

Hoofprints on the Forest:  
An Inquiry Into the Beef Cattle Industry  
In the Tropical Forest Areas of Latin America

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We do not inherit the earth from our fathers -  
we borrow it from our children.

Ecology Party of Great Britain

For love of an insignificant profit the population destroys one of the greatest resources that could assure its subsistence and the well-being of its children, as well as the good fortune of coming generations. Unfortunately, it is not only the ignorant class that acts in this manner. The highest ranking persons do the same, as well as almost all the foreigners established in the country.

João Martins Da Silva Coutinho,  
military engineer and explorer,  
writing of the Amazon turtle -  
and of human improvidence, 1868.

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## Preface

"Hoofprints on the Forest: An Inquiry Into the Beef Cattle Industry in the Tropical Forest Areas of Latin America" was prepared for the Office of Environmental Affairs, U.S. Department of State, in response to the recognized necessity of knowing more about one of the most important factors leading to the destruction of Latin America's tropical forests. While numerous activities are responsible for the alteration of tropical forests throughout the earth's humid tropics, it is the purpose of this work to examine the known causes and consequences of cattle ranching on the tropical forest biomes in Latin America. Consideration has been given to contributing causes and related concerns such as the policies and assistance programs of various governments, both indigenous and foreign; the activities of international funding institutions; the role of private sector interests; and the issue of beef exports and imports as they affect the countries involved. It is hoped that the information presented in this paper will aid in the formulation of a United States policy on tropical forests which will address the roles and responsibilities of both the U.S. public and private sectors and their involvement - direct and indirect - in the beef cattle industry in the tropical

forest areas of Latin America.

While more than fourscore individuals were interviewed and some 330 references consulted during the course of the project, it must be noted that vital gaps remain to be filled in before we can fully assess the cattle ranching situation in Latin America and its impact on the region's tropical forests. Many of these remaining problems are discussed in the paper's final section, "Conclusions and Recommendations." It should also be noted that those Latin American countries without areas of tropical forest and the Caribbean nations which export beef do not fall within the scope of this study.

In addition to the interviewees listed in Appendix One, the author wishes to express his appreciation to Mr. Bill L. Long and Ms. Story Shem, Office of Environmental Affairs, U.S. Department of State, for their encouragement of his efforts to work with the problems related to tropical deforestation in Latin America.

An expression of gratitude is also due to the following individuals who guided the author in his search for authoritative sources of information: Dr. John Cohen, Harvard Institute for International Development, Harvard University; Dr. Curtis Freese, International Affairs Division, U.S. Department of the Interior; Dr. David King, Land Tenure Center, University of Wisconsin; Dr. Walter Parham, Office of Technology Assessment, Congress of the

United States; Mr. Bruce Ross, Forest Ecologist; Dr. Francoise Scazzochio, Centre of Latin-American Studies, University of Cambridge; Dr. Louisa Stark, Department of Anthropology, University of Wisconsin; Dr. James Talbot, National Research Council; and Ms. Lynda Williamson, 1979 Summer Intern, Natural Resources Defense Council.

The author would also like to express his gratitude to Mr. Michael D. Bengé, Office of Agriculture, U.S. Agency for International Development, for his assistance throughout the project and for his enlightening reading of the manuscript. And appreciation is due to Mrs. Cinderella Hamilton for typing a draft with more tracks than a cattle pasture.

Virtually all of the individuals contacted gave generously of their time, personal experience, and resource materials. It was clear from the beginning of the study that the issues pertaining to beef cattle ranching in the humid tropics of Latin America were controversial and, in some instances, explosive. The author has endeavored to relate the controversy while respecting the confidentiality of each contributor. And finally, the author must bear the sole responsibility for the synthesis of the information presented and the conclusions and recommendations arrived at.

This work is dedicated to my daughter, Anisaan Beka, and to the children of Latin America.

# LATIN AMERICA



BEST AVAILABLE COPY

FIGURE ONE: Shaded areas indicate approximate areas of tropical forests in the 18 countries included in "Hoofprints on the Forest."

## Part I

### Introduction: The Problem Within A Problem

Questions often lead to answers. Sometimes they lead to further questions. And occasionally questions lead maze-like into the heart of a conundrum. The questions concerning the beef cattle industry in the tropical forest areas of Latin America are seemingly straightforward: what national and international agencies, businesses and individuals are involved in the activity; is it, or can it be made to be, productive over time on the same pasture lands; what are the problems encountered by cattlemen in the humid tropics; how much tropical forest is actually being converted into pasture land and what, if any, are the environmental consequences; and where does beef exported from Latin America go and how is it used? The answers to these questions are often obscured by a lack of factual knowledge, misconceptions, and a secrecy which sometimes shrouds the interests of both the producers and users of Latin American beef.

It is known that the tropical forests which encircle the earth near the equator are of regional and global importance because of the vital natural resources which they contain. Tropical forests yield timbers, fuel, genetic resources for the maintenance and improvement of important crops, pharmaceuticals, and a host of other

products as well as water for drinking, hydroelectric power and transportation, habitat for a remarkable variety of wildlife and aboriginal peoples, and, scientists believe, hundreds - if not thousands - of yet undiscovered benefits for man. It is cautioned, however, that at the current rate of development innumerable species of plants and animals will be destroyed before they are ever discovered and their potential studied.

It is also known that the world's tropical forests are being destroyed at an alarming rate; the Food and Agricultural Organization of the United Nations estimates that globally some 50 acres of tropical forest are devastated every 60 seconds, totalling 27 million acres per year. To date it is believed that Latin America has lost some 37 percent of its original tropical forests -- mostly within the last 30 years -- and that a substantial portion of the remainder may be gone within the next 40 years, if not sooner.

The causes of this destruction include forestry-related industries; spontaneous and government-sponsored colonization by the landless poor of the nations involved; engineering projects which include the flooding of large tracts of forest for hydroelectric projects, exploration for minerals and petroleum, and the construction of roads which increase access to what were previously wilderness areas; and endeavors to utilize forest lands for the pro-

duction of agricultural crops and beef cattle.

And it is known that while many of the projects undertaken in tropical forest areas are viewed by their proponents as necessary and even feasible in the short term, large-scale tropical deforestation produces deleterious environmental effects in the regions in which they occur. Of all the aforementioned development activities, the conversion of tropical forests for agrarian purposes - particularly for cattle ranching - is generally thought to be the most pervasive element in the destruction of Latin America's tropical forests.

For each of the known factors presented above, myriad questions arise. Is it possible for man to manage tropical forests on a sustained-yield basis for forestry or agricultural projects, or must natural forests, with their estimated 3000 species of trees, 30,000 species of vascular plants, and innumerable species of birds, mammals, reptiles and insects, inevitably give way, at best, to plantations of pine, eucalyptus, or other monocultures, or, at worst, to the barren "red deserts" of failed development schemes? Why encourage large numbers of colonists to settle in tropical forest areas when the majority of the soils are known to be infertile and diseases will ravage man as well as his crops and livestock? While rising petroleum costs make hydroelectric projects seem an appropriate alternative, what criteria are used in the selection

of power plant sites? What is the value of extensive highway systems which are costly to construct and maintain when fluvial transportation requires some 75 percent less energy? Why do governments permit any company or individual, domestic or foreign, to clear cut successive tracts of tropical forest for the short-term and environmentally destructive production of beef cattle? While we know that massive destruction of tropical forests causes serious regional environmental problems such as deterioration of watersheds, droughts, soil erosion and the resultant siltation of rivers and lakes, what are the possible global ecological effects of such activities? And in consideration of the regional and hypothetical global effects of tropical deforestation, is it desirable for the government and private sectors of the United States and other countries and international lending institutions to encourage or promote projects which result in the large-scale destruction of tropical forests?

Eighteen of Latin America's 21 nations contain areas of tropical forest; they are Mexico, Belize, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Guyana, French Guiana, Surinam, Brazil, Ecuador, Peru, Bolivia and Paraguay (see Figure One). In the majority of these countries, the most productive lands are for the most part held by a small minority of the population for the production of cash crops for export.

While these crops -- chiefly coffee, bananas, sugar cane, cotton and beef -- are important foreign exchange earners for domestic economies, they also create serious problems for the nations involved. Not only are these commodities subject to price fluctuations on the world market, but export crops grown on fertile soils mean that these nations must import many food items at great expense for the domestic consumption of their people. This type of agrarian system also means that vast tracts of arable land, owned by a small number of families, create a dire shortage of land and employment opportunities for the burgeoning populations of each country. Thus, despite evidence that they are largely unproductive under "modern" farming practices, many governments consider the tropical forest regions of their nations as essential for the settlement of colonists and as new areas for intensive agricultural projects.

While ongoing research activities continue to seek new and viable methods of utilizing tropical forests for the benefit of man, it must be recognized that the environmental damage currently being inflicted on this vulnerable ecosystem may cause irreversible damage which will hinder or make impossible the application of more rational uses.

## Part II

### The Beef Cattle Industry in Latin America's Humid Tropics

#### 1. An Overview

In pre-Colombian times the tropical forests of Latin America were occupied by aboriginal peoples who employed rotational slash-and-burn and sedentary agriculture to grow a limited number of crops. Under these systems, which are still successfully employed today by the dwindling Indian populations of Panama and the Amazon Basin as well as by Latin colonists, small areas of tropical forest are partially cleared and the cut vegetation is burned over a period of time in order to release the plants' stored nutrients into the poor soil. The area is cultivated for as many as four years until the nutrient supply has been depleted, at which time the land is left fallow for eight or more years as secondary growth reclaims the area. This procedure, which utilizes the inherent nutrients of tropical vegetation and the ability of the forest to regenerate itself in clearings of limited size after they have been abandoned, is in marked contrast to the problems presented by large-scale deforestation activities for the purposes of intensive agriculture and cattle ranching.

Following the Spanish Conquest, a variety of domesticated animals were introduced to Latin America. Among the most important of these were cattle, the raising

of which today remains a tradition among many Latin Americans. The mystic of what some observers call "The Cult of the Bull" is a social factor which, to Latins, is at least as important as the economic aspects of cattle ranching. Additionally, the ever increasing demands for beef by the United States and other developed nations and the fact that the most productive lands of Latin America are already under cultivation for the production of other export crops, have led to the accelerating trend to convert tropical forest areas into pasture lands for the production of beef cattle.

The Food and Agricultural Organization of the United Nations has estimated that Latin America's tropical forests are being felled at a rate of six million hectares (60,000 km<sup>2</sup>) annually for agriculture and cattle ranching activities. As previously noted, it is estimated that some 37 percent of Latin America's total tropical forest area has already been destroyed through combined development activities, the majority of which have occurred since 1950. Included in the 37 percent figure for forest loss is Central America which is estimated to have already lost approximately two-thirds of its tropical forests.

A growing number of scientists and officials from numerous countries with experience in Latin America express the concern that cattle ranching is the principal factor accounting for tropical deforestation throughout the region.

And, based on the empirical analyses of numerous authorities, cattle ranching is widely considered to be the most environmentally damaging of all deforestation activities.

While statistical information concerning pasture lands throughout Middle America is incomplete, it is believed that more than two-thirds of the region's arable land is used for the production of livestock. It has been reported that in the decade between 1960 and 1970, pasture lands in Panama increased by 43 percent while those in Nicaragua and Costa Rica increased by 48 percent and 62 percent respectively. In the other Middle American countries of Mexico, Belize, Guatemala, El Salvador and Honduras, the beef cattle industry continues to grow.

In those countries with tropical forest areas on the South American continent, cattle ranching and beef exports are also increasing. According to Brazilian government sources, some 4,375,271 hectares of Amazon forest were cleared for cattle ranching between 1966 and 1975. While figures concerning the past four years are presently unavailable, it is reasonable to assume, based on reports of the mushrooming interest in cattle ranching by both the government and private sectors, that larger areas of forest were -- and continue to be -- cleared for pasture. In the countries of Colombia, Ecuador, Peru, Bolivia, Paraguay and Guyana, beef cattle ranching continues to consume ever-increasing areas of tropical forest.

## 2. The Tropical Forest Ecosystem

The lush vegetation of the tropical forest has created in the minds of men an illusion of unbounded fertility. In fact, the majority of tropical forest soils are impoverished, with most of their nutrients long ago leached by torrential rainfalls ranging from 2000 mm (80 inches) to 8000 mm (360 inches) annually. Only those areas adjacent to rivers receive fresh deposits of mineral rich soil during periods of annual flooding. Some 60 million years of evolution have enabled the flora of the tropical forest to perfect methods of capturing and storing essential nutrients such as nitrogen, calcium, potassium and phosphorus before they are flushed into ubiquitous river systems.

Virtually nothing is wasted in the complex biome of the tropical forest. With as much as 90 percent of its nutrients stored in the vegetation, the forest is a closed ecosystem, the dead and dying matter being quickly recycled by fungi, bacteria, ants and other organisms. The vegetation of the tropical forest is dominated by three main levels or strata of hardwood evergreen trees which form a series of canopies ranging from 30 to 100 meters above the forest floor. These canopies cushion the impact of the rains, protecting the soil from erosion. Also, without the protective canopy, solar radiation would bake the soil to a brick-like laterite, incapable of supporting almost any vegetation.

Another remarkable phenomenon of the tropical forest is the high rate of speciation of its flora and fauna. Surveys have shown that a two-acre patch of forest may contain 30 to 40 different species of trees. This seems remarkable when compared to the five or six species usually found within the same area of a mature deciduous forest in North America. It is believed that Latin America's tropical forests may have as many as 3000 different species of trees; about one-third of all tree species found on earth; as many as 2000 species of fish in the Amazon Basin; and as much as two-thirds of the world's total genetic resources. This high rate of speciation and wide distribution of species effects a natural defense against the transmission of diseases, thus promoting survival.

### 3. Tropical Forest Soils

The majority of the soils found in tropical forest areas belong to the nutrient-deficient group called ferral-sols. Also known as latosols or lateritic soils, this group is characterized as having had their more soluble mineral elements such as calcium, nitrogen, magnesium, phosphorus and potassium leached by heavy rainfall while relatively insoluble elements such as silicate clay, iron and aluminum remain concentrated in the soil's upper levels. The reddish color of many of these soils is imparted by oxides of iron. Although marginal, the continued fertility

of ferralsols is dependent upon the covering forest vegetation which modifies the leaching and weathering effects of heavy rainfall, high temperatures and solar radiation. The nutrient supply of the tropical forest is inextricably bound up in the vegetation and the animals, and is lost if the forest is replaced by less dense, short-cycle crops or forage grasses.

The second most common group of soils found in the tropical forests are Acrisols. This group is characterized by having a light-textured surface soil with an underlying clay-rich subsoil. Although they are not as poor as the ferralsols, the perpetual fertility of Acrisols is similarly dependent upon the presence of the forest vegetation.

Areas adjacent to rivers are annually inundated and as a result have deep mineral-rich soils. These alluvial soils, which vary in fertility depending upon the source of their present material, can often be successfully utilized for agricultural purposes, whereas the areas dominated by ferralsols and Acrisols would require massive infusions of fertilizers for sustained cultivation, a process too costly for most Latin American farmers. Limited areas of tropical forests have soils underlaid by limestone and calcareous rock which, with weathering, release calcium and other minerals essential for the cultivation of crops and grasses.

Soil surveys conducted to date in Latin America's tropical forest regions indicate that the nutrient-deficient

ferralsols and Acrisols comprise as much as 90 to 95 percent of the soils, while the rich annually inundated flood plains account for only about two percent of the land area, with the remaining soils made up of limestone and calcareous rock.

#### 4. "Forest to Pasture"

Because the most productive lands throughout Latin America are already owned and, for the most part, are under cultivation, whenever roads are constructed into previously inaccessible areas of tropical forest for the purpose of logging or petroleum and mineral exploration, the land-hungry poor from rural and urban areas follow them to hack homesteads out of the wilderness. In addition to this spontaneous form of colonization, government-sponsored colonization projects bring thousands more, willing to practice subsistence agriculture in order to feed their families. However, the tropical forest soils, while able to sustain low population densities practicing slash-and-burn agriculture, soon become depleted when large numbers of colonists place untenable pressure on the forest environment.

The first stage of converting forests to pasture lands occurs when the peasants cut and burn the vegetation for the planting of subsistence crops such as corn, manioc, yucca and beans. Following two to three harvests, declining soil fertility, invading weeds and increasing numbers of

insect pests cause the farmer to seek a new site. As the colonist abandons his depleted land, it may either be sold to or taken over by cattle interests. Or, as is becoming increasingly common throughout the countries involved, cattle ranchers are employing colonists or using heavy machinery to clear-cut large tracts of virgin forest. In some instances cattle ranchers finance farmers to clear land for eventual conversion to pasture.

Various methods are used to eliminate the forest cover. In some countries -- notably Brazil -- a process called "chaining" is employed in which two large D-8 tractors topple the trees by pulling a heavy 100-meter chain between them. But the most frequent method used to remove vegetation is for the ranchers to employ from several to scores of workers who use machetes and chain saws to cut down the forest.

A third process, which continues to be used despite the warnings of scientists and other concerned individuals, is herbicidal defoliation. In addition to Tordon, a defoliant exported from the United States which kills all broad-leaved plants, one of the most widely used -- and reputedly one of the most dangerous -- herbicides is 2,4,5-T, commonly known as "Agent Orange." A synthetic growth hormone which causes plants to undergo a cancerous growth spree, Agent Orange contains minute amounts of a contaminant by-product, dioxin. Banned with few exceptions in the United States, Agent Orange is nonetheless exported

to numerous developing countries where restrictions on its use are nonexistent. Manufactured in the U.S. by several companies, including Dow Chemical, Monsanto, Hercules, Diamond Shamrock, North American Philips and Thompson-Hayward Chemical, Agent Orange is widely held to pose a substantial hazard to human health and the environment. Despite the failure of a recent move by the U.S. Environmental Protection Agency to ban the remaining uses of the herbicide in this country, legal actions against its manufacturers and the U.S. government have proliferated in recent years as a result of widespread occurrences of cancers and genetic defects in individuals exposed to Agent Orange in the U.S. and in Vietnam where it was used to defoliate vast acres of forest between 1962 and 1970. Further studies of Agent Orange's residue levels in edible aquatic organisms and milk and tissues from rangeland animals are currently being conducted by the U.S. government.

Once the cut or defoliated forest vegetation has dried, it is burned, which serves not only to remove the debris but to release stored nutrients into the soil. Aircraft pilots have reported that at the height of the dry season in the Amazon Basin, the smoke from burning forests is so dense that it is impossible to see even the noses of their airplanes. Indeed, throughout the tropical forest areas of Latin America, pillars of smoke are a common sight.

After the forest has been burned, the ash-strewn land is sown with any of a variety of exotic grasses, most of which originated in Africa. While native Latin American grasses such as Bahia (Paspalum notatum Fluegge), Carpet (Axonopus compressus Beauv.) and Imperial (Axonopus scoparius L.) are sometimes used, imported African varieties such as Guinea grass (Panicum maximum Jacq.), Para grass (Panicum purpurascens Raddi.), molasses grass (Melinis minutiflora Beauv.), Jaragua (Hyparrhenia rufa (Nees) Stapf), Kikuyu (Pennisetum clandestinum Hochst.), Napier (Pennisetum purpureum Schum.) and Pangola (Digitaria decumbens Stent.) are tolerant of the region's high rainfalls and offer better nutritional qualities for livestock -- if only in the early stages of pasture development in the humid tropics. In other, more fertile areas of Latin America, many of these and other African grasses have proven to be aggressive colonizers. In addition to native and exotic grasses, some cattle ranchers plant legumes, such as those of the genus Pueraria and Centrosema which are increasingly being recognized for their nutritional and soil-protecting values.

During the first two to three years the grasses generally grow well, sprouting by as much as an inch per day during the rainy season. After three to five years, however, as the soil's fertility continues to decline and invading weeds and brush become too numerous to control, successive generations of grasses lose their nutritional

value and the pasture must be abandoned, whereupon the whole process must be repeated on a new forest site.

## 5. Cattle Breeds

When the first planting of forage material can support grazing, the cattle are introduced to the new pasture. It is essential that ranchers use cattle which are adaptable to the high temperatures and humidity, periods of heavy rainfall, coarse pasture grasses, and a host of insect pests and parasites which characterize the humid tropics.

Following early failures with European cattle breeds (Bos taurus), it was recognized that hybrid stocks, usually involving the zebu breeds of India (Bos indicus), were better suited for Latin America's tropical forest areas. Whereas cattle breeds developed in the temperate zones cannot maintain high meat and milk production in the humid tropics and are unable to efficiently regulate their body temperatures and tend to become feverish when exposed to long periods of tropical sun, the breeds which incorporate Indian strains are more tolerant of these and other tropical factors.

One of the breeds most successfully raised for beef in Latin America's humid tropics is the Indu-Brasil, a strain developed by ranchers in Minas Gerais, Brazil, by crossing three other zebu breeds from India, the Gir, Guzerat and Nellore, each of which are also raised as beef

cattle in tropical forest areas. The Brahman, developed in the Southern United States in the early 1900s from zebu crosses upgraded with British breed females, is remarkably adaptable to harsh environments and is now raised in some 58 countries. Another important breed, derived from crossing Brahman cattle with European Shorthorn stock, is the Santa Gertrudis. Developed by the King Ranch of Texas, Santa Gertrudis are raised throughout Middle and South America. The Charolais, a French breed, is also raised for beef, particularly in Mexico and Brazil. The Criollo, introduced by the Spaniards at the time of the Conquest, continues to be an important breed throughout Latin America. Occasionally, Indian breeds are crossed with the European Holstein when dairy stock are desired. All of the aforementioned types have been cross-bred with one another, with varying results.

The Water Buffalo (Bos bubalis), raised extensively throughout Asia, India and the Middle East, is beginning to receive increased attention in Latin America as a beef and dairy animal. While water buffalo have been raised for some 50 years on Marajo Island near the mouth of the Amazon River in Brazil, more recently they have been introduced to tropical forest areas in Brazil, Guyana and Costa Rica. Able to extract sufficient nourishment from forage too coarse and impoverished for cattle, water buffalo browse on a wide variety of plants and thrive in wet areas and,

according to their proponents, produce leaner meat and richer milk than traditional cattle breeds, although cattle yield more meat per carcass than water buffalo.

## 6. Cattle Productivity and Problems

Beef cattle raised in the humid tropics generally require one hectare (2.5 acres) per head, although as soil fertility and the nutritional value of grasses decline, as much as seven hectares per animal may be required. With most tropical forest areas subject to wet and dry seasons, cattle lose weight during dry periods because of the lack of nutritional forage matter. Raising beef cattle, which take four to six years to reach an acceptable slaughtering weight of 400 to 450 kilograms (880 to 1000 pounds), requires extensive land holdings due to the necessity of moving herds to new pastures. And because few slaughterhouses currently exist in tropical forest areas, mature cattle must be transported by truck or boat to abattoirs in each country's principal urban centers. Because of the rigors of overland transportation in tropical forest regions, it is not uncommon to encounter many dehydrated cattle carcasses along the roadways.

As is the case with man and his agricultural crops, numerous infectious and parasitic diseases, as well as harsh environmental factors, pose serious threats to cattle in the humid tropics. Medical research has already demonstrated that the most troublesome diseases affecting man,

crops and animals occur in modified or changing ecosystems. Among the diseases that most frequently trouble cattle in the humid tropics of Latin America are those which are associated with or augmented by nutritional deficiencies. Diseases such as leptospirosis, which causes miscarriages, affects the kidneys and is largely responsible for high calf mortality. While vaccines to combat leptospirosis and other infections exist, they are generally unavailable in tropical forest areas. Other diseases, such as gastrointestinal parasitism, infectious bovine viral rhinotracheitis and viral respiratory infections usually increase when cattle populations rise in response to improved feed supply.

Epidemiological problems, such as bone fractures, retained placenta, metritis and wasting disease, are also serious impediments to healthy cattle herds. Polyarthrititis, another serious problem affecting calves, is a bacterial infection of various joints, which may enter the system through a non-treated navel infection.

Rabies in cattle, transmitted by vampire bats, is considered one of the most serious livestock diseases in the American tropics and is responsible for high mortality rates and economic loss. Ecotoparasites, such as ticks, transmit protozoa diseases like Anaphasmosis and Paraplasmosis, while internal parasites especially prevalent during wet seasons, interfere with the normal growth and performance of beef cattle. Other diseases include

Mastitis, a bacterial infection in the mammary glands, and "foot rot," which afflicts cattle introduced to the humid tropics from dry areas.

Aftosa, or hoof-and-mouth disease, is a virus which is transmitted by contact as well as through the semen of bulls. While strains of aftosa are found in South America and in Europe, the disease has occurred only infrequently in North and Central America. For this reason, South American beef must be cooked before it can be imported into conditionally free areas. And Colombia, which has strains of aftosa different from those found in Brazil, prohibits the import of Brazilian cattle. Mexican cattle suffered an outbreak of foot-and-mouth disease from 1946 to 1955 when Zebu bulls were imported to Mexico from Brazil, but with U.S. assistance the problem was eradicated. One cattle authority charged that in 1974 the semen of Brazilian Brahman steers was smuggled into Texas, which undetected could have resulted in an outbreak of aftosa. And a current controversy, which allies North American cattlemen and environmentalists against development interests, concerns the projected completion of the Pan-American Highway through Panama's Darien province to Colombia. Opponents of the project argue that if completed the road would result in the transportation of cattle -- and aftosa -- into Central and North America.

Another problem concerning beef cattle productivity

and problems is that of toxic weeds found in pasture lands. As planted grasses lose their nutritional value and weeds become more abundant, cattle begin to browse on the successional vegetation. The neuro-toxins in the poisonous weeds accumulate in the cattle's fat and when the animal becomes active or is moved to a new pasture, the toxins are released and cause drowsiness, twitching and convulsions, followed by death. It has been estimated that ranchers in Brazil's Amazon Basin lose five to ten percent of their herds to toxic plants despite their efforts to control weeds.

