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Heat Damages Colombia Coffee, Raising Prices

By ELISABETH ROSENTHAL

TIMBÍO, Colombia — Like most of the small landowners in Colombia's lush mountainous **Cauca region**, Luis Garzón, 80, and his family have thrived for decades by supplying shade-grown, **rainforest-friendly Arabica coffee** for top foreign brands like Nespresso and Green Mountain. A sign in the center of a nearby town proclaims, "The coffee of Cauca is No. 1!"

But in the last few years, coffee yields have plummeted here and in many of Latin America's other premier coffee regions as a result of rising temperatures and more intense and unpredictable rains, phenomena that many scientists link partly to **global warming**.

Coffee plants require the right mix of temperature, rainfall and spells of dryness for beans to ripen properly and maintain their taste. Coffee pests thrive in the warmer, wetter weather.

Bean production at the Garzóns' farm is therefore down 70 percent from five years ago, leaving the family little money for clothing for toddlers and "thinking twice" about sending older children to college, said Mr. Garzón's 44-year-old son, Albeiro, interviewed in a yellow stucco house decorated with coffee posters and madonnas.

The shortage of high-end Arabica coffee beans is also being felt in New York supermarkets and Paris cafes, as customers blink at escalating prices. Purveyors fear that the Arabica coffee supply from Colombia may never rebound — that the world might, in effect, hit "peak coffee."

In 2006, Colombia produced more than 12 million 132-pound bags of coffee, and set a goal of 17 million for 2014. Last year the yield was nine million bags.

Brands like Maxwell, Yuban and Folgers have increased the retail prices of many grinds by 25 percent or more since the middle of last year in light of tight supply and higher wholesale prices.

Profits of high-end coffee chains like [Starbucks](#) and [Green Mountain](#) have been eroded. Coffee futures of Arabica, the high-end bean that comes predominantly from Latin America, have risen more than 85 percent since last June, to \$2.95 a pound, partly over concerns about supply, extreme weather and future quality, said George Kopp, an analyst at the International Futures Group in Chicago.

Yet as stockpiles of some of the best coffee beans shrink, global demand is soaring as the rising middle classes of emerging economies like Brazil, India and China develop the coffee habit.

“Coffee production is under threat from global warming, and the outlook for Arabica in particular is not good,” said Peter Baker, a coffee specialist with [CABI](#), a research group in Britain that focuses on agriculture and the environment, noting that climate changes, including heavy rains and droughts, have harmed crops across many parts of Central and South America.

A top coffee scientist, he has rattled trade forums by warning, Cassandra-like, of the possibility of “peak coffee,” meaning that, like oil supplies, coffee supplies might be headed for an inexorable decline unless growers make more concerted efforts to expand production globally.

The Specialty Coffee Association of America warned this year, “It is not too far-fetched to begin questioning the very existence of specialty coffee.”

Arabica and Robusta coffee account for virtually all consumption. With its more delicate taste and lower caffeine content, Arabica is more popular and more expensive, though generally more finicky in its weather needs. Robusta production dominates in Asia and Africa.

Colombia is the No. 2 Arabica exporter after Brazil, where production is centered on larger, more mechanized farms and continues to grow.

The [Colombian Coffee Growers Federation](#) says high fertilizer prices have also dented yields. But it agrees with a 2009 report from the International Coffee Organization that concluded, “Climatic variability is the main factor responsible for changes in coffee yields all over the world.”

Average temperatures in Colombia’s coffee regions have risen nearly one degree in 30 years, and in some mountain areas the increase has been double that, says [Cenicafé](#), the national

coffee research center. Rain in this area was more than 25 percent above average in the last few years.

At the new, higher temperatures, the plants' buds abort or their fruit ripens too quickly for optimum quality. Heat also brings pests like coffee rust, a devastating fungus that could not survive the previously cool mountain weather. The heavy rains damage the fragile Arabica blossoms, and the two-week dry spells that prompt the plant to flower and produce beans occur less often, farmers say. Arabica beans take about seven months to mature.

"Half a degree can make a big difference for coffee — it is adapted to a very specific zone," said Néstor Riaño, a specialist in agroclimatology for Cenicafé. "If temperature rises even a bit, the growth is affected, and the plagues and diseases rise."

While climate scientists agree that the increase in temperature is a clear signal of global warming and high ocean temperatures are generally associated with more frequent storms, scientists are uncertain whether the peculiar weather patterns in the area are directly related to warming, said [Stephen E. Zebiak](#), director general of the International Research Institute for Climate and Society at [Columbia University](#).

"It is hard to know whether this severe weather represents natural fluctuations or is a climate change signal, though from a risk management sense, there is good reason to consider how to cope with these extreme events," Dr. Zebiak said.

In the hope of restoring coffee output, researchers at Cenicafé's labs are toiling on a mission that seems as pressing a priority for Colombia as curing cancer is for medical researchers.

Agronomists are teaching the farmers how to control the pests that arrived with the change in the weather. Climatologists are working to provide better local weather predictions. Geneticists are breeding plants that are more resistant to diseases or that can withstand torrential rains or a hotter environment.

The Coffee Growers Federation has advised farmers to switch to a newer, hardier strain of Arabica that has been developed by plant breeders at Cenicafé over the last two decades.

While the federation says it tastes the same as traditional variants, farmers have resisted because they can ill afford to forgo the income of a yearly crop as they wait for new plants to mature. They have also been wary that a switch could affect flavor.

Taste, quality and supply are delicate issues for an industry whose aficionados are notoriously picky. Coffee companies are "working with farmers across the region to address

the impact of changing weather patterns that are a direct result of climate change,” said Lisa Magnino, a spokeswoman for [Starbucks](#),

Starbucks has already bought enough coffee to last until 2012, she added. Luis Fernando Samper, a spokesman for Colombian Coffee Growers Federation, said that the beans that do make it to breakfast tables in the United States will yield coffee that is as good as ever. The problem is for Colombian farmers, who are producing far fewer beans over all and “more defective beans” that do not meet export standards.

For decades, said Luis Garzón, who started growing coffee at 7, it was dry from June 1 to Sept. 8 in Timbío. Several years ago, the perplexing weather arrived. “It can start raining at 6 a.m. and go on for 24 hours,” he said.

First, yields declined. Then last year, the coffee rust fungus arrived at the Garzón farm, killing entire fields. “We learned our lesson,” he said, stroking the mottled yellowed leaves of some damaged plants. Now, the family is planting the new, hardier Arabica variant, called castillo. The coffee federation hopes that such innovation will allow growers to keep expensive Arabica coffee on American tables.

Meanwhile, it is creating a “product origin” certification program for Colombian coffees, similar to the one that protects Italy’s Parmesan cheese. That way importers will not be tempted to substitute beans from Brazil or Indonesia.