sea level to 3000 feet.

Soil Requirements: Coffee plants prefer well drained, slightly acidic soils with high organic matter content. If soil pH or drainage is an issue, they must be corrected before planting to encourage proper nutrition and healthy plant growth. Coffee plants grow well in containers with a slightly acidic mix amended as needed with mulch or other source of organic matter. Nursery plants can be transplanted directly to the soil or repotted into 5 gallon pots to accommodate the root system and promote growth. The larger the pot, the larger and fuller the plant will be so the plants should be gradually re-potted as needed into larger pots. Azalea mix or any acid loving plant mix could be used but should be amended with organic matter and/or perlite to improve drainage and air porosity.

Irrigation and Water Requirements: Coffee plants like water and do great under high humidity but they also like well-defined rainy and dry seasons. You must water enough to keep the soil moist, but not saturated. Watering should be reduced to a minimum during the winter and resumed to normal in the spring to induce flowering. Coffee roots are fibrous and somewhat shallow so higher frequency and shorter irrigations are better. Overhead irrigation (sprinkler or hose) could be used to keep the plants clean, increase ambient humidity and stimulate bud development. Coffee plants are very sensitive to over and under watering and they will tell you when they need water (they will wilt) or when they are over irrigated (black spots on the leaves). Both extremes should be avoided to maintain a healthy plant.

Variety	Height	Type/Origin
Catuai	Semi-dwarf	Bourbon
Pacamara	Dwarf	Bourbon
Lempira	Dwarf	Hybrid (Catimor)
Catimor	Dwarf	Hybrid (Catimor)
Parainema	Dwarf	Hybrid (Sarchimor)
Caturra	Dwarf	Bourbon
Icatu	Tall	Hybrid
Ihcafe-90	Dwarf	Hybrid (Catimor)
Catuai Comun	Semi-Dwarf	Bourbon
Catuai Improved	Semi-Dwarf	Bourbon
Typica-L	Tall	Arabica

Feeding Your Coffee Plants: Fertilize your plant with a complete formula (NPK) when re-potting your nursery plant to a larger pot or transplanting to the soil. Young nursery plants should be receive a small amount of slow release fertilizer to start and increase amount gradually as the plant grows. Small, frequent applications of fertilizer are better than larger amounts applied a few times a year, so you should apply 0.5 to 1.0 ounce of slow release fertilizer per plant in pots or soil respectively on a bimonthly or quarterly basis, increasing the amount gradually each year until year four where

you should max out at 2 and 4 ounces per plant in pots or in the soil. Coffee plants respond well to foliar fertilization so apply a foliar fertilizer with both macro and micro-nutrients on a monthly basis.

Flowering, Fruiting, Harvesting: Coffee plants from early varieties flower 2-3 years after transplanting, but late varieties will take 3 or more years. Flowers cluster around the axil of the leaves, they are fragrant and small, with 5 white petals that open in the morning and last for 2 days. C. arabica flowers are self fertile and self-pollinating, taking 9 to 11 months from bloom to harvest. Coffee is usually picked by hand, selecting the berries that are fully ripe, when they express full color of the variety grown.

Coffee Varieties Under Study/Available

Typica or Arabica (Etiopia) - Tall plant (3.0 mts.) with long internodes and lateral branches forming 60 degree angle from main axis. Leaves are narrow and dull green colored with terminal leaves/new shoots bronze in color. Very good cup quality with above average sized bean size, however the variety has low productivity, low tolerance to wind, leading to fruit drop, and high susceptibility to coffee leaf rust fungus. This variety is not usually recommended for planting, but always included as a reference. We have two lines of typica, Typica-L (from Lempira Province in Western Honduras) and Typica-EM (from Olancho Province in Central Honduras).

Catuai (Brasil) – Semi-dwarf plant (2.25 mts) resulting from a cross between Mundo Novo and Caturra with short internodes and lateral branches at 45 degree angle from main vertical axis. The terminal leaves or new shoots are lime Green. This variety has good cup quality with average bean size, above average productivity, and good resistance to wind but is highly susceptible to coffee leaf rust. There are three different lines of Catuai available for sale, Catuai (from Olancho Province, Honduras), Common Catuai (from La Paz Province, Honduras) and Improved Catuai (from Marcala, Honduras with higher tolerance to coffee leaf rust).

Caturra (Brazil) – Dwarf, compact plant (1.80 mts.) resulting from a natural mutation of Bourbón, with short internodes and lateral branches forming 45 degree angles from main axis. Mature leaves are round and shiny, glossy with terminal leaves/new shoots being lime green color. Excellent producer with good cup quality and wind resistance but highly susceptible to coffee leaf rust and to nematodes.

Catimor (Brazil) – This is one of the many cultivars resulting from the cross between the Hybrid from Timor and Caturra. The plants are dwarf and highly productive, and can be overbearing which reduces their life span. This variety has low cup quality but it has good resistance to coffee leaf rust and some nematodes.

Icatu (Brazil) – Tall plant, hybrid between C. canephora and red Bourbon. Good cup quality with high productivity and resistant to coffee leaf rust.

Ihcafe-90 (Honduras) – Dwarf compact plant, Catimor selection with short internodes and dark bronze colored terminal leaves or new shoots. High production potential with very low cup quality, average bean size and good resistance to coffee leaf rust.

Lempira (Honduras) – Dwarf Catimor selection with short internodes and terminal leaves/new shoots are bronze colored. High productive potential with low cup quality. Well adapted to warmer climates and acidic soils with good resistance to coffee leaf rust.

Parainema (Honduras) – Dwarf, sarchimor selection with short internodes and green terminal leaves or new shoots. Good cup quality with large beans, above average productivity. It is well adapted to medium altitudes and shows good resistance to coffee leaf rust and to some nematodes.

Pacamara (El Salvador) – Dwarf plant resulting from a cross between Pacas and Maragogype, with short internodes, large leaves, large fruit and bean size, and green or bronze colored terminal leaves or shoots. This variety has very good cup quality with high production potential. However the variety shows great variability (not homogeneus) and is susceptible to coffee leaf rust and nematodes.