#### 7. Environmental Aspects of Cattle Ranching

As previously noted, areas of tropical forest cleared for the production of beef cattle on newly established pastures result in the loss of the soil's nutrients, with introduced grasses becoming increasingly poor in terms of their nutritional value. Soil deterioration is further compounded by compaction and overgrazing, which accelerate leaching and erosion and destroy important successional vegetation such as legumes (See Figure Two.) When the land is finally abandoned, usually sometime after five years, the secondary growth which may establish itself is of limited value to man or nature, unable to support the diversity of wildlife and vegetation present before deforestation. When tropical forests are degraded, important terrestrial and aquatic protein sources, like

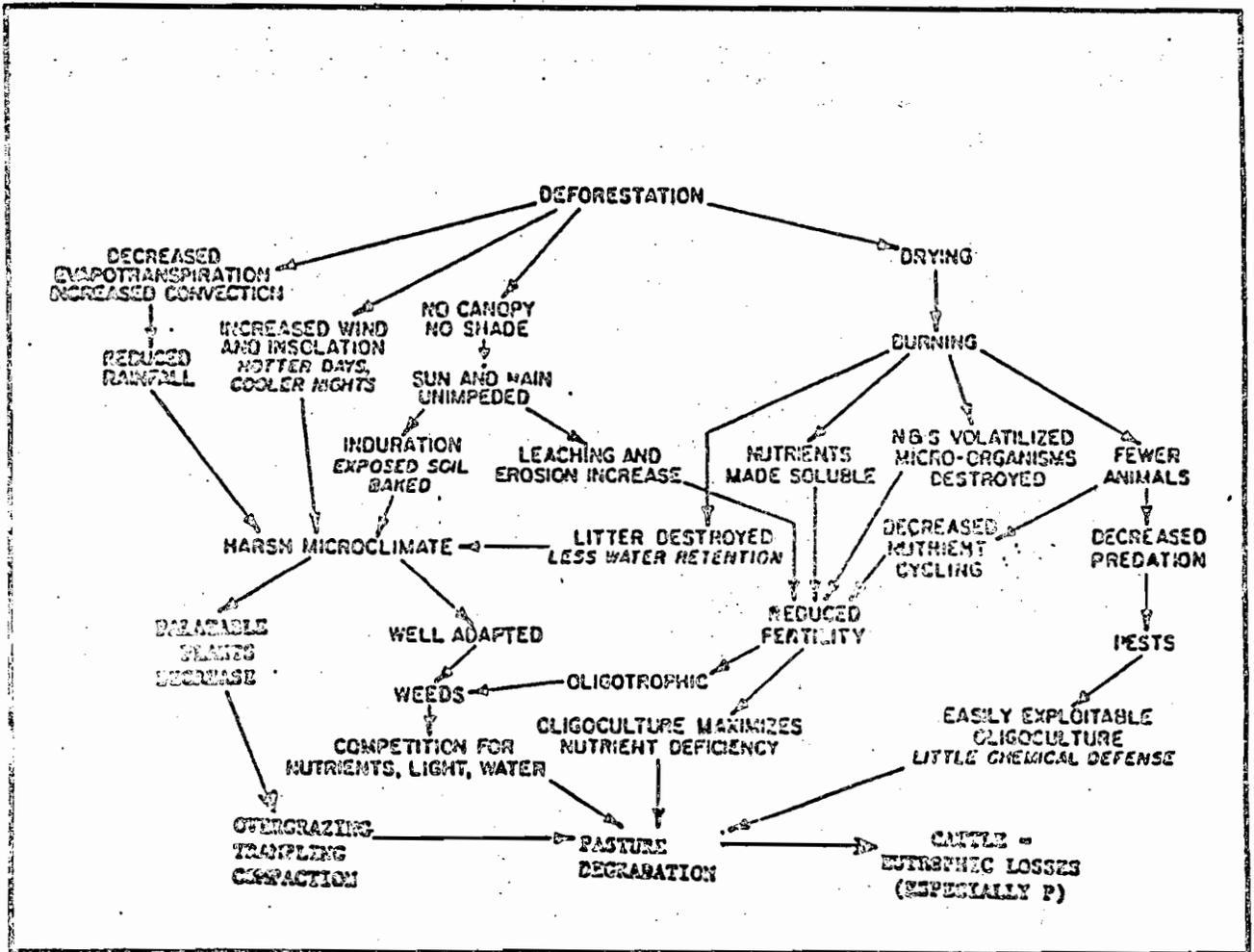


FIGURE TWO: Some Environmental Relations of Cattle Pasture Created from Tropical Forest. (Reproduced with the permission of Dr. Robert J.A. Goodland, based on a chart showing the relationship between deforestation and crop failure, p.31, Amazon Jungle: Green Hell to Red Desert? by R.J.A. Goodland and H.S. Irwin, Elsevier Scientific Publishing Co., Amsterdam, 1975.)

capybara (Hydrochoerus), tapir (Tapirus) manatee (Trichechus), birds and myriad species of fish are lost to the colonists and native peoples who depend on them for meat, while little if any of the beef raised on these lands is used locally.

The exceptions to this chain of events are when the soils are fertile due to their alluvial or volcanic composition, both of which are rare in tropical lowlands.

In the case of the widespread ferralsols and Acrisols, it is doubtful if even massive infusions of expensive fertilizers to replace low-level elements like phosphorus and nitrogen will permit the prolonged use of these nutrient-deficient soils for cattle ranching. And without the protective shade of trees to lessen the effects of leaching and laterization and the use of nutrient-enhancing factors such as legumes, soil management of sustainable pasture lands in the humid tropics is widely held to be impossible.

In addition to the adverse effects on the immediate terrain, large-scale cattle ranching has wider reaching environmental implications. Erosion of pasture lands causes severe siltation in rivers and in several instances has already diminished the capacities of hydroelectric facilities in Costa Rica and Brazil. And without forest vegetation to contain the enormous volume of water in tropical areas, flooding becomes a threat to both man and the environment. The use of herbicides and pesticides in pasture management and other agricultural activities present contamination problems to both the immediate environment as well as to the consumers of beef produced in areas where chemicals such as Agent Orange, Tordon, DDT and Parathion are used to control vegetation or insects. And because so many of the myriad species of plants and animals which inhabit the tropical forests of Latin America are inextricably bound up in a web of interdependence, the

accelerating destruction of this vital ecosystem threatens to drive hundreds of thousands of species to extinction, with their potential benefits to man forever lost.

Extensive deforestation has already proven to alter regional climatic conditions through declining rainfalls, floods and even droughts. But in the last several years, a number of hypothetical -- but nevertheless frightening -- arguments have been advanced relating the widespread felling of the earth's tropical forests to the global environment. Among these are the possible effect that tropical deforestation may have upon the carbon dioxide levels in the earth's atmosphere. While CO<sub>2</sub> levels have been rising rapidly due to the carbon released by fossil fuels when they are burned, proponents of this argument maintain that increased levels of carbon released from burned forests could reduce the atmosphere's ability to transmit heat away from the earth's surface, causing a warming trend that may interfere with the agricultural productivity of the planet.

Other "global effect" arguments postulate that if the earth undergoes a warming trend, the polar ice caps would melt, thus raising the sea level and inundating cities in coastal areas; that the loss of nutrients leached from tropical forest vegetation and conveyed to oceans by river systems such as the Amazon and the Congo would seriously affect the productivity of marine ecosystems and impair fishing industries around the world; and that the large-scale or total felling of the earth's tropical

forests would so drastically lower global precipitation that an irreversible process of desertification would result in the grainbelts of North America and other countries.

In addition to the known and theoretical environmental consequences discussed above, there remains the controversy of whether cattle ranching is a viable development activity in the humid tropics. Scientists of various disciplines are in disagreement among themselves as to the feasibility of creating pasture lands on the nutrient-deficient soils of Latin America's tropical forests. Some agronomists maintain that with "proper management" -- the addition of fertilizers to poor soils, the use of appropriate forage grasses and legumes, and the construction of canals to drain excess water in the wet season and provide water for irrigation during dry periods -- cattle ranching in the humid tropics can become a successful endeavor.

An A.I.D. official who has visited several cattle ranches in Brazil's state of Para, an area within that country's Amazon Basin, reported that while some operations have failed due to poor land management practices, others are successful because the forest is cleared following topographic patterns, sparing hilltops and steep slopes, and leaving stands of virgin forest along streams and between pastures. The successful operations, the spokesman noted, also plant hardy native and exotic grasses and move cattle to new pastures before the soil's productivity

becomes seriously depleted. While this seemingly rational approach to cattle ranching in the humid tropics indicates that such operations may be plausible, none of the ranches employing these methods have been in operation for more than five years. Time alone will determine whether these practices will result in sustained grass and cattle productivity; meanwhile, the majority of cattle ranchers in the tropical forest areas of Brazil and other countries continue to graze their cattle until the land is so seriously depleted that new areas must be converted.

Fueling the controversy are differing reports concerning the 72,000-hectare King Ranch operation, Fazenda Uraem, in Para, Brazil. According to a King Ranch spokesman in Kingsville, Texas, the operation is a success with approximately 15,000 Santa Gertrudis cattle grazing over some 20,000 hectares of pastures planted with guinea, pangola and other grasses and legumes. Fazenda Uraem, which is owned by a corporation that includes the King Ranch, the Swift-Armour Meat Packing Company, and a consortium of Brazilian interests, was started in 1972 and, according to the King Ranch spokesman, has experienced no problems with soil compaction or deterioration. Toxic weeds are controlled with herbicide Tordone and by burning.

But other agronomists who have visited Fazenda Uraem are less enthusiastic about the operation's success than the King Ranch spokesman. The independent scientists

say that due to the usual drop in nutrient levels, pastures are being lost to weed and brush invasion after five years, while herd mortality due to toxic weeds is as high as five to ten percent, and diseases claim others whose resistance has been lowered by nutritional deficiency. Some agronomists have predicted that eventually Fazenda Uraem will fail.

### 8. Other Problems Associated with Latin America's Beef Cattle Industry

While the majority of cattle ranchers maintain that their operations are "profitable," their opponents argue that although cattle ranching is lucrative, it is only because tropical lowlands are relatively inexpensive; that cattle ranching provides few jobs for Latin America's cheap labor force; that while beef brings good prices on domestic markets for those who can afford it, it earns even more on the export market; and that generous tax incentives offered by governments like Brazil allow individuals and companies involved in the beef industry to use 50 percent of their income taxes for cattle-related development. Many opponents to cattle ranching in the humid tropics tend to view it as a "quick and dirty" activity, likening cattle ranching to mining, in which "men extract as much as they can with as little input as possible." And like other development activities throughout many of Latin America's tropical forest areas, it is bitterly noted

that cattle ranching often encroaches on the lands and lives of aboriginal peoples in the tropical forests of Paraguay, Brazil and Columbia; in Darien, Panama; and in Chiapas, Mexico. If the beef cattle industry grows as expected in Peru, Ecuador and Guyana, greater pressures on the survival of the native tribes of those countries will occur. Recognizing the emergence of cattle ranching as the predominant development activity in Latin America's humid tropics means that the governments, institutions and individuals encouraging its growth must acknowledge responsibility for their policy's effect upon native peoples. Accounts of cattle interests decimating tribes for their lands in Paraguay and Brazil have been related by missionaries, human rights advocates, scientists, ranch workers and the cattlemen themselves.

In addition to ranching's displacement of colonists and native people for cattle, it is also argued that cattle ranching - a poor converter of energy to protein -- is a less productive form of land use than other forms of agriculture such as multiple-cropping systems, the harvesting of natural forest products, or sustained-yield forestry operations. Proponents for these and other methods of tropical forest utilization maintain that the large areas of land necessary for grazing cattle throughout Latin America would benefit the population of each country considerably if it were used to produce food for the region.

### Part III

## National and Foreign Involvement In Latin America's Beef Cattle Industry

### 1. Introduction

Until their spread to the humid tropics, largely over the last two decades, the beef cattle industries in those Latin American countries with areas of tropical forest were mainly situated in northern and central Mexico, along the Pacific coast and in the central highlands of Central America and Panama, in the temperate regions of Colombia, Ecuador, Peru and Bolivia, and in the southeastern areas of Brazil and Paraguay. Three factors remain important in causing cattle ranching to expand into the tropical forests of Latin America: 1) the best lands were already in use for the production of crops and permanent pastures; 2) a growing demand for beef for both domestic and export markets; and 3) government encouragement to "open up" and utilize inexpensive tropical forest "frontier" areas.

Although numerous private and public foreign interests are involved directly and indirectly with Latin America's beef cattle industries, the majority of the cattle ranchers and exporters of the region's beef appear to be native Latin American individuals and companies with the capital to invest in and/or operate cattle ranches and

slaughterhouses. There exists, however, a question as to what percentage -- if any -- of the lines of credit extended for cattle ranching activities are derived from loans and grants made to the national banks and businesses in the countries involved by foreign sources such as The World Bank, the Inter-American Development Bank, private banks in the developed nations, and foreign assistance loans from United Nations agencies and countries like the United States. It seems reasonable to assume that the increasing demand for beef in the developed nations would permit -- if not encourage -- assistance funds to be applied toward the production of desired commodities for export.

In addition to direct loans and grants for the development of cattle ranching, numerous indigenous and foreign government and private agencies and interests are involved in promoting Latin America's beef cattle industry through research and the provision of technical assistance.

## 2. Non-profit Research

A number of non-profit research organizations based in Latin America offer assistance, based on their research pertaining to soils, forage grasses and legumes and cattle management, to countries within the region. Among these are the Centro Internacional de Agricultura Tropical (CIAT), the International Center for Tropical Agriculture, with headquarters near Cali, Colombia; and several research stations which it operates in collaboration

with the Colombian government. CIAT, which is financed by a number of donors represented in the Consultative Group for International Agricultural Research (CGIAR), (discussion follows), has its objective the improvement of agricultural crop and livestock production in the humid tropics. Established in 1967, CIAT was the first of the international centers to be concerned with animal production. CIAT's Beef Program includes research and field trials with forage plants, soil microbiology and fertility, pasture establishment and maintenance, and cattle management and health.

Another important research organization is the Centro Agronomico Tropical de Investigacion y Enseñanza (CATIE), the Tropical Agronomy Center for Research and Teaching, at Turrialba, Costa Rica. Funded in part by the Organization of American States, the Inter-American Development Bank, several Latin American governments, and U.S. public and private organizations, CATIE conducts research concerning forestry, agriculture and wildlands management in Central and South America. CATIE's Animal Production Program conducts research pertaining to cattle and pasture management problems and provides technical assistance to various countries in Latin America. Included among the Program's ongoing efforts is a project to determine an appropriate ratio of herd size to carrying capacity of pastures in the humid tropics.

The Consultative Group for International Agricultural Research (CGIAR) funds cattle development research activities at the International Center for Tropical Agriculture (CIAT) in Colombia, and livestock and agricultural research at ten other institutions in Latin America, Asia, Africa and Europe. CGIAR's member-donors include the U.S. Agency for International Development, The Rockefeller Foundation, the Ford Foundation, the W.K. Kellogg Foundation, the Canadian International Development Agency, the World Bank's International Bank for Reconstruction and Development and International Development Association, the Inter-American Development Bank, the United Nations Development Programme and the Food and Agricultural Organization; and the governments of Australia, Belgium, the Federal Republic of Germany, Japan, the Netherlands, Switzerland, and the United Kingdom. Special project funds are often supplied by some of the previously mentioned organizations and governments and the International Research Centre (IDRC) of Canada.

### 3. World Bank

Among the international organizations providing funding for beef cattle ranching in Latin America, the foremost is the World Bank. Composed of three institutions -- the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), and the International Finance Corporation (IFC) -- the

World Bank is presently owned by the governments of 132 countries. With the stated objective of helping to raise living standards in developing nations by channeling financial resources from developed countries to the developing world, the Bank's loans are made "only for productive purposes which stimulate economic growth in the borrowing country." Each loan is made directly to a government or must be guaranteed by the government concerned and, generally following a grace period of five years, is repayable within 20 years or less.

Since 1963 the World Bank has lent funds for cattle ranching activities to each of the Middle American nations except El Salvador. Of the South American countries with areas of tropical forest, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay and Peru have received Bank loans for livestock development. While the Bank's loans are made to implement projects, other institutions and agencies are contracted by the borrowers to provide technical assistance.

According to a Bank official, 70 to 80 percent of the institution's loans for livestock development through the 1960s and the early 1970s were made to large-scale ranching operations. Since 1973, however, the Bank has been emphasizing assistance to smaller operations of 100 to 150 head of cattle. While the Bank has no bias toward beef versus dairy herds, more loans have recently been

given for dairy herd development since small-scale farmers -- which comprise the Bank's "target groups" -- more often raise dairy cattle. Some beef cattle operations, nevertheless, continue to receive Bank loans.

A former Bank employee corroborated the above, adding that until about five years ago World Bank institutions were more involved with beef cattle than they are at present, but that certain board members -- "do gooders" -- had the "mistaken notion that cattle were eating food and using land that people needed." Citing examples in Paraguay, Puerto Rico, Australia, and the state of Mato Grosso, Brazil, several Bank officials expressed the view that properly managed beef cattle projects in the humid tropics can successfully provide meat to local populations.

"There is a tremendous potential in Latin America's tropical forest areas for ruminant production," said a former livestock advisor to the Bank, noting the "advantages of high rainfall, the presence of appropriate grasses and legumes, and adaptive cattle breeds. But," he concluded, "I'm not a soil expert."

In its 1978 annual report the Bank states that the problems presented in tropical areas with depleted soils are compounded by a lack of adequate technical knowledge, extremely weak delivery systems, local institutions, and rural infrastructure. Because of these difficulties the Bank says that agriculture and rural development projects

funded in tropical areas have a greater probability of failing.

While Bank officials were generally reluctant to provide specific information on the areas and amounts of funding lent for cattle and cattle-related projects, the following information pertaining to livestock development was obtained from a variety of reliable sources. Covering the fiscal years 1974 through 1978 and including loans made by all three Bank agencies -- IBRD, IDA and IFC -- it should be noted that not all of the funds designated would have been used to promote beef cattle ranching in the tropical forest areas of the countries involved. However, it must be recognized that some portion of the loans could be used for lines of credit while the technical assistance derived could be applied to cattle ranching in the humid tropics. Earlier projects not shown in the following list include a loan to Guyana for livestock development; credits to develop the cattle industry in the Bolivian Beni for \$2 million in 1967, \$1.4 million in 1970 and an undisclosed amount for aid to 250 cattle ranches in the Beni and adjacent areas as part of a larger livestock program; and the Caqueta Rural Settlement Project in Colombia's department of Caqueta which began receiving Bank loans in 1971. With some U.S. \$8.1 million dispersed by 1976, the Caqueta Project has drawn criticism from environmentally-concerned individuals because of the introduction of cattle and large-scale tropical deforestation in

the area. While Bank funding for the project continues, by 1976 about 27,000 cows and 1500 bulls had been distributed to 1716 families. No recent information concerning data on pasture conditions or livestock production in the project area was available at the time of this writing.

<u>Fiscal Year</u>	<u>Country</u>	<u>Amount (U.S.\$millions)</u>	<u>Production of Beef Carcasses and Milk In Metric Tons</u>
1974	Honduras	\$ 6.6	6000 head cattle 3800 beef 22,000 milk
1974	Nicaragua	\$ 24.3	7600 head cattle 7000 beef 15,500 milk
1974	Peru	\$ 66.7	4000 beef
1975	Bolivia	\$ 19.5	6900 beef
1975	Brazil	\$ 79.5	600 beef
1975	Colombia	\$113.2	14,600 beef
1975	Mexico	\$315.5	25,000 beef
1975	Paraguay	\$ 26.8	15,100 beef 3400 milk
1976	Bolivia	\$ 22.4	100 beef 300 milk
1976	Honduras	\$ 34.	700 beef 7900 milk

1976	Mexico	\$538.3	36,000 head cattle 10,000 beef 134,000 milk
1977	Brazil	\$181	2500 beef
1977	Colombia	\$421.1	20,000 beef 115,800 milk
1977	Costa Rica	\$ 55.6	20,500 head cattle 1700 beef 20,000 milk
1977	Ecuador	\$ 51.5	7700 beef 31,000 milk
1977	Mexico	\$375	6300 beef 11,000 milk
1977	Panama	\$100	6500 head cattle 900 beef 28,800 milk
1978	Brazil	\$234.9	4200 beef 2900 milk
1978	Mexico	\$1032.2	45,900 beef 98,000 milk

In addition to the aforementioned projects and loans pertaining to cattle development, the World Bank has recently cancelled a controversial regional development project in the Colombian department of Vaupes, a region which includes areas of tropical forest. Included in the project was a proposal to develop 800,000 hectares of land with 15,000 hectares designated for cattle production.

Preliminary analysis showed that the area's nutrient-deficient soils were incapable of supporting large-scale development.

#### 4. Inter-American Development Bank

The Inter-American Development Bank (IDB), established in 1959, is composed of 26 Western Hemisphere nations and 15 countries from outside the region. IDB lends money to Latin American nations for a wide variety of economic and social development projects. Funds are accumulated from contributions by member countries, borrowing in capital markets, sales from IDB's portfolio, special funds placed under Bank administration by various countries, and loan repayments. In 1976 and 1977, 15 non-regional nations with trade relations with Latin America became members of the Bank. Included in the new members are the industrial countries of Austria, Belgium, Denmark, Finland, France, Germany, Italy, Israel, Japan, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom and Yugoslavia. Each of these nations imports Latin American agricultural products and timbers while exporting manufactured goods to the region.

The Bank's loans normally finance no more than 50 percent of a project's cost, with the balance being financed by the borrowing countries. Consideration of projects submitted for financing is based on the anticipated economic and financial rates of return as well as the project's

technical and institutional requirements. The Bank also determines who are the main direct beneficiaries of the investment and the extent of its contribution to economic and social development in the borrowing country. Of the various development activities for which it lends money -- agriculture, electric power, transportation and communications, industry, water supply and health, urban development, education, export financing, pre-investment and tourism -- IDB's agricultural investments in the years 1961-78 accounted for some U.S. \$3,037 million, or 22 percent of the Bank's total distribution of loans. Only IDB loans for energy development surpassed those made for agriculture and rural development.

According to a Bank official, the execution of projects receiving loans from IDB are administered by the appropriate institutions within the borrowing country. The Bank also finances advisory services, training activities and studies by institutions, consulting firms and specialists from its member countries. In 1978 IDB gave a \$1.6 million grant to the Animal Production Program at the Tropical Agronomy Center for Research and Teaching (CATIE) in Costa Rica for research in livestock development. IDB also provides rural credit in Colombia for the Instituto Interamericano de Ciencias Agrícolas (IICA), the Inter-American Institute for Agricultural Sciences, an agency of the Organization of American States (OAS).

IDB loans for agricultural development include projects in irrigation, global agricultural credit, rural development, marketing and agribusiness, livestock development, research and extension services, animal health, fishing development and lumbering and forestry development. Of these, the livestock development component, which includes cattle, sheep and swine, comprises approximately 4.8 percent of agricultural sector expenditures.

Like the World Bank, IDB's cattle-related loans have increasingly been aimed at providing credit to small-scale operations and farmers. And, while an IDB spokesman stated that no livestock development loans were issued for projects within tropical forest areas, Bank loans and grants are used to bolster cattle industries with ties that reach ever deeper into the humid tropics of Latin America. A report issued by IDB's Project Analysis Department in 1978 states that beef production can be increased significantly through additional investment and approved technology. The report continues:

Any increase in production, above and beyond requirements for internal consumption of IDB member countries, is likely to find ready sales outlets abroad, earning much needed foreign exchange. Latin American meat exports represent 25 percent of total world export value. Some countries in the region have potential for substantially increasing meat exports. For all these reasons the bank favors financing of livestock development projects.

Among IDB's loans for livestock and related development activities in the countries encompassed by this study are the following:

<u>Fiscal Year</u>	<u>Country</u>	<u>Amount (U.S.\$ millions)</u>	<u>Purpose</u>
1969	Bolivia	\$ 4.5	livestock development <sup>1</sup>
1975	"	\$ 2.2	" "
1976	"	\$ 4.2	animal health <sup>2</sup>
1977	"	\$ 8.5	research & extension <sup>3</sup>
1978	"	\$ 5.9	livestock development
1969	Brazil	\$ 24.2	livestock development
1970	"	\$ 12.8	animal health
1972	"	\$ 9.9	research & extension
1976	"	\$ 66.4	" "
1967	Colombia	\$ 10.7	livestock development
1971	"	\$ 6.8	animal health
1977	"	\$ 11.6	research & extension
1961	Costa Rica	\$ 2.6	livestock development
1966	" "	\$ 0.4	" "
1969	" "	\$ 2.5	research & extension
1972	" "	\$ 6.0	livestock development
1977	" "	\$ 5.3	animal health
1961	Ecuador	\$ 0.8	livestock development
1969	"	\$ 2.2	research & extension
1973	"	\$ 5.6	animal health

1. Includes beef and dairy cattle, sheep and swine, and livestock-related activities such as breeding, marketing assistance and processing facilities.

