Insecticides Maintain High Quality of Colombian Coffee

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Coffee is the most important agricultural product in Colombia. The coffee sector involves 563,000 farmers and others representing over a quarter of the rural population. Colombia produces the highest yield of *Coffee Arabica* among producer countries with a production of 552,000 tons of coffee on 921,000 hectares.

The coffee berry borer (CBB) has long been considered the most serious pest in coffee plantations worldwide. Known throughout Latin America as “la broca”, the CBB was first detected in Colombia in 1988 and infests about 75% of the coffee acreage in the country [4].

Damage begins after a female bores a hole in the berry and builds a gallery in the seed where eggs are deposited. After hatching, the larvae start consuming the seed [1]. Feeding by adults and larvae can turn the bean into a dusty mass of frass, but even lightly bored beans have a distinctive blue-green staining which lowers quality. The galleries allow pathogens to enter, leading to fermentation and tainting of coffee flavor. Because of the quality requirements of the specialty crop label, an important consideration is the need to maintain <2% insect damage [3].

The larvae mate inside the berry. Inseminated females emerge and search for another berry in which to lay eggs. Up to 150 coffee berry borers can emerge from a single berry [1]. The insect can cause coffee farmers to lose up to 20% of a crop, reducing the price by 30 to 40% [2].

In response to the threat from CBB, the National Coffee Research Center in Columbia (Cenicafé) developed an integrated pest management program (IPM). The program develops and monitors cultural and biological techniques that can be used to supplement the use of insecticides [3]. Cultural practices have focused on the removal of all mature and ripe berries that serve as sources for new infestations. Biological control techniques include the fungus *B. bassiana*, a parasite of the borer. Since 1989, three species of exotic parasitoids have been mass produced and introduced into coffee plantations in Columbia to combat CBB [3].

To prevent significant economic loss, coffee growers treat trees with chemical insecticides [3]. Sixty-five percent of Colombian coffee farmers spray insecticides an average of 3 times per year to control the borer [4]. Insecticide spraying produces a cost-benefit ratio of 2.4:1 [4].

References