THE HISTORY OF BANANAS IN COSTA RICA

Historically banana plantations have played an integral part in Costa Rica's economy. The first banana plantation was created in 1872 and commercial export began in 1879. By 1899, The United Fruit Company was formed and went on to become well established throughout Central America within several countries, which were known, as the "banana republics".

However, by 1956, the Costa Rican government had become concerned about the number of plantations, which had been developed and abandoned due to "Panama Disease" (a root fungus), not to mention the careless use of the country’s natural resources by the United Fruit Company (Hernadez and Witter, 1996). At this point the government recruited the Standard Fruit Company (now Dole, a subsidiary of Castle and Cooke) who began purchasing small amounts of fruit from local growers. Unfortunately it was also at this point in time that the use of agro-chemicals was put into practice, with this came the use of large amounts of pesticides, fungicides, nematocides, (Astorga, 1996) and other chemicals, as well as other intensive field and processing management.

As of 1967, the United Fruit Company became known as the United Brands Company and the Chiquita label was introduced into Costa Rica. In 1968 another company, Del Monte, through [its] subsidiary, BANDECO, started producing and exporting from the Atlantic Zone. These three companies, Dole, Chiquita, and Del Monte are known as the "Big Three" in Costa Rica (McCracken, 1998).

In 1985, the Banana Expansion Decree was passed and this allowed for even greater production and commercialization of bananas in Costa Rica. New transitional and national companies began a period of time known as “uncontrolled banana expansion.”

LOSS OF BIODIVERSITY IS A CRITICAL ISSUE

There can be little doubt that the lowland forests of the tropics are the most species rich of all terrestrial ecosystems. Unfortunately, these masterpieces of biological diversity and complexity are under the continual threat of destruction form human activity. The clearing and conversion of tropical forest is the root of the current global biodiversity crisis (Turner, 1996). This manipulation of tropical environments has consequences for biodiversity at all levels of the ecosystem (Turner, 1996). This degradation is likely to continue with a severe loss in biological diversity unless there is a reduction in the technification in favor of policies that reward land stewardship (Perfecto et al., 1996).

Costa Rica represents only three ten-thousandths of the Earth’s surface but holds nearly 5% of the planet’s species. Its biodiversity density (species per unit area) is one of the highest in the world (Lead, 1996).

From the estimated 13,000 plant species in Costa Rica, 12% of them are considered threatened. More than 25% of these are rare, and 50% have been labeled as valuable, as well more than 75% of the insects are natural forest species (endemic) and are therefore, in the same predicament as the plant species (Lead, 1996). It is difficult to determine the rate of species extinction, but there are some fish, bird, and amphibian species that have not been seen at all in the last three years. Although many of these areas are protected the surrounding lands are not, it is these surrounding lands which are rapidly being converted to banana plantations.

It is easy to see that banana plantations in Costa Rica have expanded over time at the expense of the tropical rainforest and its biodiversity. It is of particular importance because over 75% of the entire globe’s biodiversity is held within tropical forests like those in Costa Rica. Many species of plants,
mammals, birds, reptiles and insects inhabit these forests, several which are now at risk of extinction, along with over 18 different tree species (McCracken, 1998).

Costa Rica is also the home to numerous streams, marshes and mangroves that support an abundance of biodiversity, which are being destroyed in the expansion of banana plantations. Costa Rica’s sea turtles and coral reefs are also suffering great losses due the unlimited expansion of the banana industry (McCracken, 1998). The once fertile and extremely diverse Caribbean lowland of Costa Rica is being transformed into a chemical laden, homogenous landscape made of banana plantations.

Despite the official discourse in Costa Rica, tropical forest continues to be cut down both legally and illegally, in both protected and unprotected areas, without the effective intervention of the state (Emaus Forum, 1998).

According to some estimates, close to 35% of the banana plantations currently operating are on lands, which were covered by forests at the time of purchase by the transnational companies. Due to this deforestation, 18 tree species are in grave danger of becoming extinct, not to mention the needless death of numerous wild animals, including monkeys, birds, and sloths. This all adds up to have serious effects on the biodiversity of Costa Rica’s plants and animals (Emaus Forum, 1998).