2. Control of communicable and parasitic diseases.

3. Includes funding for research centers and experimental stations, information and extension services.

1976	Ecuador	\$ 11.0	research & extension
1978	"	\$ 16.9	livestock development
1974	Guatemala	\$ 4.4	livestock development
1971	Honduras	\$ 2.8	research & extension
1972	"	\$ 8.9	livestock development
1974	"	\$ 4.4	animal health
1978	"	\$ 4.0	research & extension
1975	Mexico	\$ 36.8	animal health
1976	"	\$ 46.4	livestock development
1964	Nicaragua	\$ 7.5	livestock development
1968	"	\$ 1.6	" "
1978	Panama	\$ 15.0	livestock development <sup>4</sup>
1968	Paraguay	\$ 2.8	animal health
1971	"	\$ 14.8	livestock development <sup>5</sup>
1975	"	\$ 3.2	animal health
1973	Peru	\$ 6.0	animal health
1963	Venezuela	\$ 4.7	livestock development

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4. Since 1963 IDB has made six loans totalling \$21 million to Panama's Banco de Desarrollo Agropecuario (BDA) to provide credit to low- and medium income farmers and ranchers to increase production and increase productivity. The 1978 loan for \$15 million was made to carry out the fourth stage of the program, enabling BDA to grant additional credits to some 6500 farmers and livestock producers.

5. The \$14.8 million IDB loan was made in 1971 to enable the government of Paraguay to undertake an integrated agricultural and livestock development program -- the Programa Integrado de Desarrollo Agropecuario (PIDAP). Between 1971 and 1978 credits totalling \$15.7 million were extended to small- and medium-scale farmers, and through research and extension services, improved seeds and purebred cattle were provided to farmers.

## 5. Organization of American States

The Organization of American States (OAS), composed of 26 member nations in the Western Hemisphere, includes cattle ranching activities within two distinct departments of the organization, the Program of Regional Development (PRD) and the Program of Rural Development (PRD). The OAS's Inter-American Institute for Agricultural Sciences (IICA) also provides technical assistance pertaining to livestock production and marketing problems in Latin America for projects funded by other sources.

The Program of Regional Development had a budget of \$7.5 million in 1978-79 for 24 projects in 17 countries and anticipates a similar budget for 1980-81. It supports integrated development activities in OAS member states by focusing on resource evaluation, regional development planning, formulation of development projects, and environmental management planning. The PRD manages six to eight major projects ranging from two to three years in duration and four to five smaller, shorter term missions. It also supports two training facilities, the Inter-American Center for Integrated Development of Land and Water Resources (CIDIAT) in Merida, Venezuela, and the Inter-American Center for Regional Development (CINDER) in Maracaibo, Venezuela. Distribution of funds for technical assistance and training is about 65 percent and 35 percent respectively.

According to a department official, the PRD has

"considerable involvement with livestock in tropical forest areas." Aware of the management and environmental problems associated with cattle ranching in the humid tropics, the official noted that some livestock projects in Paraguay have been successful while others, such as the Tingo Maria project in Peru's Amazon Basin have repeatedly failed. The PRD spokesman also said that the tropical forests of Panama's Darien area have livestock potential -- if approached cautiously. Colombia, with funding assistance from the Netherlands, is already engaged in a project combining livestock, agriculture and forestry near the Colombia-Panama frontier, he added.

While specific funding amounts were not available, livestock development is a component of PRD activities in Brazil, Paraguay, Bolivia, Colombia, Panama and El Salvador. Noting that "uncontrolled livestock development in the humid tropics is the most destructive aspect" of the deforestation problem, the PRD official said that the department's approach to the cattle issue is to promote and undertake comprehensive planning studies that include analysis of sustained productivity potential. Such complete planning studies, he said, tend to make cattle ranching less attractive to funding agencies.

When it is determined by the PRD that cattle ranching would be a viable element in a regional development activity, the Program of Rural Development takes over

OAS administration of the project, offering technical advice to the host country. Like the United Nations Development Programme (UNDP) and the U.S. Agency for International Development (USAID), OAS departments engage in project pre-feasibility studies after which the funding banks carry out feasibility studies and, if an activity is deemed viable, the money is lent to the sponsoring country which then implements the project.

#### 6. United Nations Agencies

Included among the United Nations agencies involved in cattle ranching activities in Latin America are the Food and Agricultural Organization (FAO), the United Nations Development Programme (UNDP), and the Economic Commission for Latin America (CEPAL). Other U.N. agencies involved with livestock development include the United Nations Environment Programme (UNEP), whose concern is with environmental implications, and the United Nations Conference on Trade and Development (UNCTAD), which approaches the activity from an economic viewpoint.

The Food and Agricultural Organization, an autonomous U.N. agency with a membership of 144 nations, receives funds from UNDP and donor countries and provides technical assistance designed to increase agricultural productivity and raise nutritional levels in the developing nations. In addition to land and water development, FAO's work with livestock includes vaccination against Aftosa and other diseases, improved soil-pasture management, meat and dairy

development, and enhancing marketing systems. FAO also collects information on food, agriculture, forestry and fisheries from all over the world and makes it available to member countries for the use of government planners, research workers, businessmen and other interested parties. And FAO assists countries in finding capital for agricultural development by helping them identify and formulate investment projects. To this end, FAO works closely with a number of international and national financing institutions, including the World Bank, regional development banks, Arab funds and national development banks. Between 1974 and 1978, FAO's Investment Center has helped member countries prepare development projects with total investment costs of about \$7 billion. Approximately half of this amount was provided in loans and credits from the financing institutions with which FAO works, with the remainder coming from the countries themselves.

Among FAO's involvement in livestock development in the humid tropics of Latin America are projects in Bolivia, Peru, Ecuador, Guyana, Costa Rica and El Salvador. Included in these projects is a \$4 million four-year agro-industrial project in Bolivia and a livestock development project in El Salvador which will cost more than \$1 million over the three years of its implementation.

The United Nations Development Programme (UNDP), which contributes to FAO's operations, provides development planning advice, technical assistance and investment support

services to the governments of developing countries. In addition to agriculture and livestock projects, UNDP is involved with forestry, engineering, industrial and international trade activities. According to a spokesman, UNDP is working with the Peruvian government on cattle production projects near Pucallpa and La Selva, both within Peru's area of the Amazon Basin. Working closely with international and national financing agencies is also part of UNDP's activities. With the Inter-American Development Bank, the World Bank and others, UNDP is a co-sponsor of the International Group for Agricultural Development in Latin America (IGAD/LAC). IGAD/LAC's objectives include coordinating inter-agency actions related to agricultural problems, expanding internal food production, increasing agricultural export within the region and to the rest of the world, and improving income, employment and living standards of rural populations. Among IGAD/LAC's activities in the region is a \$15 million four-year International Program for Control of Hoof and Mouth Disease and Improvement of Meat Technology, "designed to benefit small countries in which livestock production has substantial development potential."

UNDP also co-sponsors, with FAO and the World Bank, the Consultative Group on Food Production and Investment in Developing Countries (CGFPI), which was created to attract increased investments to rural areas.

The Economic Commission for Latin America (CEPAL), an agency of the United Nations Economic and Social Council,

includes among its concerns the activities of transnational corporations, the application of science and technology to development, problems of the environment related to development and human settlements, food resources and the rational and equitable exploitation of natural resources. Among the priorities established by the Joint CEPAL/FAO division is a study of aspects of regional agricultural production and the actual degree of exploitation. The role of agriculture and its dependence on international markets is another concern of CEPAL.

#### 7. Latin American Agribusiness Development Corporation

The Latin American Agribusiness Development Corporation (LAAD), incorporated in Panama, was created in 1970 with an initial investment of \$15 million by the Bank of America, with headquarters in San Francisco, California; the ADELA Investment Company, a multinational private investment company with offices in Washington, D.C., Luxembourg, Zurich and Lima, operating entirely in Latin America; Borden Incorporated of New York, with interests in dairy products, foods, and chemicals; Cargill Incorporated, a Minneapolis-based multinational commodity and food processing company; Caterpillar Tractor Company, Peoria, Illinois; CPC International, Englewood Cliffs, New Jersey, a corn products manufacturer; Deere and Company, Moline, Illinois, producer of farm machinery; Dow Chemical Company, Midland, Michigan, a leading world producer of agricultural chemicals, pharmaceuticals, and food packaging materials; Gerber Products

Company, Fremont, Michigan, the world's leading producer and distributor of baby foods; Monsanto Company, St. Louis, Missouri, one of the world's largest chemical companies making synthetic fibers, plastics, and fertilizers; Ralston Purina, St. Louis, Missouri, the world's foremost producer of animal foods; and Standard Fruit and Steamship Company, a subsidiary of Castle and Cooke, Honolulu, Hawaii, the world's second largest producer and distributor of bananas. Since LAAD's inception, the Southeast First National Bank of Miami and the Goodyear Tire and Rubber Company, Akron, Ohio have become shareholders.

LAAD was established to "strengthen and expand private agribusiness enterprises in Latin America with the active support of its shareholders. The Corporation develops and finances small- and medium-sized Latin American agribusiness and related ventures, placing emphasis on building up the marketing capabilities of those companies which it supports, especially in regional and international markets." When it is deemed feasible, LAAD also endeavors to broaden the ownership of these companies among local investors. LAAD's head office is located in Miami, Florida, and branch offices are located in Guatemala City (LAAD de Centro-americana/LAAD-CA) and in the Dominican Republic.

LAAD's investments are spread throughout Middle America and Colombia and in several Caribbean countries, including Haiti and the Dominican Republic. Its interests

include the production, processing and marketing of beef and dairy cattle and their products, hogs and poultry, fruits and vegetables, grains, vegetable oils, flowers, wood products, and farm machinery.

During the 1970s, LAAD received three loans totaling some \$17 million from the U.S. Agency for International Development to support its activities in Latin America.

One of LAAD's cattle development activities in the region was a 1979 loan for approximately \$700,000 to the Belize Beef Corporation, Ltd. to finance the company's development of an integrated beef production and marketing program.

Belize Beef Corporation, Ltd. is a beef production, slaughter and marketing business started in 1967 under the name Belize Beef Packers, Ltd. The company was founded by Julian Headley, a New Orleans investor who operated the business until 1976 when it was leased to Cattle and Beef, Ltd., a wholly-owned subsidiary of Agrodinamica, S.A., the parent company of several of LAAD-CA's borrowers in Costa Rica....Agrodinamica, S.A. was formed in 1971 and is owned by Mr. Manuel Emilio Clare (42.5%), one of the pioneers of the beef export business in Central America; ADELA Investment Company (40%); Mr. Alejandro Orfila, President of the Organization of American States (10%); and Mr. Miguel Angel Rodriguez (7.5%). In addition to Agrodinamica's interest in Belize Beef Corporation, Ltd., the company owns and operates beef packing plants, ranches and a rice mill in Costa Rica and Honduras as well as a beef marketing business in the United States. In early 1979 outstanding LAAD-CA loans to Agrodinamica subsidiaries and affiliates totalled \$750,000.

Belize Beef Corporation, Ltd. is managed by Mr. Fidel Tristan, a U.S. citizen who has been involved in the beef industry in Costa Rica and the U.S.A. over the past fifteen years...and has man-

aged cattle ranches and the Agrodinamica slaughterhouse in Costa Rica, Ganadera Industrial, S.A., which has borrowed on two occasions from LAAD-CA.<sup>1</sup>

Another of LAAD's recent investments is a \$200,000 loan to Panama's Corporación Agropecuario for the purchase of beef cattle from small farmers with five to six head each near Bayano, a recently deforested area east of Panama City. The Corporation then fattens the cattle for up to 16 months and sells them to a slaughterhouse. During the two to three years of the project's operation, the Corporación expects to purchase and process a total of 2000 beef cattle from farmers in the area.

#### 8. Other International and Regional Institutions

There are numerous other regional and international institutions and agencies whose finance and development operations in Latin America include one or more aspects of beef cattle production which directly or indirectly affect tropical deforestation.

Among these are the Central American Bank for Economic Integration (CABEI) which finances projects and programs in transportation and communications, industrial development, agriculture, and education. Funded in part by the Inter-American Development Bank, CABEI's member nations include Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica. Some 20 percent of CABEI's funds are

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1. Source: "Proposed Loan to Belize Beef Corporation, Ltd. Up to \$700,000," Investment Proposal #32-1, LAAD Caribe S.A., December 5, 1978.

used for projects in agriculture. The Latin American Institute for Economic and Social Planning is affiliated with the United Nations Economic Commission for Latin America (ECLA) and receives support from the United Nations Development Program and the Inter-American Development Bank.

Other regional development concerns include the Latin American Free Trade Association (LAFTA), the Central American Common Market (CACM), the Inter-American Economic and Social Council (IA-ECOSOC), the Caribbean Free Trade Association (CARIFTA), and the Andean Common Market (AnCom) composed of Bolivia, Colombia, Ecuador, Peru, and Chile.

The International Agricultural Development Service (IADS) receives funds from the Rockefeller Foundation, the U.S. Agency for International Development, and other sources to implement its activities throughout the world's developing nations.

#### 9. U.S. Government Agencies

According to officials, the U.S. Agency for International Development (AID) has decreased its direct involvement in Latin American cattle development over the last decade. During the 1960s AID provided large amounts of financial and technical support throughout the region to cattle-related activities ranging from livestock credit to slaughterhouse construction. Highway and bridge construction, supported by AID through the Alliance for Progress

and other institutions, contributed to the opening of tropical forest wilderness areas, which made it possible for cattle interests and colonists to engage in ranching and other agricultural activities. Similarly, logging and mining interests benefited from the construction of new roads.

But through the 1970s Congressional concern with increasing agricultural production among the "poor majority" led to AID's recognition that despite its efforts, the distribution of benefits were often extremely uneven. Thus, the formulation of a strategy aimed at directly assisting small farmers was initiated.

AID continues to include cattle raising as a component in some of its rural development projects and other programs in the region. A recently approved loan of \$10 million to Panama for the development of watershed management programs provides for livestock production and pasture lands improvement. And a \$9.8 million loan to Costa Rica for natural resources conservation contains an innovative component which couples subsidies for planting trees with a credit program to farmers for cattle and pasture improvement. Both the Panama and Costa Rica loans are designed to deal with some of the environmental problems connected with deforestation while directly assisting small-scale farmers.

A variety of institutions and businesses engaged in

cattle-related activities also receive AID funds in the form of loans, grants and technical assistance. Among these, as previously noted, are the United Nations Development Programme (UNDP), the U.N.'s Food and Agricultural Organization (FAO), the Inter-American Institute for Agricultural Sciences (IICA), the Consultative Group for International Agricultural Research (CGIAR), the International Center for Tropical Agriculture (CIAT), and the Latin American Agribusiness Development Corporation (LAAD).

AID also collaborates with universities and government agencies in host countries on matters concerning livestock health and nutrition, breeding, and marketing. In recent years the Agency has provided funding and technical support for an ongoing program to control vampire bats which transmit rabies to the cattle whose blood they drink.

According to a spokesman, AID occasionally carries out pilot work on numerous kinds of proposed development projects which, if deemed worthy, are then assumed by the World Bank or the Inter-American Development Bank.

The U.S. Department of Agriculture's (USDA) involvement with cattle production in Latin America is managed by the Foreign Agricultural Service and its Dairy, Livestock and Poultry Division. USDA agents work both in Washington and in overseas missions encouraging sales of U.S. breeding stock and developing reciprocal markets for various types

of livestock and agricultural crops. Among the U.S. cattle breeds promoted by USDA personnel are the Santa Gertrudis and the Brahman.

USDA Foreign Agricultural Service economists monitor beef imports and exports and their effects on the U.S. and foreign markets. They also produce a variety of publications, including bulletins and monthly data sheets itemizing meat and meat products imports by country.

The Peace Corps is not active in cattle ranching, according to one spokesman. However, volunteers working in the tropical and sub-tropical forest areas of Honduras, Nicaragua, Colombia, Ecuador and other countries continue to offer fundamental assistance with livestock health matters and soil and pasture management.

The proposed Institute for Scientific and Technological Cooperation (ISTC), pending the provisions of its final approval by Congress, will be an autonomous or USAID agency designed to promote and conduct research in a variety of areas affecting the United States and the developing nations.

The Export-Import Bank of the United States (Eximbank) is an independent agency of the U.S. government. Eximbank supports the U.S. export market in various ways, including direct loans to foreign governments, banks and companies for the purchase of U.S. products. It also

guarantees and insures foreign loans for this purpose made by private U.S. banks.

Eximbank borrows largely from the U.S. Treasury at government bond rates and lends capital to foreign purchasers of U.S. goods at a rate lower than the going rate in the export finance market. Some two-thirds of Eximbank's activity between 1970-78 was in the world's developing nations, although these countries receive only about one-third of U.S. exports. Eximbank is the largest single source of U.S. financial aid; its loans to the developing nations now total some \$2.7 billion annually, exceeding USAID's expenditures by almost \$500 million -- excluding assistance to Egypt and Israel.

An Eximbank official said that since mid-1978 no loans have been made for cattle ranching or meat plant production. He said that "droughts, payment failures, and bad luck" have plagued the bank's involvement with livestock development. Cattle production in northern Mexico, aimed directly at U.S. markets, is nonetheless still insured by Eximbank.

Eximbank's other loan activities to U.S. and foreign recipients include a variety of development activities. Among these are nuclear power plant equipment and fuel sales, which now account for some 25-30 percent of Eximbank's loans; transportation; mining and refining; manufacturing; communications, and agriculture. In 1978

total assistance for agricultural commodities, equipment and supplies was \$606.4 million.

The Overseas Private Investment Corporation (OPIC) is a self-supporting U.S. government corporation which promotes, insures and occasionally finances U.S. private investments in developing countries. OPIC guarantees and loans include a broad spectrum of development activities, including sugar and feed mills, food processing companies, port and storage facilities, and agricultural projects.

OPIC's 11-member Board of Directors is composed of six private businessmen nominated by the President of the United States and confirmed by the Senate. Its five government officials represent the U.S. Agency for International Development, whose Administrator serves as Chairman; the President and Chief Executive Officer of OPIC, and Assistant Secretaries of State, Treasury, and Commerce.

The following are OPIC-insured projects relevant to the countries and issues of this study. In some instances the activities are located within tropical forest areas such as the International Foods beef slaughtering and packing operation in Catacamas, Honduras, an area largely deforested in the last several years. In other cases potential lines of credit offered by banks or the establishment of feed mills provide a possible link.

<u>Fiscal Year</u>	<u>Country</u>	<u>U.S. Company</u>	<u>Project</u>	<u>Total Insured Investment (in thousands)</u>
1976	El Salvador	Bank of America	commercial bank	\$ 900,000
1976	Nicaragua	Citibank	expansion - branch bank	\$ 450,000
1976	Brazil	Continental Enterprises (Bermuda)Ltd.	feed mill	\$1,050,849
1976	Nicaragua	Continental Milling Corp.	agricultural services	\$ 855,000
1976	Honduras	International Foods S.A. (Alberti International, Inc.)	expansion - beef slaughter and packing facility	\$ 450,000
1976	Brazil	W.R. Grace & Co.	animal husbandry services	\$ 600,000
1976	Belize	Cecil Albert Stone	farm	\$ 540,000
1977	Honduras	Productas Industriales de Madera, S.A. (with Texas firm)	wood pallet manufacturing	\$ 575,000
1977	Brazil	Beker Overseas Ltd.	fertilizer production	\$1,565,924
1977	Brazil	First National Bank of Boston	development financing for poorer regions	\$45,000,000
1977	Brazil	W.R. Grace & Co.	livestock artificial insemination center	\$ 600,300
1977	Honduras	International Foods S.A. (Alberti International, Inc.)	expansion - meat packing facility	\$ 630,000
1977	Belize	Seminole Steel Erectors, Inc.	grain and cattle farming	\$ 100,350

1978	Brazil	Agrico Chemical Co.	phosphate mining	\$7,740,000
1978	Honduras	Construction Aggre- gates Corp. and Crescent Construction Co., Inc.	construction of port facilities	\$2,000,000
1978	Brazil	Rome Industries	manufacture agricultural construction & industrial equipment	\$3,758,510
1978	Belize	William P. Westmore- land	farming	\$ 180,000

In 1978 OPIC financed \$2.5 million to support the Confederation of Latin America Credit Cooperatives (COLAC), a regional group which provides credit to small businessmen and farmers in Latin America.

#### 10. U.S. Private Agencies

The Inter-American Foundation (IAF) was founded in 1969 as an experimental U.S. government corporation, semi-private in nature, to assist community development projects in Latin America and the Caribbean. IAF works with and funds small-scale farmers, cooperatives and other institutions with similar purposes. It contributed \$14,655 to the Department of Anthropology, University of Wisconsin, for a 1978 conference on development and its impact in the Amazon Basin.

The Council of the Americas (CA), founded in 1958, is a U.S. business association supported by some 204 member

corporations and 11 organizational members, all of which have major commitments in Latin America. Among CA member companies with cattle interests in the region are King Ranch, Inc.; SIFCO Industries, Inc.; Gulf + Western Industries, Inc.; United Brands Co.; Caterpillar Americas Co.; and Standard Brands, Inc. Other member companies thought by a CA spokesman to have cattle interests in Latin America are General Foods Corp.; ConAgra; CPC International, Inc.; and Castle and Cooke, Inc., one of whose subsidiaries is Standard Fruit.

The Chamber of Commerce of the United States is the world's largest business federation. Its members include more than 3800 local and state chambers of commerce and trade and professional associations, 79,000 business firms, and American chambers of commerce (AmChams) in 40 countries.

The International Division of the Chamber of Commerce of the U.S., which promotes policies favorable to trade, investment and economic development in member nations, includes cattle-related activities among its concerns.

Included among the organizations in Latin America are the Association of American Chambers of Commerce in Latin America (AACCLA), established in 1967 and representing over 17,000 corporate and AmCham members in 15 Latin American nations. Those countries with areas of tropical forests in which AmChams operate are Bolivia, Brazil,

Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Peru, Venezuela and, unofficially, Panama.

The Brazil - U.S. Business Council was created in 1976 to promote trade and investment between the two countries. The Council's Brazilian members include the National Conference of Industry, the National Confederation of Commerce, the Brazilian Exporters Association, and the Confederation of Commercial Associations of Brazil. The U.S. section is headed by the chairman of the board of the Goodyear Tire and Rubber Company.

The Export Policy Task Force of the Chamber of Commerce of the U.S. has petitioned the government to raise the Export-Import Bank's loan authorization from \$4.1 billion set for fiscal 1980 to between \$6 and \$9 billion. Critics charge that the additional funds requested, to be used for increasing U.S. exports to developing countries, would require the direct financial support of taxpayers.

The International Chamber of Commerce (ICC), with headquarters in Paris, was founded in 1919 and is composed of the National Councils of 52 countries. Member countries encompassed by this study include Brazil, Colombia, Mexico and Venezuela. The ICC represents the worldwide interests of multinational enterprises to governments and international agencies.

The United States Council is the largest of the ICC's

national organizations. It not only represents ICC and U.S. business interests before this country's government agencies and international organizations, but carries the position of U.S. international business to the ICC. The U.S. Council's Executive Committee members include representatives of Ford Motor Company, Exxon Corporation, Citibank, General Motors Corporation, Philadelphia National Bank, CPC International, General Electric Company, and 15 other U.S. companies with international concerns.

#### 11. U.S. and Transnational Business

United States business activities in Latin America predate 1870, by which time U.S. companies had dealings in every country of the region although the profits were small and the total amount invested was negligible. By 1880, however, the value of direct investments totaled some \$100 million. This amount tripled by 1897 and grew to \$1.7 billion in 1914, more than the regional investments of France, with \$1.2 billion, or Germany with \$0.9 billion. But Great Britain was still the dominant economic power in Latin America in 1914 with investments totaling \$3.7 billion.

As the U.S. business economy matured, increasing investments were found in Latin America. The Depression that began in 1929 forced a decline in investments, but by 1936 capital began to flow again into commodities like minerals and petroleum; tropical crops like coffee and bananas; and the railways largely developed by Britain,

which had lost its economic superiority to the United States before the Depression.

In order to increase their profits, U.S. companies steadily increased their purchase of lands from Latin American governments. One of the oldest U.S. companies with cattle operations in Latin America is United Brands Company of Boston, probably better known by its former name, the United Fruit Company (UFCo).

Having sold Jamaican bananas in the U.S. since the early 1870s, United Fruit began its presence in Latin America in 1904 with a contract from the Guatemalan government to Minor Keith's Guatemalan Railway Company for the completion of the railroad between Guatemala City and Puerto Barrios, the country's Atlantic port. In payment Keith and his partners, the two owners of United Fruit, received investment incentives, free land along the railroad's route, and a lease to operate the railway for 99 years.

The fortunes of United Fruit and the newly-titled International Railways of Central America (Keith also had rail and banana interests in Costa Rica and El Salvador) continued to merge until their relationship was formalized in 1933. Over the years additional lands were purchased in Guatemala, Honduras and Panama. As the company began to diversify its investments, several margarine and oil companies in Costa Rica, Honduras and Nicaragua were purchased or established. Investments continued to expand, and in 1967

UFCo bought Clemente Jacques, Mexico's most diversified food company. During this period UFCo also purchased Polymer S.A., a plastic packaging firm operating in Costa Rica and Panama.

United Fruit was not without its competitors. While U.S. private investment in Latin America was relatively slow until the end of World War Two, growth since 1946 has been meteoric. Companies like United Fruit often found themselves competing with other U.S. and non-Latin investors in the region. Latin-owned companies, often unable to compete with foreign capital and markets generally dominated by their U.S. competition, were either purchased by foreign interests or remained small, concentrating on domestic markets.

Despite Latin America's period of industrialization between 1929 and 1945 when increased taxes, exchange control measures, the establishment of state companies, and some expropriations were effected on foreign holdings, the investment climate in Latin America's raw materials and manufacturing potential remained attractive. The establishment of the Export-Import Bank of the U.S. in 1934 and the subsequent growth of other international and private banking institutions and trade associations has continued to bolster private sector interests in Latin America.

The Ninth Pan American Conference in 1948 reorganized the Pan American System, paving the way for larger U.S. business involvement in the region. In the four years up

to 1950, some 600 new business enterprises went to Latin America, bringing the total of foreign companies in the region to some 2000. But during the 1950s three hundred corporations remained dominant with control over 90 percent of U.S. investments, despite growing competition from Europe and Japan.

United Fruit, like other foreign-based companies, has expanded its interests to other Latin American markets and divested itself of some holdings. In 1976, UFCo-United Brands sold its agricultural lands to the Panamanian government for \$151,000 but retained its structures, irrigation canals, railroad holdings and other facilities. The company earlier in 1972 sold some of its Guatemalan land holdings to Del Monte Corporation which also has extensive holdings in Ecuador, Costa Rica, Mexico and Venezuela. In 1975 United Brands' tax exemptions and operating concessions were cancelled by the government of Honduras. In December 1976 the Honduras government implemented a section of its Agrarian Reform Law in order to acquire lands owned by a United Brands subsidiary.

Despite occasional expropriations of their investments and rising operating costs, foreign investors continue to expand and diversify their Latin American holdings. The increasing demand for beef in the developed countries has led to the establishment of cattle ranching and processing operations by numerous foreign companies usually identified

with other interests. Operating out of San Pedro Sula near the Atlantic coast, United Brands raises Brahman and Santa Gertrudis cattle. In 1979 UFCo-United Brands completed construction of an agricultural research laboratory at La Lima in northern Honduras.

In 1978 United Brands subsidiary, John Morrell and Company, a Chicago-based meat packing concern, purchased Krey Packing Company of St. Louis and Luer Packing Company of Los Angeles. Morrell and the two recently acquired companies are major producers of processed meat products in the United States. United Brands meat operations involve slaughtering, processing and distribution of meat in fresh, frozen and processed forms.

Financial reports issued by United Brands do not distinguish returns from Latin American beef or agricultural production from totals which include North American, European, and "other" regions. A United Brands report for the six-month period ending June 30, 1978 discloses only the following about the company's combined meat operations:

Meat (All Regions)

Net sales:	(in \$thousands)
To unaffiliated customers	\$879,873
Intersegment	3,088
Operating income	3,908
Identifiable assets at 6/30/78	186,854
Depreciation	3,251
Capital Expenditures	3,030

The same report showed rising net sales of meat between 1974 and 1978 as follows:

<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
\$1,563,611	\$1,332,549	\$1,263,351	\$1,216,808	\$1,181,665

And similarly, totals given by region (e.g., North America, Central and South America, Europe, Other) are not further divided by product. The report shows only that for the six-month fiscal period ended June 30, 1978, net sales for Central and South America were some \$45 million to unaffiliated customers and \$128 million "between geographic area," totaling \$174 million for the region. For the same period, net sales in North America were \$1,170 million to unaffiliated customers and \$29.9 million "between geographic areas," totaling \$1.2 billion.

Bearing in mind United Brands' extensive meat interests throughout the world, it is nevertheless interesting to note that total sales of meat were \$880 million in July 1978, almost double those of "bananas and related products," totaling \$470 million for the same period. Certainly, without a deeper investigation into any company's Latin American investments, one cannot determine an accurate estimate of the income derived from specific interests in each host country.

Following the trends of the "baby boom" and growing personal incomes in the 1950s, the demand for beef began to rise steadily in the United States, Europe and Japan. U.S. beef imports came from Australia, New Zealand, Latin America,

Canada and Ireland, in order of importance. Between 1958 and 1979 U.S. beef imports quadrupled. We have become, according to a meat importers association, "The Hamburger Society."

Many U.S. fast food companies have exported franchises to Latin American countries. In 1979 McDonald's Corporation of Oak Brook, Illinois was serving "Big Macs" in franchises in Brazil, Costa Rica, El Salvador, Honduras, Guatemala, Nicaragua and Panama. (In Panama City, McDonald's walls are decorated with molas, a traditional Cuna Indian style of art; these colorful appliques bear the legend, "McDonald's.") Other U.S. franchises like Dairy Queen and "Kentucky" Fried Chicken, both of which promote hamburgers, are also proliferating in Latin America. In many cities throughout Central and South America local varieties of the same fast food fare are appearing.

Indications are that the demand for beef will continue to rise throughout the world. As occurred in the past, governments, private business, and individuals will make efforts to meet those anticipated demands. One recalls that automobile manufacturer Henry Ford sought to establish rubber plantations for tires along Brazil's Tapajós River in the Central Amazon during the 1930s. Within a decade, South American leaf blight, Dothidella ulei, attacked the rubber trees and caused the project to collapse. Unlike the natural vegetation of the tropical forest, with individual species widely scattered and thereby less likely to

contract diseases transmitted from their own kind, monocultures of cultivated crops usually depend on artificial means of protection, such as pesticides and herbicides. One might expect similar consequences to occur with cattle ranching.

The Jari Florestal e Agropecuária Ltda. (JARI), (Jari Forestry and Agricultural Enterprises) is the most publicized and controversial Amazonian development project since the failure of Ford's venture. Situated on 1.6 million hectares -- 6,175 square miles -- of forest land in the Brazilian states of Para and Amapa, JARI was established by Daniel K. Ludwig of National Bulk Carriers, New York. Having purchased the land in 1967 from a Brazilian consortium for \$3 million, Ludwig has systematically cleared the area's diverse tropical forest and planted monocultures of Gmelina arborea, an Asian tree, and Pinus caribaea, or Honduras pine. In addition to the tree plantations to be used as wood fiber in the manufacture of paper products, JARI interests also include rice, kaolin, an industrial center and port facility on the Jari River, and cattle production. Creole and water buffalo are raised near São Raimundo in the southern part of Jari. Beef, milk and other dairy products are derived from this operation for local consumption.

It has been reported that JARI has been cutting and burning virgin forest at an average of 5000 hectares --

12,500 acres -- per year. Despite initial problems with soil compaction from heavy machinery and plantation establishment, JARI has recently been praised by scientists and others who have visited the operation. Many traditional problems, such as diseases, are apparently being solved by applying natural biological controls rather than "traditional" pesticides and herbicides.

While its ultimate success or failure is of major importance, JARI is not a large-scale cattle operation like the 720 square kilometer Brescan-Swift-Armour-King Ranch, the 140,000 acre Volkswagen concession, or any of hundreds of other cattle ranches in the Brazilian Amazon.

A scientist who worked on cattle ranches in the humid tropics of Brazil estimated that by 1977 approximately 85 percent of the operations near Paragominas on the Belem-Brasilia highway had gone out of business due to soil failures, herd losses, and other management problems. But whether the company is indigenous or foreign, losses seldom involve substantial capital because of generous government tax incentives and the fact that cattle ranching is a relatively inexpensive enterprise. Volkswagen outdistances other foreign cattle investments with \$35 million; the next dozen largest ranches total \$21 million, and the Brescan-Swift-Armour-King Ranch has an investment of \$6 million. A livestock specialist said that relatively low cattle productivity in the tropics is offset by the low capital investment. Land has been purchased for as little as \$10

to \$15 per hectare while one head of beef cattle costs the rancher about \$14 per year to maintain.

Over the years numerous authorities have collected information on U.S. and other foreign companies with investments in Latin America. As has already been shown in the case of United Brands, the interests of multifaceted corporations are not readily apparent. Assumptions are easily made, and once they become part of the "folklore," they are as tenacious as weeds. McDonald's Corporation, which claims to use 100 percent domestic beef for its U.S. production, has long been charged with using imported Central American beef. More than one respected conservationist has alleged that McDonald's operates a cattle ranch in Brazil. But the corporation denies both charges. McDonald's franchises, wherever they operate in the world, purchase the beef for their hamburgers from local suppliers, according to a corporation spokesman.

Material reviewed and persons consulted relate that the following U.S. and other foreign interests are among the thousands of companies and individuals engaged in cattle-related activities in the tropical forest areas of Latin America. This rudimentary list also includes financial and technical support given by international banking institutions and assistance agencies. Few private banks can be listed with certainty; doubtless many more provide financing for cattle projects. Also not shown are

the rural development and colonization projects with cattle components promoted by individual Latin American governments which may receive foreign assistance.

It should be noted that the corporations listed below generally control dozens of subsidiaries in one or more countries, with interests ranging from financing and ranching to processing and marketing.

<u>Interest</u>	<u>Country</u>	<u>Operation</u>
ADELA Investment Co. (Belgium)	various countries	finance ranching processing trade
Agrodinamica Holding Co. (ADELA Investment Co. 40%; Latin nationals 60%) (Costa Rica)	various countries	finance ranching processing trade
Albertini International (US)	Honduras	processing
Armour (US)	Brazil	ranching
Barclays Bank (Great Britain)	Brazil	finance
BCN (Great Britain)	Brazil	ranching
Blue Spruce International (US)	Brazil	herbicide sales
Brascan (Canada)	Brazil	finance ranching
Brazilian Land Cattle Packing (US)	Brazil	ranching processing
Brazilian Meat Co. (US)	Brazil	ranching processing
John W.H. deBuys Roessingh (Switzerland)	Brazil	ranching
CARNIC (formerly Somoza)	Nicaragua	processing

Castle and Cooke (US)	various countries	processing
Caterpillar (US)	Brazil	heavy machinery
Chamber of Commerce of the U.S.	various countries	investment and trade development
Commerzbank A.G. (West Germany)	various countries	finance
Council of the Americas (US) (204 corporate members)	various countries	finance ranching processing
Deltec International (US)	various countries	finance ranching processing
Dow Chemical (US)	Brazil	herbicide sales
Ester Research Instruments (Panama)	Brazil	ranching
Export-Import Bank of the U.S.	various countries	finance
Gesurus Reemtsma (West Germany)	Brazil	ranching
Heublein (US)	Brazil	ranching
Iamooka Realty (Japan)	Brazil	ranching
Inter-American Development Bank	various countries	finance technical support
International Chamber of Commerce	various countries	investment and trade development
International Foods (Albertini International) (US)	Honduras	processing
International Packers (Deltec) (US)	Brazil	processing
International Research (US)	Brazil	herbicide sales
Kanamatsu Gosha (Japan)	Brazil	processing
King Ranch (US)	Brazil	ranching

Latin American Agribusiness Development Corp. (Panama-US)	various countries	finance
Le Tourneau (US)	Peru	heavy machinery ranching
Liquigas (Italy)	Brazil	ranching
Marubeni (Japan)	Brazil	ranching
Georg Markhof (Austria)	Brazil	ranching
Massey-Ferguson (US)	Brazil	heavy machinery
McDonald's (US)	various countries	franchises
Mercedes Benz (West Germany)	Brazil	ranching
Mitsui (Japan)	Brazil	ranching
National Bulk Carriers (US)	Brazil	ranching
Nichimen and Grupo Bradesco (Japan)	Brazil	ranching
Ogden (US)	Paraguay	ranching processing trade
Organization of American States	various countries	finance technical support
Overseas Private Investment Corp. (US)	various countries	finance
Peace Corps (US)	various countries	technical support
Ralston Purina (US)	various countries	livestock feed
seminole Steel Erectors (US)	Belize	ranching
SIFCO Industries (US)	Brazil	ranching
Standard Brands (US)	Honduras	ranching
Swift (US)	Brazil	ranching

Tsuzuki Spinning (Japan)	Brazil	ranching
Twin Agricultural and Industrial Developers (US)	Brazil	ranching
United Brands (US)	Honduras	ranching processing
United States Agency for International Development	various countries	finance technical support
United States Department of Agriculture	various countries	livestock and trade development
Volkswagen (West Germany)	Brazil	ranching
World Bank	various countries	finance technical support
W.R. Grace	various countries	livestock develop- ment

## 12. Latin American Interests

Each Latin American government has a ministry of agriculture which in many countries is called the "Ministerio de Agricultura y Ganaderia," literally the "Ministry of Agriculture and Cattle Ranching," which represents the nation's beef and dairy cattle interests. Certain other federal agencies, like those which implement colonization projects in the tropical forest areas of their countries, also promote cattle ranching although on a scale smaller than ministries of agriculture.

Several Latin American governments maintain research agencies which work with cattle and pasture management. These are in addition to the private research organizations discussed earlier, many of which receive some support

from the host countries and provide technical support in return. In Brazil the government agencies include: the Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), the Brazilian Agricultural Research Corporation; the Conselho Nacional de Desenvolvimento da Pecuária (CONDEPE), the National Council for Livestock Development; the Instituto de Pesquisas Agropecuária da Amazônia Ocidental (IPEAAOC), the Institute for Agricultural and Cattle Research of Western Amazonia; and the Instituto de Pesquisas e Experimentação Agropecuaria do Norte (IPEAN), the Northern Institute for Agricultural and Cattle Research and Trials.

Agencies in other countries include: the Instituto Nacional de Investigaciones Agro Pecuarías (INIAP), the National Institute of Agriculture and Animal Husbandry in Ecuador; the Instituto de Investigaciones Científicas y Técnicas (INCITEC), the Institute of Scientific and Technical Research in Colombia; the Instituto Agrario de Nicaragua (IAN), the Agricultural Institute of Nicaragua; the Instituto Nacional Agrario (INA), the National Institute of Agriculture in Honduras; the Instituto de Ciencia y Tecnologia Agrícolas (ICTA), the Institute of Agricultural Science and Technology in Guatemala; the Science Center for Investigation of the Southeast in Mexico; and the Central Farm Experimental Station in Belize.

Of the 18 nations encompassed by this study, ten export beef to the United States as well as to other

countries. According to U.S. Department of Agriculture meat import statistics, the ten countries, in descending order of importance, are Mexico<sup>1</sup>, Costa Rica, Nicaragua, Honduras, Guatemala, Brazil, El Salvador, Panama, Paraguay and Belize. Of the remaining countries, Bolivia, Colombia, Ecuador and Peru continue to promote cattle ranching in their lowland tropics, while livestock development activities in the forests of French Guiana, Peru and Venezuela are minimal to non-existent.

Recognizing the economic advantages of a vigorous beef industry, several of the governments included in this study provide a highly favorable investment climate for national and foreign interests seeking to develop cattle ranching in their tropical forest areas. Other nations say that they want to increase beef production for domestic consumption rather than for export.

While investments by foreign interests continue to increase in the region, it should be noted that the majority of the cattle ranching operations in Latin America's humid tropics are operated by native individuals, companies and consortiums.

Agrodinamica Holding Company is the largest Central American exporter of beef and a major ranch and agribusiness

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1. In January 1979 Mexico voluntarily ceased exporting beef and live cattle to the U.S. because of the detection of hydrocarbons from pesticides found in meat samples.

developer and operator. Incorporated in 1971, the company was founded by Alejandro Orfila, currently Secretary General of the Organization of American States, who at that time represented the ADELA Investment Company in the United States. ADELA, as noted earlier, is a multinational investment company which operates entirely in Latin America. ADELA was one of the companies which helped found the Latin American Agribusiness Development Corporation.

During the early 1970s Agrodinamica acquisitions in Costa Rica, Honduras, Nicaragua and Belize included cattle ranches, slaughterhouses, contracts for cattle from other ranches, a meat retailing chain, a tannery, and rice and sorghum production and milling operations. The company also operates United Beef Packers, a Miami-based importer and wholesaler of beef from Central and South America and Australia.

While Agrodinamica is the largest Latin American company involved in cattle ranching, meat processing, and local and foreign beef sales, there are thousands of other ranching operations throughout the region's humid tropics. Recent reports maintain that in Brazil's state of Para there are more than 17,000 cattle ranches, and that in the whole of the Amazon Basin there may be as many as 100,000 ranches. Although some of these operations are managed on the savannas located in the northern and southern extremities of the basin and on the Varzea -- the annually

inundated areas adjacent to the region's ubiquitous river systems -- the vast majority of the cattle ranches established in the Amazon have occurred by converting forests to pasture lands.

Like Brazil, other countries have obtained international assistance to engineer roads into their tropical forests in order to facilitate development. Colonists, logging and mining companies, and cattle ranchers, lured by necessity or incentive, are thus able to reach new lands on which to pursue their interests.

A growing public awareness of the problems associated with deforestation and development -- limited productivity, loss of precious natural resources, the extinction of aboriginal peoples -- is creating a new conservation ethic in many countries. With the debate led by scientists and the media, the destruction of tropical forests and other natural areas has become an issue to be discussed. National and international conservation organizations have begun to help shape more national development policies. In many countries, active individuals and groups monitor and publicize environmental affairs. It is even reported that in Brazil an association of fazendeiros -- cattlemen -- was formed to see that pastures were not over grazed and soil structures destroyed. Despite the growing environmental awareness, international trade debts, beef's importance as a foreign exchange earner, and explosive

population growth continue to make the development of tropical forests an attractive economic possibility.

It is difficult to determine just how rapidly the tropical forests of Central and South America are being destroyed. Global rates of 50 acres lost every minute and 27 million acres cleared or altered annually are approximate, based on comparisons between what is known in the present and of the past. What is known of the future -- staggering population rates and increasing economic problems -- is ominous.

Because cattle ranching is reported to be the major cause of tropical deforestation in Latin America, the ever-increasing demand for beef domestically and internationally linked with the destruction of valuable national resources provide sufficient causes for serious concern. Using ERTS satellite data, the Brazilian government has determined that ten percent of its portion of the Amazon Basin has already been deforested, largely in the last decade. At the beginning of 1980 it was estimated that Central America had lost about 300,000 hectares of its tropical forests, 60,000 hectares of which was in Costa Rica. For Colombia, statistics show a loss of almost 500,000 hectares.

Even a cursory look at the 18 countries reveals that cattle ranching and other activities continue to encroach upon remaining areas of tropical forest.

Mexico's last important tract of tropical forest lies in the southeastern portion of the state of Chiapas. Known by the name of the Maya Indian tribe who lives there, the Lacandona forest is subject to pressures from colonists, timber and mining companies and small-scale cattle ranchers. In an effort to preserve some 300,000 hectares of the remaining forest, Mexico has designated the Montes Azules Reserve a protected area under the United Nations Man in the Biosphere Programme.

In Guatemala, most areas of tropical forests located outside the northeastern department of Peten have been cleared for cattle ranching and crops. FYDEP (Fomento y Desarrollo del Petén), the government agency charged with developing the region, recognizes the environmental limitations presented by the region's soils, but nonetheless promotes cattle ranching, colonization and other activities.

Belize may be an anomaly in that its soils are reported to be of better quality than those of adjacent Petén in Guatemala. Also, there is virtually no pressure on the country's tropical forests because Belize has a relatively small population and is agriculturally self-sufficient. Information suggests that cattle ranching, while generally successful, is claiming new areas of the country's tropical forests. Belize's beef exports rose dramatically from 60,000 pounds in 1978 to 132,000 pounds in 1979.

In Honduras, the push to exploit the tropical

forests for timber by the government's Honduran Forestry Development Corporation (COHDEFOR) has been joined by national and foreign cattle interests seeking new pasture lands. Slaughterhouses and export facilities at the Caribbean ports of Tela and Puerto Cortes, and new roads from the interior have enabled Honduras to double its beef exports since 1972.

El Salvador, the most densely populated country of Latin America, has less than two percent of its land remaining in forest cover. Despite serious problems with soil depletion and erosion caused by widespread deforestation, intensive farming and poor land management, El Salvador has been exporting beef to the United States since 1972.

Nicaragua has been a major Central American beef exporter for more than 20 years. Despite a costly civil war and the collapse of the government in mid-1979, Nicaraguan beef exports to the United States in 1979 exceeded those of the previous year by 3.2 million pounds. Before his fall, former president Anastasio Somoza had extensive holdings in all aspects of Nicaragua's cattle industry. Until 1979, the former government had promoted development activities in the country's eastern department of Zelaya. What policies the new government will adopt toward the region may depend on the recovery of Nicaragua's economy.

Costa Rica is rivaled only by Nicaragua's importance as a Central American beef exporter. Costa Rican beef shipments to the United States have soared from 15.3 million pounds in 1960 to 66.9 million pounds in 1979. The heart of Costa Rica's cattle industry is in the northern province of Guanacaste, an area once largely forested and now subject to serious erosion problems. In recent years increasing areas of tropical forest have been cleared for cattle ranching in the provinces of Alajuela and Limon. In keeping with the previous government's activist conservation posture, the Carazo administration had vowed to reverse the trend of increasing tropical deforestation in Costa Rica.

Panama's main cattle ranching area lies west of the Canal on the rolling savannas of Chiriquí Province. However, with the Inter-American Highway's rudimentary penetration of the tropical forests as far east of the Canal as Yaviza in central Darien, colonists and business interests have begun to develop new wilderness areas. Small-scale cattle ranching is being promoted in the region by both the government and by private companies for the domestic and export markets.

In Colombia cattle ranching remains an important component of rural development and colonization projects. While spontaneous colonization into tropical forest areas has been slow, the Colombian Institute for Agrarian Reform has launched colonization projects in the tropical forest areas of the southeastern departments of Caquetá, Vaupés and Meta.

Venezuela's tropical forests of the southern Orinoco Basin remain largely undisturbed since most of the country's population is centered in the industrial northern areas. With an economy based on petroleum, agricultural production is so low that Venezuela must import almost all of its food needs. A large cattle ranch located in the central llanos region, owned by the late Nelson Rockefeller, was recently sold to a consortium of Venezuelan businessmen.

Guyana's total forest area covers about 83 percent

of the nation's territory. While cattle ranching and other development activities have been minimal to date, in 1978 the Inter-American Development Bank approved a \$6 million loan to Guyana "to open up the country's unexploited hinterland to future economic development."

Surinam, a territory of the Netherlands, contains relatively undisturbed tropical forests in its interior. Although roads are being constructed, most of the country's agricultural activity is restricted to the alluvial coastal zone. Cattle ranching in Surinam provides meat and dairy products for domestic demands.

French Guiana, a department of France, has barely exploited the 8 million hectares of its interior tropical forests.

Brazil's ambition to become a major world exporter of beef has led the government to offer generous incentives to national and foreign-owned cattle operations in the Amazon Basin. Since 1966 the government's Superintendency for Amazonian Development (SUDAM) has approved some 355 cattle projects involving about 8 million hectares of land and investments of more than \$1 billion. The Brazilian Institute of Forestry Development (IBDF) has reported that in the years 1966 to 1975 cattle ranching was responsible for 38 percent of all deforestation, followed by colonization with 30.7 percent, highway construction with 26.8 percent, and timber exploitation with 4.4 percent. While Brazil's

total beef production rose some 50 percent between 1966 and 1975, it is reported that most of the beef produced in the Amazon Basin was used domestically.

Paraguay's economy is based on cattle ranching and on products derived from the tropical forests of the country's eastern Parana Plateau. Cattle ranching occurs mainly in the Chaco, an area of scrub forest comprising the western half of the country. Cattle reportedly occupy more than one-third of Paraguay's territory. The country's largest producer and exporter of beef is International Products Corporation, a subsidiary of the U.S.-based Ogden Corporation.

Bolivia's tropical forests, which encompass some 70 percent of the country's total area, stretch from the northern frontier with Brazil through the eastern section of the country to its borders with Paraguay and Argentina. Small-scale cattle ranching activities in the northern department of Beni have reportedly become more numerous in recent years due to government colonization projects. Bolivia's eastern tropical lowlands have been targeted for the establishment of food processing industries to utilize the region's sugar, maize and other vegetables.

Peru's tropical forests begin on the eastern slopes of the Andes Mountains and range north to Ecuador and Colombia and east to Brazil and northern Bolivia. While logging activities, petroleum operations and slash-and-burn agriculture have each played a part in the

exploitation of the country's humid tropics, cattle ranching has largely been confined to a few colonization projects and small-scale private enterprises. Because Peru must import beef for domestic consumption, government officials have repeatedly promoted cattle ranching in tropical forest areas. To date, However, livestock development has generally been either unsuccessful, due to poor soils, or unprofitable because of high operating costs and low beef prices. The Tingo Maria-Tocache colonization project in Peru's central forest area has repeatedly tried cattle, without success, and in the mid-1970s the Swiss government funded a cattle project near Pucallpa, again at tremendous cost and herd mortality. Peru's only "success story" comes from the Palcazu-Pichis area where private ranching operations annually airlift about 1700 cattle to market in Lima. The U.S. Agency for International Development has recently loaned \$19 million to Peru for highway construction, mechanized forest clearing and agricultural development in the Tarapoto area.

Ecuador, one of nine South American countries with territory encompassed by the Amazon Basin, has tropical forests to the east of its Andes Mountains. Spontaneous colonization began to occur after oil companies engineered roads into the country's northern areas of tropical forests. In recent years the government began to implement colonization projects in the Lago Agrio-Coca

region, but crop failures have led farmers to try cattle. An anthropologist has reported that Jivaro Indians in Ecuador's southern tropical forests have received grants from the U.S.-based Inter-American Foundation to raise small herds of Brahman cattle. Ecuador also has areas of tropical forests on its northern Pacific coast in the department of Esmeraldas. Although chiefly a banana producing region, it is reported that cattle ranching is increasing in the area around Santo Domingo de los Colorados.

## PART IV

### Latin American Beef Exports

#### 1. Production and Marketing

Beef production in Latin American countries with areas of tropical forests has risen dramatically and steadily since the mid-1950s. Although the domestic demand for beef in Latin America has increased with the growth of each nation's population, the main incentive for the rise in beef production has been lucrative foreign markets in the United States, Western Europe and Japan. Neither the imposition of a meat import quota beginning in 1965 by tropical Latin America's largest market, the U.S., nor a three-year slump in the world cattle market from 1973-76 have long diminished the growth of the region's beef industries. Projections issued by a variety of agencies, including the Food and Agricultural Organization of the United Nations and the U.S. Department of Agriculture, indicate that the increasing world demand for beef will continue to cause production to rise and trade to increase through the end of the century.