However, deforestation is not the only way in which banana plantations threaten biodiversity. The major environmental risks of banana production stem from the improper use of agro-chemicals, poor disposal or plastic and degradable waste, not to mention deforestation and erosion (Russo and Hernanez, 1995). The demand by consumers of industrialized nations for bananas of excellent appearance has led the transnational companies to produce a banana of uniform size and color without blemishes. The production of these bananas is dependent upon a highly technified system, in which great quantities of pesticides and chemical fertilizers are used (Emaus Forum, 1998).

Transnational banana production in Costa Rica is totally dependent on chemical control with at least 286 different pesticides authorized for use in the cultivation of bananas. Due to their openness, the banana plantations are leaky and inefficient systems causing a large input of toxic substances to the environment (Lead, 1996). [See pesticide summary.] In spite of the high use of pesticides, the information generated or available on the banana industry concerning the presence of toxic substances in different environmental samples, as well as concerning the impact on fragile ecosystems, is very limited (Astorga, 1996). This means that the total extent of environmental contamination can only be estimated and many contaminated areas may go undetected and untreated (McCraken, 1998). [Many] of these pesticides return to countries like the United States, from whom they were purchased, as residue on bananas imported from Costa Rica (Rauber, 1997). [The] highly selective production of bananas sees huge quantities of bananas that do not comply with international standards discarded (Emaus Forum, 1998). These enormous amounts of solid and toxic wastes contribute greatly to a loss of biodiversity (Hernandez and Witter, 1996, McCracken, 1998, Lead, 1996, Astorga, 1998).

Although many Central American counties such as Costa Rica, have attempted to control, regulate, and monitor pesticide use on banana plantations they have been ineffective due to inadequate funding and lack of control over the transnational companies. [See table 3.] Pesticides and contaminated sediments that have been washed away from plantations have caused massive deaths of fish in surrounding waters and the bleaching of 90% of Costa Rica’s coral reefs. The plastic bags used in banana production become especially troublesome when they end up in streams or the ocean and threaten aquatic life. Of grave concern is number of endangered species that are harmed by this pollution, such as the green sea turtle that suffocates on the bags, which are often mistaken for food. The monoculture plantations created by plantations cause an air and ground bombardment of chemicals and have caused mass deforestation throughout Costa Rica that has come too close for comfort to sensitive forests, their
inhabitants, and other important conservation areas.

**Pesticide Summary:**
Note: this is only a partial list of the pesticides used in the production of bananas in Costa Rica.

- **Nematicides** (organo-phosphates): Terbuphos, Cadusaphos, Phenamiphos, Ethoprophos
- **Nematicides** (carbamates): Carbofuran, Oxamyl
- **Insecticide** (organo-phosphate): Chlopiriphos
- **Herbicides:** Paraquat, Glyphosate
- **Fungicides (in field):** Mancozeb, Chlorotalony, Benomyl, Tridemorph, Propiconazol
- **Fungicides (in packing):** Imazalil, Tiabendazol, Tridemorph, Aluminum Sulphate

(Astorga, 1996)

**Summary of environmental impact – causes and damages – related to banana production:**

**Causes:**
- Application of extremely toxic substances
- Clear cutting at the margins of rivers, channels and their tributaries
- Inadequate waste disposal (including pesticide cans)
- Manual application of pesticides without adequate equipment for tropical conditions
- Working population and their neighbors exposed to pesticides
- Inadequate warehouses for storing pesticides and bags
- Wastewater with chemical residues coming from the packaging plants and plantations end up in the rivers without any treatment
- Lack of a monitoring system for water, soil and air conditions, in relation to pesticides.

**Damages:**
- Water, soils, marine and air contamination
- Permanent soil contamination with copper
- Sediment production and transport to the watersheds and finally to the sea
- Death of animals, especially fish, due to pesticide poisoning
- Pesticide intoxication of workers and neighbors
- Appearance of secondary plagues, due to excessive application of pesticides.
- Deforestations
- Biodiversity losses
- Water eutrophication

(Lead, 1996)

**Estimated amount of residues from banana production activities in Costa Rica** (Lead, 1996)

<table>
<thead>
<tr>
<th>Type of Residue</th>
<th>Tons per year</th>
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<tbody>
<tr>
<td>Polyethylene bags</td>
<td>4,406</td>
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<tr>
<td>Polyethylene packers</td>
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<tr>
<td>Polypropylene twine (rope)</td>
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<td>Fruit stems</td>
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<td>Scrap bananas and rejects</td>
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<tr>
<td>Fertilizers</td>
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<tr>
<td>Nematicides</td>
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