Beef production in tropical Latin America has generally doubled in the last two decades while production in the temperate countries of Argentina and Chile has grown only 36 and 29 percent respectively. In Uruguay production has fallen -.01 percent since 1960. Several tropical

countries, including Costa Rica, Guatemala, Honduras and Nicaragua, have more than doubled beef production and tripled beef exports since 1961. Conversely, beef imports by the industrial nations of the West have risen sharply over the last 20 years.

Despite the increases in beef production in tropical Latin America during this period, some authorities show that per capita consumption of beef in the region has generally declined between 1960-74 by 13.5 percent while the region's population grew at a rate of 2.9 percent. Of the major beef producing countries, the percentages by which per capita consumption has fallen are: Bolivia, 15.4; Colombia, 19.0; Costa Rica, 41.2; El Salvador, 37.5; Guatemala, 12.5; Mexico, 22.2; Nicaragua, 12.5; Paraguay, 44.7; and Peru, 12.5. Only Ecuador, Panama and Venezuela showed increases in domestic per capita beef consumption while Brazil, Honduras and Guyana showed no change. Information for Belize, French Guiana and Surinam was not available.<sup>1</sup>

Other sources, in agreement that per capita consumption of beef has declined due to increasing exports and rising populations, note that countries like Costa

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1. Sources: Valdés and Nores in "Growth Potential of the Beef Sector in Latin America - Survey of Issues and Policies," p. 26, and Inter-American Development Bank, Economic and Social Progress in Latin America, p. 143. See Appendix Five.

Rica, Honduras and Nicaragua have, over the last decade, consistently exported 50 or more percent of their total beef production. As a result of increasing domestic scarcity, the cost of beef in the exporting countries continues to rise beyond the purchasing power of the majority of local populations. As long ago as 1969, the Foreign Agricultural Service of the U.S. Department of Agriculture recognized that "the considerable growth in meat exports in recent years has been at the expense of domestic beef consumption."

The following table, "Beef and Veal Trends in Selected Countries and Regions," shows and compares production, consumption, imports and exports in twelve of the major tropical Latin American beef producing nations as well as their major markets. Other major producing and consuming regions are shown for comparison. Although Belize and Paraguay are beef exporting nations, no data on production and consumption were available. U.S. imports from Paraguay and Belize will be shown later.

Beef and Veal Trends in Selected Countries and Regions  
(Thousands of metric tons, by carcass weight)

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u> <sup>1</sup>	<u>1979</u> <sup>2</sup>	
BRAZIL	1,369.0	1,495.0	1,845.0	2,150.0	2,100.0	Production <sup>3</sup>
	1,333.5	1,434.5	1,721.9	2,077.4	2,073.0	Consumption <sup>4</sup>
	---	---	.6	28.8	105.0	Imports
	35.5	62.5	123.7	101.4	132.0	Exports
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COLOMBIA	314.7	374.0	425.4	470.2	598.4	Production
	314.7	396.4	417.6	452.4	579.2	Consumption
	---	---	---	0	---	Imports
	0	4.6	7.9	17.8	19.2	Exports

1. 1975 figures reflect market slump of 1973-76.

2. Preliminary statistics.

3. Each category's weight given in thousands of metric tons by carcass weight equivalent basis (includes bones and meat) rather than product weight (boneless beef).

4. Because consumption is usually calculated as a residual in country livestock production statistics, the consumption figures can only approximate per capita human consumption when divided by population figures. It should be noted that despite increases in beef production, per capita consumption of beef has actually been declining due to increasing exports and rising population growth. SOURCES: "Livestock Statistics in Selected Countries 1960-1975" (September 1978) and "World Livestock Numbers, Slaughter, Red Meat Production, Consumption and Trade 1976-80" (February 1980), both Foreign Agricultural Service, U.S. Department of Agriculture.

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1979</u>	
COSTA RICA	21.8	26.9	46.3	59.8	81.4	Production
	14.6	20.0	20.9	20.1	33.6	Consumption
	---	---	.3	.1	.1	Imports
	7.1	6.9	25.7	39.8	47.9	Exports
<hr/>						
ECUADOR	36.5	39.9	44.5	106.9	89.3	Production
	36.5	39.9	44.6	106.9	86.8	Consumption
	---	---	---	---	---	Imports
	---	---	---	---	---	Exports
<hr/>						
EL SALVADOR	20.7	21.8	20.3	26.4	37.6	Production
	20.7	21.8	20.5	22.9	31.1	Consumption
	---	.1	.2	---	.5	Imports
	0	.1	---	3.5	7.7	Exports
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GUATEMALA	35.6	42.3	57.1	63.4	96.4	Production
	34.0	34.6	40.1	42.1	73.8	Consumption
	---	---	---	.1	---	Imports
	1.5	7.7	16.9	21.4	22.6	Exports

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1979</u>	
HONDURAS	17.6	19.5	30.0	41.4	53.0	Production
	14.4	12.2	13.3	18.6	21.4	Consumption
	.1	.1	.1	0	---	Imports
	3.3	7.3	16.8	22.8	31.7	Exports
MEXICO	375.0	463.0	590.0	889.0	1,037.0	Production
	339.3	432.2	538.8	875.4	1,033.1	Consumption
	---	.2	.9	.4	.9	Imports
	35.7	31.0	52.1	14.0	4.8	Exports
NICARAGUA	27.6	32.3	62.6	60.8	98.4	Production
	19.3	19.6	29.6	30.6	63.5	Consumption
	0	---	0	0	---	Imports
	8.3	12.7	33.0	29.6	43.8	Exports
PANAMA	21.6	27.4	35.3	45.3	41.0	Production
	21.6	27.4	32.7	44.1	39.6	Consumption
	.1	.1	.3	.4	---	Imports
	.1	---	2.9	1.6	1.4	Exports

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1979</u>	
PERU	73.9	91.5	109.3	84.6	81.0	Production
	76.5	98.0	119.7	90.6	81.1	Consumption
	2.7	6.5	10.4	6.8	---	Imports
	0	0	0	0	---	Exports
<hr/>						
VENEZUELA	136.5	162.5	200.9	250.2	291.6	Production
	137.2	162.5	200.9	256.7	309.7	Consumption
	---	---	---	---	18.5	Imports
	---	---	---	---	.4	Exports
<hr/>						
UNITED STATES	7,425.8	8,957.2	10,103.0	11,271.4	9,932.0	Production
	7,867.7	9,386.3	10,915.9	12,080.5	10,996.9	Consumption
	470.4	427.3	823.7	808.3	1,117.2	Imports
	16.3	24.5	18.0	24.2	75.0	Exports
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CANADA	655.3	867.5	850.6	1,049.2	955.0	Production
	651.1	829.4	871.9	1,113.1	989.0	Consumption
	14.1	8.4	77.2	86.6	80.0	Imports
	17.0	46.4	53.9	20.3	50.0	Exports

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1979</u>	
JAPAN	142.7	216.3	278.0	352.9	405.0	Production
	150.3	231.6	311.2	411.0	564.1	Consumption
	7.7	15.4	33.2	64.2	175.0	Imports
	.1	.1	---	---	---	Exports
<hr/>						
WESTERN EUROPE	5,599.7	5,613.8	7,051.0	7,933.1	7,900.8	Production
	6,043.6	6,399.3	7,779.1	7,946.7	8,270.7	Consumption
	778.3	1,139.2	1,382.6	1,295.6	1,798.5	Imports
	339.1	337.9	660.1	1,285.4	1,435.8	Exports
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EASTERN EUROPE (with USSR)	4,011.5	4,886.9	6,608.4	8,074.9	8,576.8	Production
	3,736.6	4,821.7	6,648.4	8,184.9	8,587.9	Consumption
	138.0	97.5	232.6	375.7	273.5	Imports
	162.8	162.8	192.6	246.2	257.4	Exports

	<u>1961</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1979</u>	
ARGENTINA	2,145.1	1,995.1	2,624.0	2,438.6	2,990.0	Production
	1,749.0	1,492.9	1,956.0	2,172.6	2,320.0	Consumption
	0	0	0	0	---	Imports
	396.1	502.2	715.0	266.0	670.0	Exports
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OCEANIA (Australia and New Zealand)	969.8	1,240.0	1,395.6	2,204.7	2,284.5	Production
	545.6	664.3	622.7	1,116.3	981.0	Consumption
	0	0	0	0	---	Imports
	412.6	581.2	773.7	1,049.6	1,377.7	Exports
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Beef from Latin America enters the United States in essentially two forms, depending upon its origin, cooked and fresh, chilled or frozen. In South America, where the presence of foot-and-mouth disease (Aftosa) is a serious problem, U.S. law requires that meat from the region be cooked prior to its importation.

As with other aspects of cattle ranching and beef exports and imports, an interesting controversy surrounds the problem of foot-and-mouth disease. U.S. Department of Agriculture authorities maintain that Aftosa is a virus which can survive intact for extensive periods of time, even in frozen meat. But other sources contend that there is no conclusive evidence that hoof-and-mouth disease is transferred through frozen beef. Proponents of this view question whether U.S. and Japanese restrictions on South American beef imports represent legitimate health measures or are simply a form of economic protection for domestic production markets. Cooked South American beef, however, is not subject to the quota restraints imposed by U.S. meat import laws.

South American beef, which accounts for almost all U.S. cooked beef imports, is sold in the United States as corned beef as well as used in a variety of canned and frozen products which include beef.

Because hoof-and-mouth disease is rarely a problem in Middle America, beef from that region may be exported

to the United States in a fresh, chilled or frozen form. Beef from Middle America, which includes Mexico, Belize, the five Central American nations, and Panama, is used in the United States in a wide variety of processed meat products.

Beef exported from any country to the United States must be slaughtered and examined according to U.S. Department of Agriculture specifications. Abattoirs preparing meat for export must be approved and periodically visited by USDA agents. Local meat inspectors examine carcasses for traces of disease or residual chemicals dangerous to man. (See Appendix Two.) Chemical residues from pesticides and herbicides are stored in the fat and muscle of animals that are fed products or graze on pastures that have been exposed to the numerous agricultural sprays in use throughout Latin America. In recent years the quantity of Latin American beef refused by the United States has more than doubled. In 1977, 15 shipments of Guatemalan beef from the country's cotton region were refused entry to the U.S. because they were found to contain traces of DDT. In early 1979, Mexican beef was found to contain excessive levels of chlorinated hydrocarbons, found in DDT and other agricultural chemicals. Beef exports to the U.S. were subsequently suspended by the Mexican government and had not been resumed at the time of this writing. USDA authorities speculate that beef

refused for U.S. import may go to other less restrictive countries or be sold domestically.

According to a USDA spokesman, the types of chemicals found in Latin American and U.S.-produced beef are "generally the same, and exist in the same relatively low levels." Imported beef is randomly inspected upon its arrival in the United States. Of 1,888 samples tested in 1978, 18 were found to contain residues above U.S. government tolerance levels.

In order to be able to trace the source of beef determined to be unsuitable for export, slaughterhouses in Latin America maintain records pertaining to the origins of each live cattle shipment they receive. In an effort to avoid condemnation of their products, cattle ranchers in many tropical countries have begun to use areas free from chemical applications for the production of beef for export. Since most of each country's arable lands are already under cultivation for crops and are subject to spraying with agricultural chemicals, the tropical forests are often the only remaining chemical-free areas.

After the beef is cleared by inspectors in Latin America, it is prepared for export as either cooked or as fresh, chilled or frozen beef, depending upon its region of origin. It is then transported to its destination in the United States, Western Europe or Japan by air, sea and, when possible, overland refrigerated trailer service. Most

Latin American beef comes to the United States because of attractive prices and tariffs and because of its geographic proximity. Indeed, some 90 percent of Central America's beef exports are shipped to the U.S.

## 2. U.S. Beef Imports

The United States imports fresh, chilled or frozen beef from Australia, New Zealand, Central America, Canada, and some countries of Western Europe. Cooked beef is imported by the U.S. largely from South America. Of total annual U.S. beef and veal imports, approximately 85 percent is fresh, chilled or frozen, with the majority of the remaining 15 percent being cooked or processed.

U.S. beef imports have risen by 137 percent over the last 20 years. U.S. Department of Agriculture figures reveal that 7.6 percent of all beef consumed in the United States during the past decade had been imported. In 1979, the United States imported ten percent of the beef which its inhabitants consumed, with 17 percent of all imports coming from tropical Latin America.

Of total beef imports since 1972, 13.5 percent were from Central America<sup>1</sup> and 3.7 percent from tropical South America<sup>2</sup>.

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1. Does not include Mexico whose beef exports are produced in non-tropical forest areas.
  2. Includes Brazil and Paraguay; other tropical South American countries do not export beef to the U.S. Comprehensive statistics for Latin America are shown in tables, "U.S. Imports of Beef and Veal by Country" and "U.S. Imports of Beef and Veal by Region of Origin," pp. 107 and 108.

The Meat Import Act of 1979 (see Appendix Four), and the law which it amended, The Meat Import Act of 1964, were enacted by Congress primarily to protect the U.S. cattle industry. In 1963, the Senate Committee on Finance determined that imported beef accounted for one-half of the total increase in U.S. beef consumption between 1956 and 1963, or between 6.3 and 9.1 percent of all U.S. beef consumption during this period. In the Committee's view, the U.S. cattle industry was "caught in the crossfire of rising production costs and decreased product prices," and that "imported meat has played an important part in creating the distressed market conditions."

The solution to the problem, as intended by the Acts, was to link U.S. import levels with U.S. production. Because U.S. cattle production traditionally follows a ten-year cycle over which beef availability rises and falls, The Meat Import Act of 1979 seeks to make beef imports "counter-cyclical." Thus, when U.S. production is high, imports will be lower, and vice versa.

The Acts, which cover only fresh, chilled and frozen beef, veal, mutton and goat meat, provide for the annual determination of import levels by the U.S. Department of Agriculture. A provision is included under which the President may suspend established meat quotas if domestic demand and production levels warrant such an action. Similarly, if estimated imports reach what is

termed a "trigger level" -- an annually estimated quantity of meat that allows imports to exceed voluntary restraint agreements by ten percent -- the President must invoke quotas to limit further imports.

Voluntary restraint agreements, provided for in the Agricultural Act of 1956, are another means of ensuring that meat imports do not adversely affect the U.S. beef cattle market. Under the Act, the U.S. negotiates agreements with foreign governments to limit their U.S. beef exports to an annually determined level. If a country is unable to meet its yearly level, the unmet balance may be reallocated to one or more other exporting nations.

The Meat Import Act of 1979, which was signed into law by the President on December 31, 1979, raised the total quantity of fresh, chilled and frozen meats which may be imported annually into the United States from the 1964 Act's "adjustable" maximum of 725.4 million pounds to the current "adjustable" 1,204.6 million pounds ("Adjustable" is used to connote the Acts' provisions which allow for modification of annual import quantities based on U.S. market conditions.)

The 1979 Act also established a minimum floor of 1,250 million pounds of meat which may be imported annually into the U.S. The figure appears to have been a compromise since the government wanted to establish a minimum of 1.3 billion pounds per year, while U.S. cattle interests

lobbied for 1.2 billion pounds. According to a U.S. Department of Agriculture spokesman, Congress supported the cattlemen, but President Carter threatened to veto the bill if the import level seemed too low. Meanwhile, the Meat Importers Council of America, an organization representing brokers and manufacturers who deal in imported meats, charged that H.R. 2727 -- which became the Meat Import Act of 1979 -- was virtually written by U.S. cattle interests.

U.S. cattlemen have long considered beef imports to be deleterious to domestic production and prices, a view which was shared by the Senate Committee on Finance in 1963. However, a 1977 study -- conducted by the U.S. International Trade Commission concerning competition in U.S. markets between domestic and foreign live cattle and cattle meat -- concluded that beef imports did not cause "serious injury" to the U.S. cattle industry.

An official of The Meat Importers Council of America, who is also president of the Tupman Thurlow Company -- one of the largest U.S. users of imported beef -- says that because of escalating domestic demands for beef, U.S. prices would skyrocket without imports. A spokesman for the National Cattlemen's Association, which represents U.S. beef interests, noted that the United States is the world's largest producer of beef and could produce all of the country's beef needs, "at a price." If beef prices

were to rise too high, he speculated, American consumers would purchase more pork and poultry.

Price comparisons between imported and domestic beef on the U.S. market reveal that costs are usually very close and tend to rise and fall together. Some seasonality exists, with domestic prices exceeding imported prices during the first few months of the calendar year. However, during the last several months of the year, imported beef prices tend to equal or exceed domestic prices. This is due to the fact that exporting countries generally ship their beef prior to the year's end in order to be certain of reaching their annual import levels, thus causing a short-term scarcity of imports at the end of the calendar year. Another factor is that U.S. cattle slaughter tends to be seasonal, with higher rates of slaughter occurring from October through February. With more domestic beef on the market, prices tend to fall. And, it should be noted, that the U.S. market generally pays more for beef than domestic markets in Latin America.

The major U.S. ports of entry for imports of fresh, chilled and frozen beef are New York, Philadelphia and Miami. Major entry ports for cooked beef include Philadelphia, New York, San Juan, San Francisco, Mobile, New Orleans and Baltimore. Other ports where beef of all types enters the United States are Los Angeles, Seattle, Ogdensburg (New York) and Charleston.

The majority of imported beef is purchased by brokers or, in some cases, directly by manufacturers, and is processed near the ports of entry for sale in the immediate area or region. U.S. ports of entry are, for the most part, far from the major beef-producing areas of the United States.

The following tables, "U.S. Imports of Beef and Veal by Country of Origin" and "U.S. Imports of Beef and Veal by Region of Origin," show comparative figures for the quantities of U.S. beef imports received for the years 1972 through 1979. In the first table, imports from Latin American and other major beef exporting nations are shown by country for each of the last eight years. The annual totals for all imports are then given, followed by their value in U.S. dollars.

The second table shows U.S. beef imports first as totals from all countries, then by the regions of:

- 1) Oceania; 2) Western Europe, Canada, Caribbean and Others; and 3) Latin America. Latin America is then subdivided into: 2) Tropical Latin America; 2) Central America; 3) Mexico; 4) South America; and 5) Tropical South America.

It should be noted that in each tropical Latin American country, beef cattle graze on both well-established pasture lands as well as on converted tropical forest lands. Data on the distribution of herds in tropical Latin America is, at best, meager. It should also be noted that the Central America category includes Panama but not Mexico whose

exported beef is produced in non-tropical areas of the country.

Percentages following each category in the second table designate that region's contribution to total U.S. beef imports.

Since Belize is not distinctly noted in the first table, and because it is uncertain whether imports from that country are included within the "Other countries" category in the same table, known U.S. imports from Belize are noted here.

U.S. Meat Imports From Belize<sup>1</sup>  
(Metric tons by product weight)

	<u>1972</u>	<u>1973</u>	<u>1974<sup>2</sup></u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979<sup>3</sup></u>
Belize	--	85	35	9	--	195	27	105

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1. Includes fresh, chilled and frozen beef, veal, mutton and goat. USDA sources note that more than 90 percent of the totals constitute beef and veal.

2. Reflects market slump of 1973-76.

3. Preliminary figures.

SOURCES: "U.S. Imports of Meat Subject to Meat Import Lay, By Country of Origin, Annual 1970-80," December 1979, and "U.S. Exports of Livestock and Products Up 10 Percent," February 1980. Both from Foreign Agricultural Service, U.S. Department of Agriculture.

**U. S. Imports of Beef and Veal by Country of Origin**  
(Metric tons by product weight)

Country of Origin	1972	1973	1974 <sup>1</sup>	1975	1976	1977	1978	1979 <sup>2</sup>
Mexico.....	37,136	30,387	17,601	13,500	23,744	27,117	28,733	2,424
Guatemala.....	16,746	17,963	13,566	15,422	15,454	15,194	13,444	15,561
El Salvador.....	3,331	4,247	5,809	2,545	4,913	1,695	3,833	4,888
Honduras.....	16,635	19,240	13,356	16,079	18,391	19,524	19,485	28,090
Nicaragua.....	26,755	25,073	14,931	21,651	22,622	23,676	31,103	33,822
Costa Rica.....	22,929	21,695	27,275	27,470	25,362	25,431	28,443	32,233
Panama.....	2,273	965	1,334	1,362	3,148	1,415	302	---
Brazil.....	21,767	20,948	17,907	15,821	33,128	26,561	18,820	17,767
Paraguay.....	4,284	7,126	2,599	3,543	3,604	2,411	3,613	896
Argentina.....	42,699	36,968	40,360	25,508	43,100	36,442	48,377	51,482
Uruguay.....	13	8	---	---	221	381	1,136	1,693
Australia.....	306,027	316,561	233,273	308,991	306,368	293,141	368,222	397,701
New Zealand.....	120,833	132,120	117,671	125,562	122,882	123,461	153,886	161,562
Canada.....	27,027	25,539	16,742	9,704	38,261	34,786	28,755	35,268
Dominican Republic.....	6,468	7,328	6,505	3,904	6,637	979	812	1,717
Haiti.....	880	851	758	443	712	264	848	---
Ireland.....	14,110	9,959	19,964	3,086	2,027	---	4	19
Denmark.....	1,083	998	1,209	1,316	1,351	1,012	805	1,047
Germany, Fed. Republic of..	89	522	338	41	136	6	---	---
United Kingdom.....	35	107	887	341	80	18	17	---
Other countries.....	589	296	144	80	123	122	263	1,800
<b>Total All Countries.....</b>	<b>671,711</b>	<b>678,901</b>	<b>522,414</b>	<b>598,354</b>	<b>672,284</b>	<b>633,636</b>	<b>750,833</b>	<b>787,965</b>
<b>Total Value (in million \$US):</b>	<b>861.7</b>	<b>1,173.7</b>	<b>896.7</b>	<b>661.4</b>	<b>910.7</b>	<b>834.2</b>	<b>1,267.4</b>	<b>1,966.9</b>

1. Reflects market slump of 1973-76.

2. Preliminary figures.

SOURCES: Foreign Agricultural Service, U.S. Department of Agriculture, February 1977, February 1978, December 1979, February 1980

**U.S. Imports of Beef and Veal by Region of Origin**  
(Metric tons by product weight)

	1972	1973	1974 <sup>1</sup>	1975	1976	1977	1978	1979 <sup>2</sup>
Total All Countries.....	671,711	678,901	552,414	596,354	672,284	633,636	750,883	787,965
Percent.....	100	100	100	100	100	100	100	100
Total Oceania.....	426,860	448,681	351,149	434,553	429,270	416,602	522,108	559,263
Percent.....	63.5	66	63.5	72.8	63.8	65.7	69.5	70.9
Total Western Europe, Canada, Caribbean & Others.....	50,283	45,600	46,547	18,915	49,327	37,187	31,486	39,851
Percent.....	7.4	6.7	8.4	3.1	7.3	5.8	4.1	5.0
Total Latin America (includes A-E below) <sup>3</sup> .....	194,568	184,620	154,718	142,886	193,687	179,847	197,289	188,851
Percent.....	28.9	27.1	28.0	23.9	28.8	28.3	26.2	23.9
A. Total Tropical Latin America <sup>4</sup> .....	114,720	117,257	96,757	103,878	126,622	115,907	119,043	133,247
Percent.....	17.0	17.2	17.5	17.4	18.8	18.2	15.8	16.9
B. Total Central America <sup>5</sup> .....	88,669	89,183	76,251	84,509	89,890	86,935	96,610	114,594
Percent.....	13.2	13.1	13.8	14.1	13.3	13.7	12.8	14.5
C. Mexico.....	37,136	30,387	17,601	13,500	23,744	27,117	28,733	2,424
Percent.....	5.5	4.4	3.1	2.2	3.5	4.2	3.8	0.3
D. Total South America.....	68,763	65,050	60,865	44,877	80,053	65,795	71,946	71,833
Percent.....	10.2	9.5	11.0	7.5	11.9	10.3	9.5	9.1
E. Total Tropical South America <sup>6</sup> .....	26,051	28,074	20,506	19,369	36,732	28,972	22,433	18,653
Percent.....	3.8	4.1	3.7	3.2	5.4	4.5	2.9	2.3

1: Reflects market slump of 1975-76

2. Preliminary figures.

3. Includes first 11 countries previous table. Does not include Caribbean region or Belize whose imports are shown on p. 105.  
In the above table, Belize may be included with "other countries."

4. Includes all countries encompassed by study, except Mexico, whose beef exports are produced in non-tropical forest areas.

5. Does not include Mexico or Belize.

6. Includes Brazil and Paraguay. Other tropical South American countries do not export beef to U.S.

SOURCES: Foreign Agricultural Service, U.S. Department of Agriculture. February 1977, February 1978, December 1979, February 1980.

### 3. The Return of A Problem

U.S. beef imports have more than doubled since the mid-1950s due to a number of factors. Among these are an increase in the nation's population, a strong preference for beef over other meats, rising consumer incomes, preferences for convenience foods, increased frequency in dining out, improvements in the quality of beef products, aggressive marketing by manufacturers, and the U.S. Department of Agriculture's food stamp program and the use of beef for government-sponsored school lunch and needy-family programs.

About 60 percent of U.S.-produced beef is fed on grain and other agricultural by-products (hay, straw, corn-stalks and other roughage) which produce a meat higher in fat content than that fed on forage grasses. The bright red, well-marbled meat derived from grain-fed cattle is graded by the USDA as prime or choice cuts and is sold as roasts and steaks in supermarkets or used in the restaurant trade.

Lean beef, whether imported or from domestic grass-fed stock, which comprise some 40 percent of U.S. production, contains more moisture and is occasionally tougher than its grain-fed counterpart. Lean beef is generally designated as either commercial, utility, cutter or canner grade. Authorities are in agreement that on a pound for pound basis there is virtually no difference in protein values

between domestic and imported beef.

Imported fresh, chilled and frozen beef enters the United States in 60-pound cartons with its country of origin marked on the outside. Cooked beef is imported in airtight containers. Once the beef is cleared by U.S. authorities, it goes either directly to the manufacturer or to a meat broker who will sell it to the meat processing trade. Following its acceptance to the U.S., imported beef is no longer monitored by the federal government. Upon its arrival at the manufacturer's, the beef literally loses its imported "identity" and gains U.S. status.

While some imported beef is sold as inexpensive cuts of meat in supermarkets and in family-style steak houses, the majority of it is used in hamburger and in other manufactured meat products containing beef. Because it contains less fat and more moisture than the meat of grain-fed cattle, U.S. manufacturers say they must adjust their water and trimmings formulas when using lean beef in their products. Meat and fat trimmings, obtained from U.S.-produced beef, veal and pork, are added to imported beef to improve its flavor and production qualities. Trimming and water added during manufacturing must be in compliance with federal laws which stipulate that meat products may not contain more than 30 percent fat and 10 percent added moisture.

The majority of the fresh, chilled and frozen beef imported by the U.S. is used in hamburger and ground beef, which accounts for about 25 percent of all beef consumed domestically in recent years. Imported beef is also used as stew and corned beef and in a variety of processed meat items like frankfurters, bologna, salami, pepperoni and other luncheon meats and sausage products.

Cooked and canned beef imports are used in the manufacture of frozen and canned processed foods. Products using this type of beef include canned stew, soup, chili, luncheon meat and sausages. Frozen precooked dinners and pot pies as well as baby and pet foods also use imported cooked beef.

The majority of the meat manufacturers consulted stated that they seldom, if ever, use Central American beef in their products. Several meat brokers concurred, citing the necessity of changing formulas to allow for Latin beef's higher moisture content. Meat industry spokesmen said that beef imported from other regions, particularly Oceania, contained less moisture than Central American beef. If this is so, the generally wetter climates of Latin America may be a factor in that the grasses on which cattle graze would contain high levels of moisture during much of the year. The contention that manufacturers use little or no Central American beef may be attributed to the fact that the region supplies only about 14 percent of all U.S. beef imports.

Latin American beef is included in the interests of two national organizations which promote and utilize imported beef, the Meat Importers Council of America and the Canned and Cooked Meat Importers' Association (see Appendix Three). Among the Council's more than 150 members are meat brokerages and distributors, manufacturers, fast food corporations, steamship and other commercial transportation companies and port authorities. The Canned and Cooked Meat Importers' Association more than two dozen members are primarily concerned with South American beef imports.

Increasing food costs and the phenomenal growth of the U.S. fast food industry have led to a shift by consumers toward less expensive, lean meat. Fast food franchise outlets in the United States rose 81 percent in number from 32,000 units in 1972 to 59,000 units in 1978. Franchise restaurants, including those which promote items other than hamburgers, reported sales of \$20 billion in 1978, an increase of 195 percent in six years.

Asked what amount, if any, of imported beef is used in their product, the majority of national hamburger chain representatives responded that their companies used only U.S. beef. Of those companies which said they used "some" imported beef, most stated a preference for the Australian and New Zealand product.

McDonald's Corporation, with more than 4700 restaurants throughout the United States and in 23 foreign countries,

is the world's largest food service concern. McDonald's, which has long been reported to use both Central and South American beef in its U.S. product, maintain that they use "only 100 percent U.S. beef." In support of their claim, McDonald's notes that Keystone Foods Corporation -- whose subsidiary, Equity Meat Corporation, supplies almost half of McDonald's hamburger needs -- has undertaken cattle ranching in Texas on McDonald's behalf. Other major hamburger chains, including Burger Chef and Wendy's Old Fashioned Hamburgers, also stressed that they used only domestic beef in their products.

Among those companies acknowledging that they use some imported meat in their hamburgers were Burger King, Jack-in-the Box, and Roy Rogers, Bob's Big Boy and Hot Shoppes restaurants, all subsidiaries of the Marriott Corporation. A spokesman for one of the companies which does use imported beef in its products stated that "any chain saying they don't use imported beef is handing you a crock."

There is the possibility, however remote, that some vendors of hamburger and other products made with imported beef are unaware of the geographic origin of the meat which they use. As previously mentioned, once imported beef enters the manufacturing trade, it essentially becomes a grade of U.S. beef. According to a spokesman for McDonald's National Purchasing and Quality Assurance Departments,

"McDonald's Corporation itself does not buy or sell any of the products used in McDonald's franchises."

In pursuing the possibility that some imported meat may be used in McDonald's or other companies' hamburgers, a spokesman for Equity Meat Corporation responded that "it would be difficult for imported beef mixed with U.S. trimmings to be sold to a cautious manufacturer like Equity."

The problem of who uses imported beef becomes something of a non-issue when considered against the accelerating destruction of Latin America's tropical forests by cattle ranching and other interests and the ever increasing demand for beef in the United States and throughout the world.

## PART V

### Conclusions and Recommendations

The importance of the earth's tropical forests, and the implications of their threatened demise are beginning to be understood by decision-makers in both tropical countries and in the developed nations. But unless immediate actions are taken to forestall their destruction, the tropical forests -- which provide man with hardwoods, pharmaceuticals, genetic stock for the maintenance and improvement of the world's agricultural crops, fresh water, and thousands of other products -- could be largely gone by the early 21st Century, their benefits denied to future generations.

Unfortunately, the economic and social pressures confronting Latin America and a growing number of nations are hardly mitigated by the recognition that land management systems in the humid tropics, as elsewhere, must produce sustainable enterprises. Because of the ever-increasing pressures, vast tracts of tropical forests continue to be subjected to inappropriate development activities.

Highway construction, which is vital to linking national population centers and opening new areas for the extraction of timbers, minerals and other raw materials, nevertheless permits the influx of colonists and cattle interests to areas unsuitable for intensive agricultural

activities. Because it is doubtful that the nations involved have either the ability or desire to limit public access to expansive wilderness areas -- especially when the problems are as compelling as those in the developing countries -- informed consideration must guide planners when choosing highway routes. National and international funding and assistance agencies, using their technical capacities, should exert their influence with the decision-makers of the countries involved in selecting development sites that have sustainable arable soils and where negative environmental repercussions will be minimal. The ecological guidelines for development in tropical areas which have been formulated by scientists over the last decade should be adhered to by both national governments and assistance organizations.

Current modes of development in tropical Latin America usually result in the serious deterioration of vegetative cover, soils and watersheds. Certainly it is in each nation's interests to ensure that renewable resources from their national forests are conserved for future and, hopefully, more rational development activities. Large-scale clearing of tropical forests too often results in soil erosion and laterization, a poor quality of successional forest or forage growth, siltation of water courses, and other negative ecological regional effects. And the plausible arguments pertaining to the deleterious global environmental effects of massive tropical deforestation should

arouse universal concern and increased assistance to help the countries involved deal with their numerous problems.

While fairly adaptive breeds of beef cattle have been introduced to the humid tropics, sustainable pasture management systems have not been practiced on the region's low fertility soils beyond the experimental stage. Scientists of various disciplines are in general agreement that small-scale cattle ranching in tropical forest areas on lands with suitable topography may ultimately be successful if essential nitrogen-fixing legumes are planted in association with other vegetation and forage materials. Similarly, over-grazing must be prevented by changing pastures on a regular basis with adequate intervals allowed for regeneration. And further advances in veterinary medicine are necessary to control the many diseases that account for relatively high rates of herd mortality. Until sustainable and cost-efficient production of cattle and other agricultural products are realized, most scientists argue that development in tropical forests should be confined to those limited areas where soils permit sustainable agricultural pursuits.

But even if cattle ranching was to prove feasible in the humid tropics, the question remains as to whether or not it is prudent to use expansive areas of land for the production of what in many countries has become primarily a "cash crop" for the more affluent and for export. Like

the other products which tropical Latin America sells to foreign nations, beef is subject to the fluctuations of the international commodities market. Statistics show that the nations of Latin America -- led by Argentina, Brazil, Mexico and Peru -- have the highest external indebtedness of any of the developing world's regions. Economists warn that unless several Latin nations find ways to diversify their economies or discover major new sources of wealth such as petroleum and other minerals, they may suffer default by the early 1980s.

While forestry activities are expected to increase in the region during the next several decades, it appears that most Latin countries will remain dependent upon agricultural exports to earn a substantial part of the foreign exchange necessary to pay for their import needs, a large part of which are food items. Among the major barriers confronting the national economies of Latin America are poor marketing techniques, a lack of up-to-date market information, slow progress in adapting new technologies, inadequate transportation modes for products, a lack of storage and processing facilities, and the failure of governments to encourage the development of new agricultural goods for domestic consumption as well as for export.

In 1826 the French author Jean Brillat-Savarin wrote that "the destiny of nations depends on the manner in which they nourish themselves." As in other less developed areas,

malnutrition is the most serious health problem in Latin America. In order to meet even minimal future dietary requirements, it is estimated that the region's nations will have to increase their basic food production at a higher rate than they did during the last two decades. But if population and export trends continue to rise, nutritional deficiencies will continue to plague the Latin countries. Using beef as an example, in tropical Latin America over the last 20 years, cattle production has risen some 69 percent<sup>1</sup> and beef exports 448 percent<sup>2</sup> while per capita beef consumption in the region has generally declined by 13.5 percent<sup>3</sup>.

One of the changes required for Latin nations to improve their social and economic well-being is the improved management of arable lands already under cultivation. And, as non-agricultural foreign exchange earners are developed, the production of new food products for domestic and regional consumption must increase. The replacement of traditional export commodities by soybean and other nutritious plants

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1. Includes Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Peru, for which complete data were available. Does not include Mexico or Venezuela, whose cattle production occurs largely outside of tropical forest areas. SOURCE: U.S. Department of Agriculture.
  2. Includes the first ten countries listed above, except Ecuador, which does not export beef. SOURCE: U.S. Department of Agriculture.
  3. Includes the first ten countries listed in number 1, plus Bolivia, Mexico and Paraguay. SOURCE: Valdés and Nores in "Growth Potential of the Beef Sector in Latin America -- Survey of Issues and Policies.

should be complemented by the management and utilization of wildlife such as fish, tapir, cabybara and manatee. The development of new agricultural crops, wildlife husbandry and the large-scale replacement of cattle with poultry and swine could help reduce forest destruction resulting from cattle ranching, which many scientists say is less productive than the recommended alternatives.

Much has been written on the issues of social and political change in Latin America by authors of all philosophical persuasions. Although analyses of land reform efforts in Bolivia, Mexico and other countries reveal little change in the living conditions of the poor majority, the progress of recent developments in Nicaragua and El Salvador will be followed with interest and, it is hoped, aided with compassion.

Critics have charged that international financing and assistance agencies and multinational corporations often operate against the interests of less developed nations by encouraging the production of commodities for export markets. Latin America, however, has required little if any prodding to develop its cattle industries. In the case of tropical deforestation, which has only recently come to be more widely understood among non-scientists, an onus is on public agencies and private business to respond to inappropriate development activities responsibly.

In recent years many of the major lending institutions and assistance agencies have developed environmental guidelines for the projects which they undertake with host governments. Yet each continues their involvement by the construction of new roads and rural development projects with cattle ranching components bringing man and forest together in a mutually destructive confrontation. Unfortunately, attempts at promoting economic growth and striving for increased standards of living for a larger segment of the world's population almost always seems to preclude environmental stability -- no matter where it occurs on the planet.

It is not the function of this work to catalogue the "mistakes" of the international assistance agencies, for fortunately there are valuable critics within and a multitude of voices without. But if the issue of tropical deforestation is accepted as a global problem, the leading institutions -- including the World Bank, the Inter-American Development Bank, the United Nations Development Program and the Food and Agricultural Organization, the Organization of American States and country programs like the United States Agency for International Development and the Canadian International Development Agency -- must continue to seek more innovative and appropriate programs which will directly benefit the people of less developed countries.

In recognition of the mounting economic problems

of donor nations, it has been projected by the World Bank and others that aid to the Third World will decline over the next several years. Thus, not only must less developed nations pursue more rapid growth of trade among themselves and diversify their exports to industrial nations -- to include products processed from indigenous raw materials -- but international agencies must largely abandon programs that continue to bolster traditional commodities and non-labor intensive development.

While multinational corporations and other foreign companies operating in Latin America facilitate the dissemination of technology -- usually pertaining to agriculture -- the focus of their activities has largely been directed at extractive enterprises. Since rising Gross National Products make several Latin countries ineligible for U.S. economic assistance, and because the needs of all continue to exceed the funding capabilities of public institutions, investment from the private sector remains a necessity. Unfortunately, a combination of foreign debts, misguided government development policies and international market demands have resulted in a gap between self-sufficiency and economic ruin. It cannot be emphasized enough that the world's less developed countries will probably never be able to improve their domestic well-being so long as their economies are oriented to the production and export of food products and raw materials for the industrial nations.

While it is expected that the relationship between private business and the less developed countries will continue to expand, there are several steps that should be considered to help alleviate the problems of Third World economies and environmental degradation. In recognition of their importance, the developed nations should increase and stabilize prices for Third World commodities and lower tariffs on processed and raw materials. Because the debts of the less developed nations continue to rise -- by 16 percent since 1976 -- consideration should be given to forgetting past debts, as already done by Canada, Sweden and the United Kingdom in some instances. The concept of a New International Economic Order, which entails a restructuring of exchanges and the more equitable sharing of global resources, presently offers an improved vision for man's survival on the planet. Until the new opportunities are realized, all governments have a responsibility to resist economic exploitation by business interests, both domestic and foreign, and to ensure that large profits realized from their activities are not exported to be invested elsewhere.

The United States, with major political and commercial interests in Latin America, has a number of important roles to perform with respect to the region's economic development and environmental well-being. The federal government must recognize and deal with the fact that its

trade policies and U.S. private business interests, which often operate with assistance from quasi-public agencies like the Export-Import Bank and the Overseas Private Investment Corporation, directly and indirectly promote the destruction of Latin America's tropical forests through forestry, mining, cattle ranching and other agribusiness activities.

If the governments of Latin America, the United States and other involved nations will take responsibility for the rational exploitation of the earth's tropical forests and other valuable "international" resources, they must devise ways to control the activities of their own and transnational companies. The U.S. government can provide a significant impetus in this direction. First, it must make its policy and rationale known to its private overseas sector. Then, to ensure compliance with a stated U.S. foreign policy objective, U.S. businesses operating abroad should be required to submit environmental impact statements on planned activities and sales of products and technical assistance to the governments of the United States and the host country.

The seriousness of regional and global environmental problems has already produced a number of national and international laws and acts. The United States, under provision of the Export Administration Act of 1979, the National Environmental Protection Act, Executive Order No. 12114 and other mandates, should require private concerns operating

overseas to be more responsible U.S. representatives and global citizens. Similarly, the United States and the governments of other industrial nations should support the activities of the United Nations Centre on Transnational Corporations and its code of conduct for multinational companies as well as U.N. environmental goals.

Congressional investigation and Executive action have already determined that U.S. government agencies with activities abroad must comply with recent amendments to the Foreign Assistance Act. By extension, it seems appropriate that any agency or business receiving U.S. public monies -- from the banks to private agribusiness interests -- should be required to comply with United States environmental mandates. Those international financing institutions and private concerns receiving U.S. grants and loans should also be required to make their operations data accessible to the public.

Both Congress and the Executive should conduct further investigations into the problems of tropical deforestation, and take appropriate actions to aid in correcting the situation.

While the demand for beef in all countries of the world continues to increase, the United States -- as the principal importer of Latin American beef -- must adopt a stringent policy toward the problem of cattle ranching and its relation to tropical deforestation. What must be under-

stood is that although beef imports from tropical Latin America comprise only about 1.7 percent of all beef consumed annually in the United States, cattle ranching in the humid tropics is generally unsustainable and environmentally destructive.

A national boycott by the U.S. public of beef imports from tropical Central and South America has often been proposed by international environmentalists as an approach to the problem of cattle ranching in the region. Targets for such a boycott would be the major fast-food chains which promote hamburgers. However, as discussed earlier, beef imported from all nations, is used in a wide variety of products by the U.S. food industry -- which is not likely to boycott imported beef.

Neither is there an issue concerning who in the United States is actually using imported beef. The problem is simply that the overall demand for beef and its products exceeds that which domestic production can supply. As long as people continue to consume the same or increasing amounts of beef, and so long as the United States and other countries continue to import beef from tropical Latin America, tropical forests will be subject to conversion to pasture lands. Assuming that projections regarding global population and land management are correct, people will have to use less beef -- and more chicken, pork and fish -- or use less meat altogether and derive more protein from vegetables and dairy products.

Unless cattle ranching can be shown to be a sustainable activity, the United States should consider banning the importation of beef produced in tropical Latin America. In his 1980 State of the Union message, President Carter noted that in 1979 the United States reduced overall petroleum consumption by eight percent and gasoline consumption by five percent below the previous year. While it is recognized that petroleum conservation is necessitated by higher prices and reduced supplies, if the United States used only two percent less beef, or imported it from non-tropical Latin American producers, the region may be encouraged to diversify its agricultural production while making more beef available for domestic and regional consumption. Whether other current importing nations would then use the "excess" beef is questionable. Japan obtains most of its beef from Oceania while Western Europe imports some 7.8 percent of the beef which it consumes from various countries including the United States, Canada, Oceania and Latin America. Transportation costs and the high tariffs on fresh, chilled and frozen beef currently imposed by European nations would probably not make beef production in tropical Latin America as profitable as it is at present.

An alternative to a total import ban on beef produced in Latin American countries with areas of tropical forest would be a government restriction that only beef raised on non-forest lands may be exported to the United

States. This would be possible, although admittedly difficult to enforce, since the origins of all beef to be exported to the United States must be documented by processors in each country. This is done primarily to enable inspectors to trace the sources of meat showing unacceptably high residues of chemicals. Even if a partial ban of Latin American beef exports were not effected, such monitoring would provide much needed information on how much beef is actually being exported from ranches in tropical forest areas. It is realized that if a full or partial ban were placed on Latin American beef and U.S. consumer demands continued to rise without the difference being absorbed by other exporting nations, higher domestic meat prices would result.

The United States and other developed nations, in concert with international agencies, should increase their support for regional and national agricultural research institutions. Additional funding is also required for individual research and analysis of information pertaining to tropical forest ecosystems and their soils, natural and cultivated food sources, and alternative modes of development.

The increased utilization of remote sensing by satellite, aerial photography and side-looking radar are essential in order to provide land-use planners with pertinent data on the soils and other topographical features

of prospective development sites. These methods should also be employed to determine the rates and causes of tropical deforestation throughout the earth's humid tropics.

The importance of such efforts are underscored by the recent completion of a study conducted by Brazil's National Institute of Space Research (INPE). The study, which utilized Landsat imagery, concluded that 1.55 percent of Brazil's Amazon Basin -- 30,000 square miles of the area's total two million square miles -- has already been deforested. The new information, which conflicts with the higher four percent deforestation figure issued earlier by Brazil's Ministry of Agriculture, reveals that the major area of deforestation was at the Jari Forestry and Agricultural Enterprises where some 500 square miles (approximately 120,000 hectares) of forest have been cleared. The study also says that the rates of deforestation between 1975 and 1978 were 244 percent in the Territory of Rondonia, 193 percent in the state of Goiais, and 160 percent in the state of Para.

Continuing with the momentum begun by various international and national conferences and studies of the last several years, governments and international agencies should continue to discuss and act upon the problems of tropical deforestation. Consideration should be given to the recommendations derived from such meetings as the IUCN-sponsored Ecological Guidelines for Development in the

American Humid Tropics, held in Caracas in 1974; the U.S. Strategy Conference on Tropical Deforestation, Washington, 1978; the Conference on the Development of Amazonia in Seven Countries, Cambridge, United Kingdom, 1979; and the United Nations Environmental Program's International Meeting of Experts on Tropical Forests, Nairobi, 1980.

Within the United States, the U.S. government's inter-agency task force on tropical deforestation and the Nongovernmental Tropical Forest Working Group, coordinated by the Natural Resources Defense Council, should continue to promote a United States policy to deal with tropical deforestation.

Other studies which should stimulate responses to the destruction of the earth's tropical forests include UNESCO's on-going Man and the Biosphere Program tropical forests survey, the recently released IUCN "World Conservation Strategy," and several valuable works like The Sinking Ark by environmental scientist Norman Myers.

It is recommended that either the U.S. government or a private organization should convene a small meeting of authorities to exchange views and discuss the problems and potentials of beef cattle ranching in the humid tropics. An appropriate time for such a meeting would be in June 1980 when the International Science and Technology Institute (ISTI) will be sponsoring two conferences in Washington, "Woodpower '80" and the smaller "Multiple Use Resource

Management in Tropical Forests in Latin America." Since several cattle ranching authorities will be present at one or both of the two meetings, efforts should be made to coordinate the proposed conference or seminar at that time. In addition to selected authorities in attendance at the ISTI meetings, representatives of the major funding institutions and assistance agencies should be invited to participate.

Additional information pertaining to cattle ranching and related activities in the tropical forest areas of Latin America is required in order to more completely assess the problem of tropical deforestation. Through appropriate channels, information such as that relative to the following areas should be compiled: the current and projected policies of governments and international agencies relating to tropical forests and their development for various types of activities; actual areas of tropical forests being developed and analyses of the activities under way; the current state of agricultural research, including pasture management, at major research institutions in Latin America; further investigation of U.S. and multinational businesses involved in cattle ranching in tropical Latin America; and analyses of nutritional and environmental alternatives to producing beef for export.

Since development activities, whether sustainable or not, will continue to occur in the region, major areas of Latin America's tropical forests must be preserved so

that their benefits -- known and as yet undiscovered -- will not be lost. While national park areas are being designated with increasing frequency throughout Latin America, less than one percent of South America's tropical forests are presently protected. Decisions regarding which areas are to be preserved should be based on ecological indicators such as current critical size studies and the "Pleistocene Refuge" concept which seeks to identify important areas of genetic diversity.

The enactment of conservation and environmental legislation in recent years in many tropical Latin American countries is encouraging, but enforcement remains a problem for reasons that are social, economic and political. Notwithstanding domestic considerations, host countries must require that foreign and domestic interests operating within national boundaries comply with existing laws concerning the environment. More specifically, the use of hazardous pesticides and herbicides has become a serious problem throughout Latin America, affecting man, the environment, and agricultural products. Regulations concerning the import, production and use of dangerous chemicals need to be implemented and enforced.

Another problem that requires urgent attention is the failure of both foreign and domestic business interests to comply with the existing reforestation laws of some countries following their exploitation of tropical forest areas for various pursuits. And when reforestation does

occur, it is usually done with fast-growing species such as pine, eucalyptus or melina in monocultures, which are highly susceptible to disease. Efforts should be made to reforest degraded areas with mixed species to include hardwoods in order to preserve the qualities of the original forest.

On July 3, 1978, eight nations which share the Amazon Basin joined in the Amazon Pact. The document, signed by Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Surinam and Venezuela, calls for a balance between economic growth and environmental preservation in the Amazon Basin. Some critics have charged that the Pact is an "after thought," a case of too little, too late, in the presence of ever-increasing development and deforestation activities. But in the thinking of others there is still an opportunity to conserve and save one of the earth's most precious resources, the tropical forest.

#### An Epilogue

For some 600 years the classic Maya civilization flourished in the tropical forests of Guatemala, Belize, southeastern Mexico and northern Honduras. The Maya had developed an elaborate culture, having religion with a ruling priest class, impressive architecture, a form of writing, an agrarian system based on maize, beans and forest products and a working understanding of physics. They had no wheel -- except on children's toys - probably because it was "inappropriate" for tropical forests.

Then, sometime around A.D. 900, the great Maya ceremonial centers were abandoned and the people migrated to the dry, hot land of northern Yucatan in Mexico.

While no single factor is known to have caused its collapse some 500 years before the Spanish Conquest, some believe that as the Maya population increased they may eventually have overtaxed the tropical soils with a system of intensive agriculture. It has also been postulated that Maya farmers lacked the knowledge to use the genetic resources of the forest to improve and protect their crops against depletion and disease. Whatever the reasons for their demise, the Maya found it necessary to abandon their civilization in the tropical forests.

Sometime before the arrival of the Spanish in the New World, Chilam Balam, a Maya priest, wrote the prophecy:

Eat, eat, thou hast bread.  
Drink, drink, thou hast water.  
On that day, dust possesses the earth.  
On that day, a blight is on the face of the earth.  
On that day, a cloud rises.  
On that day, a mountain rises.  
On that day, a strong man siezes the land.  
On that day, things fall to ruin.  
On that day, the tender leaf is destroyed.  
On that day, the dying eyes are closed.  
And they are scattered afar in the forests.

Part VI  
Appendices

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APPENDIX TWO: USDA Certified Plants  
Exporting Beef from Latin  
American Countries with  
Areas of Tropical Forest

Of the 18 Latin American nations containing areas of tropical forest, ten have one or more meat establishments certified by the U.S. Department of Agriculture for the export of beef. An eleventh country, Colombia, is eligible to export meat to the United States, but according to the source of the information presented here, Foreign Meat Inspection 1978, issued by USDA in March of 1979, Colombia had no certified establishments exporting meat to the United States.

As in U.S. operations, meat inspectors, licenced by the countries exporting meat to the United States, oversee slaughtering operations, examine carcasses, and inspect meat during its preparation for export to ensure conformity with U.S. guidelines. Additionally, each of the certified plants are visited periodically by veterinarians of USDA's Food Safety and Quality Service and, if the operation is determined not to meet USDA criteria, its certification is revoked until it is proven to comply with the guidelines of the U.S. Federal Meat Inspection Act. Establishments exporting large quantities of meat or those having minor problems or past difficulties in meeting U.S. standards are inspected by USDA agents at least four times per year while all other certified plants are visited once or twice annually.

Following the listing of plants in Latin American countries with areas of tropical forest certified by USDA to export beef to the United States are tables pertaining to the certification of foreign plants.

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
<u>BELIZE</u>				
1	Belize Meat Packers Ltd., P.O. Box 417, Belize City, Belize	01/01/78	04/06/78 08/25/78 12/11/78	Yes Yes Yes
<u>BRASIL</u>				
SIF 2	S/A Frigorifico Anglo, Barretos, Sao Paulo	01/01/78	02/23/78 06/05/78 11/14/78 12/06/78	Yes Yes Yes Yes
SIF 4	SWIFT-ARMOUR S/A, Industria e Comercio, Rosario do Sul, Rio Grande do Sul	01/01/78	03/16/78 05/17/78 10/18/78	Yes Yes No - Withdrawn 10/19/78
SIF 5	Cooperativa Rural Serrana Ltda., Tupancireta, Rio Grande do Sul	11/15/78 01/01/78	12/13/78 03/16/78 04/11/78 04/12/78 05/18/78 10/16/78	Yes Yes Yes Yes Yes No - Withdrawn 10/18/78
SIF 6	Frigorifico Movran, Aracatuba S/A, Sao Paulo	11/15/78 01/01/78 09/25/78	02/22/78 10/20/78 12/05/78	Undetermined No - Withdrawn 02/28/78 Yes Yes
SIF 7	SWIFT-ARMOUR S/A, Industria e Comercio, Sant'Ana do Livramento, Rio Grande do Sul	01/01/78	01/12/78 03/15/78 05/16/78 10/18/78	Yes Yes Yes No - Withdrawn 10/19/78
SIF 10	Frigorifico Bordon S/A, Sao Paulo, Sao Paulo	11/15/78 01/01/78	02/17/78 05/24/78 11/12/78 11/17/78	Undetermined Yes Yes Yes
SIF 30	S/A Frigorifico Anglo, Pelotas, Rio Grande do Sul	01/01/78	03/14/78 05/22/78 10/20/78 12/15/78	Yes Yes No - Withdrawn 10/23/78 Yes
SIF 34	SWIFT-ARMOUR S/A, Industria e Comercio, Santo Andre, Sao Paulo	11/15/78 01/01/78	02/17/78 05/24/78 11/16/78 12/11/78	Yes Yes Yes Yes
SIF 196	Frigorifico Bordon S/A, Presi- dente, Prudente, Sao Paulo	01/01/78	02/20/78 05/31/78 10/25/78 12/04/78	Yes Yes Yes Yes
SIF 226	Frigorifico Bordon S/A, Baga, Rio Grande do Sul	01/01/78	03/15/78 05/19/78 10/17/78 12/14/78	Yes Yes No - Withdrawn 10/18/78 Yes
SIF 232	Cooperativa Industrial Regional do Carnes e Derivados Ltda., Baga, Rio Grande do Sul	11/15/78 01/01/78	03/15/78 04/11/78 05/20/78 10/17/78	Yes Yes Yes No - Withdrawn 10/18/78
		11/15/78		Undetermined

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
SIF 238	Cooperativa Regional Sudeste de Carnes Ltda., Palotas, Rio Grande do Sul	01/01/78	03/14/78 05/22/78 10/19/78	Yes Yes No - Withdrawn 10/20/78
SIF 381	Frigorifico Karowa S/A, Guarulhos, Sao Paulo	11/15/78 09/25/78	12/14/78 11/16/78 12/11/78	Yes Yes Yes
SIF 385	Frigorifico Mourao S/A, Andradina, Sao Paulo	01/01/78	02/22/78 06/02/78 10/26/78 12/05/78	Yes Yes Yes Yes
SIF 458	Frigorifico Uniao S/S, Industria e Comercio, Presidente Epitacio, Sao Paulo	01/01/78	02/21/78 06/01/78 10/26/78 12/04/78	Yes Yes Yes Yes
SIF 502	Frigorifico Mercuri S/A, FARMINA, Leopoldo Otoni, Minas Gerais	01/01/78	02/28/78 06/09/78 11/03/78 12/07/78	Yes Yes No - Withdrawn 11/09/78 Yes
SIF 760	Cooperativa Regional Gastronomico de Carnes e Condimentos Ltda., Julio De Castilhos, Rio Grande do Sul	11/15/78 01/26/78	03/16/78 05/18/78 10/16/78 12/13/78	Yes Yes No - Withdrawn 10/17/78 Yes
SIF 834	Frigorifico Unioes S/A, Presidente Venceslau, Sao Paulo	01/01/78	02/20/78 05/31/78 10/25/78 12/04/78	Yes Yes Yes Yes
SIF 862	S/A Frigorifico Anglo, Goiania, Goias	01/01/78	02/24/78 04/18/78 06/12/78 11/08/78	Yes Yes Yes No - Withdrawn 11/05/78
SIF 906	Frigorifico T Main S/A, Governador Valadares, Minas Gerais	11/15/78 01/01/78	03/01/78 05/08/78 11/07/78 12/07/78	Undetermined Yes Yes No - Withdrawn 11/09/78
SIF 1631	Frigorifico Extremo Sul S.A., Palotas, Rio Grande do Sul	11/15/78 01/01/78	12/07/78 03/14/78 05/23/78 10/19/78	Yes Yes Yes No - Withdrawn 10/20/78
SIF 1662	Frigorifico Bordon S/A, Campo Grande, Mato Grosso	11/15/78 01/01/78	12/14/78 02/21/78 05/29/78 05/30/78 11/13/78 12/06/78	Yes Yes Yes Yes Yes Yes
SIF 1676	Frigorifico Caipapo S/A, Uberlandia, Minas Gerais	01/01/78 04/06/78	02/23/78 06/06/78 11/14/78 12/07/78	No - Withdrawn 02/28/78 Yes Yes Yes
SIF 2015	Sadia Caste S/A, Industria E Comercio, Varzea Grande, Mato Grosso	02/28/78	02/18/78 04/14/78 05/27/78 11/09/78	Yes Yes Yes Yes
<b><u>COSTA RICA</u></b>				
6	Barranca Beef S.A., P.O. Box 290, Alajuela	01/01/78	02/02/78 04/19/78 06/02/78 06/07/78 10/30/78	Yes Yes Yes Yes Yes
8	Cooperative Matadero Nacional de Montecillos, P.O. Box 290, Alajuela	01/01/78	02/07/78 11/10/78	Yes Yes
9A	Henderson & CIA., P.O. Box 463 San Jose	01/01/78	02/03/78 04/21/78 10/26/78 11/10/78	Yes Yes Yes Yes
10	Ganadera Industrial S.A., P.O. Box 7-1590, San Jose	01/01/78	02/01/78 03/10/78 07/05/78	Yes Yes Yes
12	Central American Meats S.A., P.O. Box 6072, San Jose	01/01/78	02/03/78 04/18/78 06/06/78 10/26/78	Yes Yes Yes Yes
15	Pecuaría Costarricense S.A., P.O. Box 4924, San Jose	01/01/78	02/02/78	Yes

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
<b><u>EL SALVADOR</u></b>				
1	Productos Quality Meats de C.A., S.A., Atacos, La Libertad	01/01/78	04/04/78 06/12/78 07/19/78 11/17/78	Yes Yes Yes Yes
2	Mataderos de El Salvador S.A., Hojapa Km 22, Carretera A Quezaltotepeque	01/01/78	04/03/78 06/12/78 07/21/78 11/16/78	Yes Yes Yes Yes
<b><u>GUATEMALA</u></b>				
1	Ergunpagra S.A., Guatemala City	01/01/78	01/23/78 01/26/78 03/30/78 05/18/78 06/14/78 07/15/78 08/28/78 11/29/78	Yes Yes Yes Yes Yes Yes Yes Yes
3	P.A.A.S.A., Escuintla TENANT: El Granadero, Escuintla	01/01/78	01/25/78 03/28/78 03/31/78 05/19/78 06/16/78 07/14/78 08/30/78 11/30/78	Yes Yes Yes Yes Yes Yes Yes Yes
4	Ergaval, Guatemala City	01/01/78	01/20/78 01/26/78 03/29/78 05/17/78 06/15/78 08/31/78 11/30/78	Yes Yes Yes Yes Yes Yes Yes
6	Pegusa, Guatemala City	01/01/78	01/24/78 03/30/78 05/18/78 06/15/78 08/29/78	Yes Yes Yes Yes No - Withdrawn 08/29/78
7	Procasa, Escuintla	09/01/78 01/01/78	11/29/78 01/25/78 01/27/78 03/31/78 05/19/78 06/16/78 07/14/78 08/30/78 11/30/78	Yes Yes Yes Yes Yes Yes Yes Yes Yes

Plants for which authorization to import products into the United States was granted and withdrawn without reinstatement during the 1978 calendar year.

2	El Grandero, Escuintla	01/01/78		Undetermined - Withdrawn 10/24/7
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<u>Plant Number</u>	<u>Name and Location</u>	<u>for Importation by USDA</u>	<u>by USDA Inspector</u>	<u>in Enforcement of Requirements of Federal Meat Inspection Act</u>
<b><u>HONDURAS</u></b>				
2	Empacadora Alus, San Pedro Sula, Departamento de Cortes	01/01/78	03/16/78 05/26/78 08/24/78 11/23/78	Yes Yes Yes Yes
4	Empacadora Rancho Lorenzo, Catacemas, Departamento de Olancho	01/01/78	03/15/78 05/24/78 08/22/78	Yes Yes No - Withdrawn 08/22/78
5	Industria Ganadera Hondurena, S.A., Cholutaca, Departamento de Cholutaca	03/30/78 01/01/78	11/22/78 03/14/78 05/23/78 08/21/78	Yes Yes Yes Yes
6	Empacadora del Norte, Puerto Castilla, Departamento de Colon	01/01/78	03/15/78 05/24/78 08/23/78	Yes Yes No - Withdrawn 08/23/78
7	Empacadora Cortes, San Pedro Sula, Departamento de Cortes	10/20/78 01/01/78	11/22/78 03/17/78 05/25/78 08/24/78 11/24/78	Yes Yes Yes Yes Yes
8	Oriente Industrial, S.A., Danli, Departamento de El Paraiso	01/01/78	03/13/78 05/22/78 08/18/78 11/20/78	Yes Yes Yes Yes
9	Empacadora de Carnes Carnilandia Choluteca, Departamento de Cholutaca	01/01/78	03/14/78 05/23/78 08/21/78 11/21/78	Yes Yes Yes Yes
<b><u>MEXICO</u></b>				
TIF 3	Enlatadora de Magdalena, S.A., Apartado Postal #7, Cercana a la Estacion del Ferrocarril del Pacifico, Magdalena, Son.	01/01/78	03/15/78 06/27/78 11/28/78	Yes Yes Yes
TIF 6	Empacadora Juarez, S.A., Apartado Postal No. 219, Carretera Juarez a Nuevo Casas Grandes Km. 7 1/2 Ciudad Juarez, Chih.	01/01/78	03/09/78 06/08/78 09/05/78 11/06/78	Yes Yes Yes Yes
TIF 15	Empacadora Trevino, S.A., Apartado Postal No. 1049, Av. Gral. Miguel Barragan No. 663 Poniente, Monterrey, N.L.	01/01/78 10/10/78	02/14/78 05/01/78 09/25/78 11/02/78	Yes Yes Yes - Withdrawn 09/25/78 Yes
TIF 22	Industrializadora del Cerdo, S.A., Apartado Postal No. 327, Calle Mendez No. 1, Chihuahua, Chih.	01/01/78	03/07/78 03/10/78 06/09/78 09/08/78 11/08/78	Yes Yes Yes Yes Yes
TIF 24	Empacadora Internacional, S.A., Apartado Postal No. 203, Heroes y Madros, Nuevo Laredo, Tamps.	01/01/78	02/16/78 05/08/78 09/27/78 11/03/78	Yes Yes Yes Yes
TIF 27	Frigorificos del Bajio, S.A., Apartado Postal No. 12, Frente Estacion del Ferrocarril, Panjazo, Gto.	01/01/78	02/08/78 06/01/78 05/22/78 12/14/78	Yes Yes Yes Yes
TIF 32	Emp. de Carnes de Zacatecas, S.A., Apartado Postal No. 142, Prolong. Calle Plateros s/n., Fresnillo, Zac.	01/01/78 10/13/78	02/01/78 05/11/78 08/31/78 10/13/78 12/16/78	Yes Yes Yes - Withdrawn 09/19/78 Yes Yes
TIF 34	Empacadora de Leon, S.A., Apartado Postal No. 678, Km. 4 1/2 Carretera Leon-San Francisco Leon, Gto.	01/01/78 09/20/78	02/07/78 06/01/78 06/19/78 09/20/78	Yes Yes Yes - Withdrawn 07/31/78 Yes
TIF 37	Emp. y Abastecedora Carnes, S.A., Apartado Postal No. 960, Parcela No. 117, La Mesa de Tijuana, Tijuana, B.C.	01/01/78	03/17/78 06/29/78 12/01/78	Yes Yes Yes
TIF 40	Frigorificos Mexico, S.A., Apartado Postal No. 746, Calz. Industria No. 154, Torreon, Coah.	01/01/78	01/20/78 05/09/78 11/09/78 12/11/78	Yes Yes Yes Yes

BEST AVAILABLE COPY

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
TIF 50	Unidad Ganadera San Luis Potosi, Apartado Postal No. P-1353, Calle de la Lonja #1186, Col. San Luis Roy, San Luis Potosi, S.L.P.	01/01/78	02/03/78 05/31/78 06/20/78 08/29/78 11/01/78	Yes Yes Yes Yes Yes
TIF 52	Empacadora Ancira, S.A., Apartado Postal No. 1, Carret. Nal. Serv. Ancira, Sabinas Hidalgo, N.L.	01/01/78	02/15/78 05/02/78 09/26/78 11/02/78 11/04/78	Yes Yes Yes Yes Yes
TIF 53	Frigorifico de Chiapas S.A., Apartado Postal No. 60, Km. 3 Carretera Arriaga-Zapata, Arriaga, Chis.	01/01/78	01/24/78 04/18/78 08/24/78 12/04/78	Yes Yes Yes Yes
TIF 54	Industrializadora de Carnes de Baja California, S.A., Apartado Postal 80 Suc. (D) Km. 9 1/2 Carretera, San Felipe, Mexicali, B.C.	01/01/78	03/16/78 06/28/78 11/30/78	Yes Yes Yes
TIF 55	Emp. Ganadera de Chihuahua, S.A., Apartado Postal No. E-6, Km. 9 1/2 Carretera, Chihuahua-Cuauhtemoc, Chihuahua, Chih.	01/01/78	03/08/78 06/05/78 09/07/78 11/08/78	Yes Yes Yes Yes
TIF 56	Empacadora de Carnes de Coahuila, S.A., Apartado Postal No. 63, Ciudad Acuna, Coahuila	01/01/78	02/17/78 05/04/78 09/28/78 11/03/78	Yes Yes Yes Yes
TIF 57	Empacadora Sonora Agropecuaria, S.A. de C.V., Hajojoa, Sonora	01/01/78	03/13/78 06/18/78 11/27/78	Yes Yes Yes
TIF 58	Empacadora de la Asociacion de Productores de Carne de Sonora, S.A. de C.V., Hermosillo, Sonora	01/01/78	03/14/78 06/26/78 11/28/78	Yes Yes Yes
TIF 59	Empacadora Tabasco, S.A., Apartado Postal No. 242, Carretera Tierra, Colorado, Villahermosa, Tab.	01/01/78	01/26/78 04/19/78 08/22/78 12/05/78	Yes Yes Yes Yes
TIF 61	Frigorificos de Chapala, S.A., Tecatepec, Jalisco	11/03/78		Undetermined
TIF E-19	Empacadora Cuauhtemoc, S.A., Apartado Postal No. 201, Terminacion Av. Juarez, Ciudad Cuauhtemoc, Chih.	01/01/78	03/08/78 06/09/78 09/07/78 11/07/78	Yes Yes Yes Yes
TIF E-20	Emp. Carnes Unidad Ganad., S.A., Apartado Postal No. 570, Boulevard Olivarez Santana No. 1902, Aguascalientes, Ags.	01/01/78	02/06/78 05/30/78 06/21/78 10/18/78 12/15/78	Yes Yes Yes Yes Yes
TIF E-23	Exportpec, S.A., Apartado Postal No. 634, Libertad No. 1920-C, Chihuahua, Chih.	01/01/78	03/09/78 06/07/78 09/08/78 11/07/78	Yes Yes Yes Yes
TIF E-39	Empacadora Juarez, S.A., Apartado Postal No. 219, Carretera Juarez a Museo, Casas Grandes Km. 7 1/2, Ciudad Juarez, Chih.	01/01/78	03/09/78 06/08/78 09/05/78 11/06/78	Yes Yes Yes Yes
TIF E-42	Emp. Carnes de Zacatecas, S.A., Apartado Postal No. 142, Prolongacion Calle Placetos s/n, Fresnillo, Zac.	01/01/78	02/01/78 05/11/78 03/31/78 10/13/78	Yes Yes Yes Yes
TIF E-43	Empacadora Santa Rosalia, S.A., Apartado Postal 20 - Carret., Panamericana Km. 1507, Ciudad Camargo, Chih.	01/01/78	03/10/78 06/07/78 09/09/78 11/08/78 11/09/78	Yes Yes Yes Yes Yes
TIF E-45	Emp. y Ganadera Occidente, S.A., Apartado Postal No. 9-126, Calzada de las Torres 493, Guadalajara, Jal.	01/01/78	02/09/78 05/02/78 06/23/78 09/08/78 10/19/78 12/14/78	Yes Yes Yes Yes Yes Yes
TIF E-46	Matadora de Magdalena, S.A., Apartado Postal No. 7, Cercana a la Estacion del Ferrocarril del Pacifico, Magdalena, Son.	01/01/78	03/15/78 06/27/78 11/28/78	Yes Yes Yes

MEXICO

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
TIF 12:	Frigorifico y Empacadora, S.A., Apartado Postal No. 69, Anillo Periferico y Carretera al Novillo, Hermosilla, Son.	01/01/78		Undetermined - Withdrawn 03/13/78
TIF 25	Empacadora Durango, S. de R.L., Apartado Postal No. 245, Carretera Panamericana Km. 545, Durango, Dgo.	01/01/78	01/31/78 05/10/78 09/01/78 12/16/78	Yes Yes Yes No - Withdrawn 12/16/78
TIF 31	Emp. y Ganadera de Occidente S.A., Apartado Postal No. 9-126, Calzada de las Torres 493, Guadalajara, Jal.	01/01/78	02/09/78 06/02/78 06/23/78 10/19/78 12/14/78	Yes Yes Yes Yes No - Withdrawn 12/14/78
TIF 45	Emp. Carnes Unidad Ganadera, S.A., Apartado Postal No. 570, Boulevard Olivarez Santana No. 1902, Aguascalientes, Ags.	01/01/78	02/05/78 05/29/78 06/21/78 09/18/78 10/13/78 12/15/78	Yes Yes Yes Yes Yes No - Withdrawn 12/15/78
TIF 48	Emp. y Ganad. Aguascalientes, Apartado Postal No. 70, Carret. Panamericana Km. 527, Aguascalientes, Ags.	01/01/78	02/06/78 05/30/78 06/21/78 10/17/78 12/15/78	Yes Yes Yes Yes No - Withdrawn 12/15/78
TIF 49	Empacadora de Jerez, S.A., Apartado Postal No. 7, Carret. Jerez Sanchez Roman Km. 2, Jerez, Zac.	01/01/78	02/02/78 05/12/78 09/30/78 09/21/78 12/15/78	Yes Yes Yes Yes No - Withdrawn 12/15/78
TIF 51	Frigorifico y Empacadora de Tabasco, S.A. de C.V., Apartado Postal 284, Carretera Circuito del Golfo., Villahermosa, Tab.	01/01/78	01/26/78 04/20/78 08/21/78 12/06/78	Yes Yes No - Withdrawn 08/21/78 No

NICARAGUA

1	Infagan Cia. Ltda., Managua	01/01/78	04/10/78 06/08/78 08/17/78 11/02/78	Yes Yes Yes Yes
2	Empacadora Nicaraguense, S.A., Condaga	01/01/78	04/11/78 06/21/78 08/15/78	Yes Yes No - Withdrawn 08/15/78
4	Industrial Comercial San Martin S.A., Nandaine	08/21/78 01/01/78	11/06/78 04/12/78 06/09/78 08/14/78 11/03/78	Yes Yes Yes Yes Yes
5	Productos Carnic, S.A., Managua	01/01/78	04/13/78 06/08/78 08/11/78 11/02/78	Yes Yes Yes Yes
6	Industrial Ganadera de Oriente, S.A., Rivas	01/01/78	04/12/78 06/09/78 08/14/78 11/03/78	Yes Yes Yes Yes
7	Empacadora y Procesadora de la Costa Atlantica (EPCA), Kilometro 286, Carretera Al Rama, El Rama	07/14/78	11/07/78	Yes
8	Agricola Centroamericana (Matadero Azarisque), S.A., Km. 128, Carretera al Rama, Juigalpa	04/18/78	06/22/78 08/16/78 11/08/78	Yes Yes Yes

<u>Plant Number</u>	<u>Name and Location</u>	<u>Authorized for Importation by USDA</u>	<u>Visited by USDA Inspector</u>	<u>Foreign Inspection Effective in Enforcement of Requirements of Federal Meat Inspection Act</u>
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PARAMA

Product Restriction: Pretesting and certification of all lots for pesticide residues required.

12	Karne, SA, David, Chiriqui	01/01/78	02/15/78 06/27/78 08/09/78 11/14/78	Yes Yes Yes Yes
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Plants for which authorization to import products into the United States was granted and withdrawn without reinstatement during the 1978 calendar year.

2	Central American Beef Co., David, Chiriqui	01/01/78	02/15/78 06/28/78	Yes No - Withdrawn 06/28/78
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PARAGUAY

1	Liebig's Extract of Meat Co. Ltd., Zeballos-Cue	01/01/78	02/01/78 04/05/78 06/16/78 11/29/78	Yes Yes Yes Yes
3	Meat Packing Division of International Products Corporation, San Antonio	01/01/78	01/31/78 04/06/78 06/14/78 11/29/78	Yes Yes Yes Yes

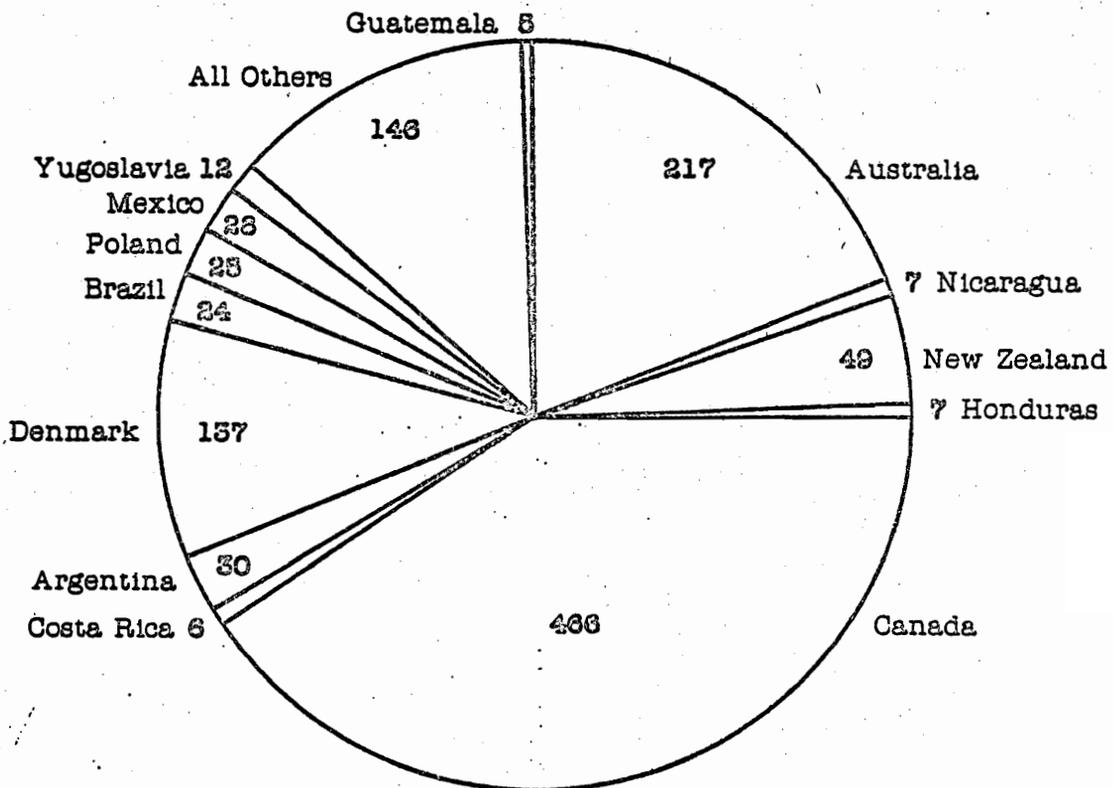
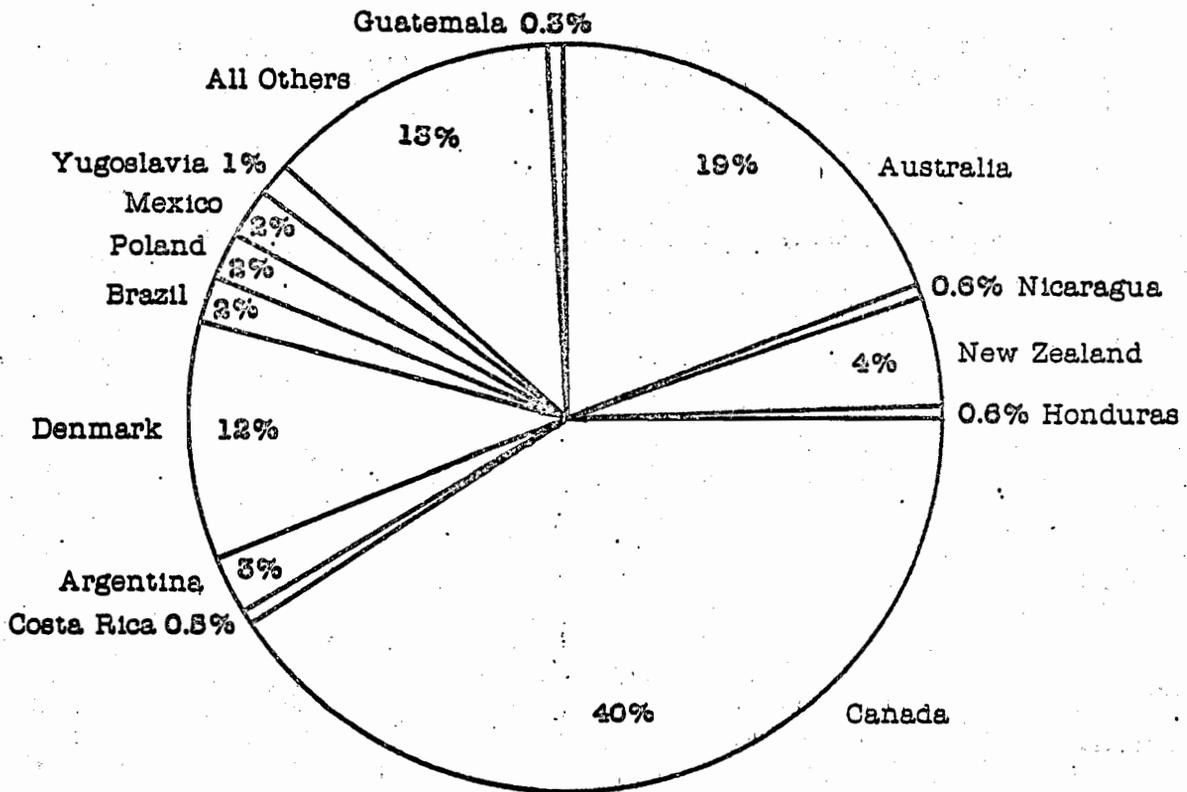
## CERTIFICATION OF FOREIGN PLANTS

### Summary by Country of Plants Authorized to Import Products into the United States

<u>Country</u>	<u>Authorized Plants on 01/01/78</u>	<u>Plant Authorizations Removed</u>	<u>Plants Granted Authorization</u>	<u>Rejected in CY 1978 and Later Reinstated</u>	<u>Authorized Plants on 12/31/78</u>
Argentina	27	-	3	-	30
Australia	201	5	19	2	217
Austria	-	-	-	-	-
Belgium	6	1	-	-	5
Belize	1	-	-	-	1
Brazil	21	14	3	14	24
Bulgaria	1	-	-	-	1
Canada	449	25	34	8	466
China	1	-	-	-	1
Colombia	-	-	-	-	-
Costa Rica	6	-	-	-	6
Czechoslovakia	2	-	-	-	2
Denmark	143	8	1	1	137
Dominican Rep.	4	1	-	-	3
El Salvador	2	-	-	-	2
England	-	-	-	-	-
Finland	-	-	-	-	-
France	19	3	2	2	20
Germany	13	2	-	-	11
Guatemala	6	2	-	1	5
Haiti	1	-	-	-	1
Honduras	7	2	-	2	7
Hungary	4	-	-	-	4
Iceland	2	-	-	-	2
Ireland	11	6	-	1	6
Italy	12	-	1	-	13
Japan	-	-	-	-	-
Luxembourg	-	-	-	-	-
Mexico	34	10	1	3	28
Netherlands	46	2	-	-	44
New Zealand	47	1	2	1	49
Nicaragua	5	1	2	1	7
Northern Ire.	2	2	-	-	-
Norway	-	-	-	-	-
Panama	2	1	-	-	1
Paraguay	2	-	-	-	2
Poland	27	3	1	-	25
Romania	3	-	1	-	4
Scotland	-	-	-	-	-
Spain	-	1	1	-	-
Sweden	2	-	-	-	2
Switzerland	11	-	-	-	11
Trust Territory	1	-	-	-	1
Uruguay	8	1	2	-	9
Venezuela	-	-	-	-	-
Yugoslavia	12	-	-	-	12
<b>TOTALS</b>	<b>1141</b>	<b>91</b>	<b>73</b>	<b>36</b>	<b>1159</b>

**CERTIFICATION OF FOREIGN PLANTS**  
**Number of Plants in Leading Export Countries**

Total Plants: 1,159



# CERTIFICATION OF FOREIGN PLANTS

## Plants Removed from Authorized List by Country and Reason

(Reasons for withdrawal include normal attrition, plant management decision to withdraw from U.S. market and determination by foreign government that plants do not comply with U.S. standards.)

<u>Country</u>	<u>Complies with FMIA</u>	<u>Did Not Comply w/FMIA</u>	<u>Not Reviewed by USDA Compliance w/FMIA Undetermined</u>	<u>Total Plants Removed</u>
Australia	2	-	3	5
Belgium	-	-	1	1
Brazil	-	14	-	14
Canada	6	6	13	25
Denmark	5	1	2	8
Dominican Republic	-	1	-	1
France	-	-	3	3
Germany	-	-	2	2
Guatemala	-	1	1	2
Honduras	-	2	-	2
Ireland	4	1	1	6
Mexico	3	6	1	10
Netherlands	-	1	1	2
New Zealand	1	-	-	1
Nicaragua	-	1	-	1
Northern Ireland	1	1	-	2
Panama	-	1	-	1
Poland	-	1	2	3
Spain	-	1	-	1
Uruguay	1	-	-	1
<b>TOTALS</b>	<b>23</b>	<b>38</b>	<b>30</b>	<b>91</b>

**CERTIFICATION OF FOREIGN PLANTS**

**Plants Visited by FSQS Reviewers and Removed for Failure to Meet  
USDA Standards**

<u>Country</u>	<u>Inspection Deficiencies (1)</u>	<u>Sanitation Deficiencies (2)</u>	<u>Construction and Equipment Deficiencies (3)</u>	<u>Adulterated Product (4)</u>	<u>Combination of Two or More Items in Columns 1 Thru 4 (5)</u>	<u>Total Rejected</u>
Brazil	12	-	-	-	2	14
Canada	1	-	-	-	5	6
Denmark	-	-	-	-	1	1
Dominican Republic	-	-	-	-	1	1
Guatemala	-	-	-	-	1	1
Honduras	-	-	-	-	2	2
Ireland	-	-	1	-	-	1
Mexico	-	-	-	5	1	6
Netherlands	-	-	-	-	1	1
Nicaragua	-	-	-	-	1	1
Northern Ireland	-	-	1	-	-	1
Panama	-	-	-	-	1	1
Poland	-	-	-	-	1	1
Spain	-	-	-	-	1	1
<b>TOTALS</b>	<b>13</b>	<b>-</b>	<b>2</b>	<b>5</b>	<b>18</b>	<b>38</b>

(Includes all foreign plants actually visited by USDA inspectors and found not in compliance with the Federal Meat Inspection Act.)

## IMPORTED MEAT PRODUCTS

### Product Rejections — Breakdown by Reason for Rejection

The defects contribution to the rejections of each type of product are listed in their order of frequency as recorded during inspections. Many times individual rejections are the results of a combination of these listed defects.

#### Fresh Beef and Veal

1. Adulteration with hair, bone and extraneous material
2. Bruises and blood clots
3. Ingesta
4. Pathological lesions
5. Decomposition
6. Biological residues

#### Fresh Mutton and Lamb

1. Adulteration with wool, bone and extraenous material
2. Pathological lesions
3. Ingesta
4. Bruises
5. Biological residues

#### Canned Beef

1. Unsound cans (flippers, springs, swellers, damaged seams)
2. Short weight
3. Adulteration with extraneous material
4. Noncompliance with standards of composition
5. Biological residues

#### Canned Pork and Canned Other

1. Unsound cans
2. Adulteration with extraneous material
3. Short weight
4. Failure to meet composition standards
5. Undercooked
6. Biological residues

#### Cooked Beef

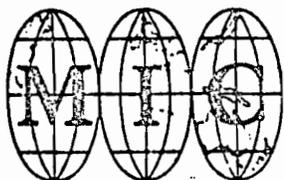
1. Insufficiently cooked (quarantine violation from foot-and-mouth infected countries)
2. Adulteration with extraneous material
3. Decomposition
4. Biological residues

#### Horsemeat (Fresh and Canned)

1. Adulteration with extraneous material
2. Noncompliance with standards
3. Container defects
4. Pathological lesions
5. Decomposition
6. Labeling marking
7. Biological residues

APPENDIX THREE:

Members of Two Major Meat Importing Organizations -  
The Meat Importers Council of America, Inc., and  
The Canned and Cooked Meat Importers' Association



MEAT IMPORTERS COUNCIL OF AMERICA, INC. / One Penn Plaza, New York, N.Y. 10001 (212) 594-2348  
BOARD OF DIRECTORS July, 1978

Chairman: \*Al Leifer  
Vice-Chairman: \*John E. Ward  
Treasurer: \*Moritz Velleman

\*James Canfield  
Edward J. Henderson  
John Jacobson  
Joseph H. Nash  
\*William O'Reilly  
\*John R. Palfreyman

\*George C. Pattison  
Herbert Pearl  
Stuart Polevoy  
Avery A. Shapiro  
Earl Tushman

Executive Director \*Kenneth Roberson

\*Member of Executive Committee

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West Coast Standing Committee

Joseph H. Nash, Chairman

Fund Raising Committee

Moritz Velleman, Chairman  
John E. Ward and Kenneth Roberson

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THE CANNED AND COOKED MEAT IMPORTERS' ASSOCIATION

MEMBERSHIP LIST

NOTE: All but three of the Association's Regular Members are engaged in direct importation of canned and/or cooked frozen beef from South America; three are International Products Corp.; Berns and Koppstein, a division of Imperial Commodities Corp.; and Caemi International, Inc. Some of the firms listed below have corporate affiliations with meat packing and processing plants in South America; other members have contractual relationships with South American exporting companies.

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17 Varick Street  
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BERNS & KOPPSTEIN, DIV.  
IMPERIAL COMMODITIES CORP.  
110 Wall Street  
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CAEMI INTERNATIONAL, INC.  
122 East 42nd Street  
New York, NY 10017

CAP SALES CORPORATION  
2600 Douglas Road  
Suite 1008  
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DELTA BRANDS INTERNAT'L  
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300 Sevilla Avenue  
Coral Gables, FL 33134

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INTERNATIONAL PRODUCTS  
CORPORATION  
277 Park Avenue  
New York, NY 10017

KAYAN INTERNATIONAL, INC.  
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RED LINE COMMERCIAL CO.  
12 Jay Street  
New York, NY 10013

SAMPCO, INC.  
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SSC INTERNATIONAL, INC.  
401 Hackensack Avenue  
P.O. Box 825  
Hackensack, NJ 07602

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P.O. Box 343629  
Coral Gables, FL 33134

TILLIE LEWIS FOODS, INC.  
Ogden Corporation  
Fresno & Charter Way  
Stockton, CA 95201

TRANSMUNDO COMPANY, INC.  
Time/Life Building, Room 4064  
Rockefeller Center  
New York, NY 10020

THE TUPMAN THURLOW  
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420 Lexington Avenue  
New York, NY 10017

WORLD WIDE TRADING COMPANY  
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Miami, FL 33126

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Philadelphia, PA 19148

DISTRIBUTORS SERVICE CO.  
Route 1 & Hackensack Hgwy.  
South Kearny, NJ 07032

PIER SERVICES, INC.  
33 Delancy Street  
Newark, NJ 07105

THE ERB STRAPPING CO.  
311 Washington Street  
P.O. Box 347  
Jersey City, NJ 07303

INTERNATIONAL FORWARDERS  
P.O. Box 550  
Charleston, SC 29402

J&J PORT SERVICES  
167 7th Street  
Brooklyn, NY 11215

JAX COLD STORAGE CO.  
1429 West 16th Street  
Jacksonville, FL 33203

N.J. DEFONTE COMPANY, INC.  
225 Broadway  
New York, NY 10007

NEW ORLEANS COLD STORAGE  
AND WAREHOUSE  
P.O. Box 895  
124 Metairie Highway  
Metairie, LA 70001

M.G. MAHER & CO. INC.  
304 Sanlin Building  
New Orleans, LA 70130

APPENDIX FOUR: The Meat Import Act of 1979

Public Law 96-177  
96th Congress

An Act

To modify the method of establishing quotas on the importation of certain meat, to include within such quotas certain meat products, and for other purposes.

Dec. 31, 1979  
[H.R. 2727]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 2 of the Act of August 22, 1964, entitled "An Act to provide for the free importation of certain wild animals, and to provide for the imposition of quotas on certain meat and meat products" (19 U.S.C. 1202 note) is amended to read as follows:

Meat imports,  
quota  
modifications.

"Sec. 2. (a) This section may be cited as the 'Meat Import Act of 1979'.

Meat Import Act  
of 1979.

"(b) For purposes of this section—

Definitions.

"(1) The term 'entered' means entered, or withdrawn from warehouse, for consumption in the customs territory of the United States.

"(2) The term 'meat articles' means the articles provided for in the Tariff Schedules of the United States (19 U.S.C. 1202) under—

"(A) item 106.10 (relating to fresh, chilled, or frozen cattle meat);

"(B) items 106.22 and 106.25 (relating to fresh, chilled, or frozen meat of goats and sheep (except lambs)); and

"(C) items 107.55 and 107.62 (relating to prepared and preserved beef and veal (except sausage)), if the articles are prepared, whether fresh, chilled, or frozen, but not otherwise preserved.

"(3) The term 'Secretary' means the Secretary of Agriculture.

"(c) The aggregate quantity of meat articles which may be entered in any calendar year after 1979 may not exceed 1,204,600,000 pounds; except that this aggregate quantity shall be—

"(1) increased or decreased for any calendar year by the same percentage that the estimated average annual domestic commercial production of meat articles in that calendar year and the 2 preceding calendar years increases or decreases in comparison with the average annual domestic commercial production of meat articles during calendar years 1968 through 1977; and

"(2) adjusted further under subsection (d).

For purposes of paragraph (1), the estimated annual domestic commercial production of meat articles for any calendar year does not include the carcass weight of live cattle specified in items 100.40, 100.43, 100.45, 100.53, and 100.55 of such Schedules entered during such year.

"(d) The aggregate quantity referred to in subsection (c), as increased or decreased under paragraph (1) of such subsection, shall be adjusted further for any calendar year after 1979 by multiplying such quantity by a fraction—

"(1) the numerator of which is the average annual per capita production of domestic cow beef during that calendar year (as

estimated) and the 4 calendar years preceding such calendar year; and

"(2) the denominator of which is the average annual per capita production of domestic cow beef in that calendar year (as estimated) and the preceding calendar year.

"Domestic cow beef."

For the purposes of this subsection, the phrase 'domestic cow beef' means that portion of the total domestic cattle slaughter designated by the Secretary as cow slaughter.

"(e) For each calendar year after 1979, the Secretary shall estimate and publish—

"(1) before the first day of such calendar year, the aggregate quantity prescribed for such calendar year under subsection (c) as adjusted under subsection (d); and

"(2) before the first day of each calendar quarter in such calendar year, the aggregate quantity of meat articles which (but for this section) would be entered during such calendar year.

In applying paragraph (2) for the second or any succeeding calendar quarter in any calendar year, actual entries for the preceding calendar quarter or quarters in such calendar year shall be taken into account to the extent data is available.

"(f)(1) If the aggregate quantity estimated before any calendar quarter by the Secretary under subsection (e)(2) is 110 percent or more of the aggregate quantity estimated by him under subsection (e)(1), and if there is no limitation in effect under this section for such calendar year with respect to meat articles, the President shall by proclamation limit the total quantity of meat articles which may be entered during such calendar year to the aggregate quantity estimated for such calendar year by the Secretary under subsection (e)(1); except that no limitation imposed under this paragraph for any calendar year may be less than 1,250,000,000 pounds. The President shall include in the articles subject to any limit proclaimed under this paragraph any article of meat provided for in item 107.61 of the Tariff Schedules of the United States (relating to high-quality beef specially processed into fancy cuts).

19 USC 1202  
note.

"(2) If the aggregate quantity estimated before any calendar quarter by the Secretary under subsection (e)(2) is less than 110 percent of the aggregate quantity estimated by him under subsection (e)(1), and if a limitation is in effect under this section for such calendar year with respect to meat articles, such limitation shall cease to apply as of the first day of such calendar quarter. If any such limitation has been in effect for the third calendar quarter of any calendar year, then it shall continue in effect for the fourth calendar quarter of such year unless the proclamation is suspended or the total quantity is increased pursuant to subsection (g).

Publication in  
Federal  
Register.

"(g) The President may, after providing opportunity for public comment by giving 30 days' notice by publication in the Federal Register of his intention to so act, suspend any proclamation made under subsection (f), or increase the total quantity proclaimed under such subsection, if he determines and proclaims that—

"(1) such action is required by overriding economic or national security interests of the United States, giving special weight to the importance to the Nation of the economic well-being of the domestic cattle industry;

"(2) the supply of meat articles will be inadequate to meet domestic demand at reasonable prices; or

"(3) trade agreements entered into after the date of enactment of this Act insure that the policy set forth in subsections (c) and (d) will be carried out.

Any such suspension shall be for such periods, and any such increase shall be in such amount, as the President determines and proclaims to be necessary to carry out the purposes of this subsection.

"(h) Notwithstanding the previous subsections, the total quantity of meat articles which may be entered during any calendar year may not be increased by the President if the fraction described in subsection (d) for that calendar year yields a quotient of less than 1.0, unless—

"(1) during a period of national emergency declared under section 201 of the National Emergencies Act of 1976, he determines and proclaims that such action is required by overriding national security interests of the United States;

50 USC 1621.

"(2) he determines and proclaims that the supply of articles of the kind to which the limitation would otherwise apply will be inadequate, because of a natural disaster, disease, or major national market disruption, to meet domestic demand at reasonable prices; or

"(3) on the basis of actual data for the first two quarters of the calendar year, a revised calculation of the fraction described in subsection (d) for the calendar year yields a quotient of 1.0 or more.

Any such suspension shall be for such period, and any such increase shall be in such amount, as the President determines and proclaims to be necessary to carry out the purposes of this subsection. The effective period of any such suspension or increase made pursuant to paragraph (1) may not extend beyond the termination, in accordance with the provisions of section 202 of the National Emergencies Act of 1976, of such period of national emergency, notwithstanding the provisions of section 202(a) of that Act.

50 USC 1622.

"(i) The Secretary shall allocate the total quantity proclaimed under subsection (f)(1) and any increase in such quantity provided for under subsection (g) among supplying countries on the basis of the shares of the United States market for meat articles such countries supplied during a representative period. Notwithstanding the preceding sentence, due account may be given to special factors which have affected or may affect the trade in meat articles or cattle. The Secretary shall certify such allocations to the Secretary of the Treasury.

"(j) The Secretary shall issue such regulations as he determines to be necessary to prevent circumvention of the purposes of this section.

Regulations.

"(k) All determinations by the President and the Secretary under this section shall be final.

Determinations.

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Study, report  
and  
recommendations  
to congressional  
committees.

"(1) The Secretary of Agriculture shall study the regional economic impact of imports of meat articles and report the results of his study, together with any recommendations (including recommendations for legislation, if any) to the Committee on Ways and Means of the House of Representatives and to the Committee on Finance of the Senate not later than June 30, 1980."

Effective date.  
19 USC 1202  
note.

Sec. 2. This Act shall take effect January 1, 1980.

Approved December 31, 1979.

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**LEGISLATIVE HISTORY:**

HOUSE REPORT No. 96-238 (Comm. on Ways and Means).

SENATE REPORT No. 96-465 (Comm. on Finance).

CONGRESSIONAL RECORD, Vol. 125 (1979):

Nov. 18, 14, considered and passed House.

Dec. 18, considered and passed Senate.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 15, No. 52:

Dec. 31, Presidential statement.

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APPENDIX FIVE: References

- Allen, Elizabeth: "New Settlement in the Upper Amazon Basin" in Bank of London and South America Review, November 1975, Vol. 9, no. 11, pp. 622-28.
- Alvim, Paulo de T.: "Agricultural Production Potential of the Amazon Region." Presented at the conference on The Development of Amazonia in Seven Countries, University of Cambridge, England, September 23-26, 1979.
- \_\_\_\_\_: "Perspectives of Agricultural Production in the Amazon Region" in Interciencia, July-August 1978, Vol. 3, no. 4, pp. 243-251.
- \_\_\_\_\_: "The Balance Between Conservation and Utilization in the Humid Tropics with Special Reference to Amazonian Brazil" in Extinction Is Forever, ed. G.T. Prance and Thomas S. Elias, pp. 347-352. The New York Botanical Garden, 1977.
- Anable, David: "Computerization of Hamburgers" in the Christian Science Monitor, July 6, 1977.
- Anlauf, Robert R.: "South America's Beef Industry: Room for Some; Bust for Others" in Foreign Agriculture, Vol. XII, no. 46, November 18, 1974.
- Anonymous: "Cadena Internacional de Restaurantes Wimpy Inauguro su 'primer restaurante'" in Central American Report, December 9, 1976.
- \_\_\_\_\_: Central American Meat Export Information in InfoPress, January 1, 1979.
- \_\_\_\_\_: "Delfim will call in the sheriff to Brazil's 'wild west'" in Latin America Economic Report, 15 June 1979, Vol. VII, no. 23, pp. 180-181.
- \_\_\_\_\_: "Deltec" in Brazilian Information Bulletin, Winter 1974, No. 12, pp. 17-19.
- \_\_\_\_\_: "El Salvador: Imports and Exports" in Central America Report, June 25, 1979.

- \_\_\_\_\_ : "Fast food restaurants have 'room for growth'" in The National Provisioner, Vol. 181, no. 16, October 20, 1979.
- \_\_\_\_\_ : "Guatemala: Meat Crisis" in Central America Report, no date.
- \_\_\_\_\_ : "Import/Export: Container Fleets Help Open World-wide Markets For Meat" in Meat Processing, Vol. 18, no. 10, October 1979.
- \_\_\_\_\_ : "Imports, Exports Up For January-June" in Meat Processing, Vol. 18, no. 10, October 1979.
- \_\_\_\_\_ : "Ogden Corp. Is Closing Paraguay Meat Plant" in the Wall Street Journal, November 14, 1978.
- \_\_\_\_\_ : "Ranching: a tough job with varied problems" in the Financial Times, April 3, 1979.
- \_\_\_\_\_ : "Should F.i. plants be able to process state-inspected meat?" in The National Provisioner, Vol 181, no. 17, October 27, 1979.
- \_\_\_\_\_ : "Six Countries Authorized To Export More Meat To U.S." in Meat Processing, Vol. 18, no. 10, October 1979.
- \_\_\_\_\_ : "USDA Proposes To Stop Requiring Import Permit for Mexican Cattle" in Meat Processing, Vol. 18, no. 10, October 1979.
- \_\_\_\_\_ : "USDA Rejects Nicaraguan Beef After Intensified Inspection" in Meat Processing, Vol. 18, no. 10, October 1979.
- \_\_\_\_\_ : "USDA sees increase in Japan's beef imports" in The National Privisioner, Vol. 181, no. 16, October 20, 1979.

Anthan, George: "U.S. Triples Beef Imports From Dictator-ruled Nation" in The Des Moines Register, Friday, May 11, 1979.

Arata, Joseph; Ball, Eldon; Gustafson, Ronald; and Remmele, Robert: "Livestock and Meat Situation." National Economics Division; Economics, Statistics, and Cooperative Service, U.S. Department of Agriculture, Washington, D.C. August 1979.

- Arruda, Marcos: "Notes on Foreign Occupation of Land in Brazil" in The Multinational Corporations and Brazil: The Impact of Multinational Corporations in the Contemporary Brazilian Economy, ed. by Arruda, Marcos; de Souza, Herbert; and Afonso, Carlos. Brazilian Studies, Latin America Research Unit, Toronto, Canada. 1974.
- Auchten, R.J., coordinator: Proceedings of Conference on Improved Utilization of Tropical Forests. May 21-26, 1978, Madison Wisconsin. Forest Products Laboratory, Forest Service of the U.S. Department of Agriculture, and Agency for International, U.S. Department of State. U.S. Government Printing Office. 1978.
- Banco da Amazonia: "First Meat Factory" in Amazon Newsletter, No. 13, January/February 1978. Banco da Amazonia, Belem, Brazil.
- \_\_\_\_\_: "Fish: Amazon Nutrition and Economy Wonder" in Amazon Newsletter, No. 15, June/July 1978. Banco da Amazonia, Belem, Brazil.
- \_\_\_\_\_: "\$500 Billion Worth of Lumber" in Amazon Newsletter, No. 15, June/July 1978. Banco da Amazonia, Belem, Brazil.
- \_\_\_\_\_: "Mercedes Benz Joins The Cattle Drive" in Amazon Newsletter. No. 7, January/February 1977. Banco da Amazonia, Belem, Brazil.
- \_\_\_\_\_: "Modern Dairy Complex to Supply the Amazon" in Amazon Newsletter, No. 10, July/August 1976. Banco da Amazonia, Belem, Brazil.
- \_\_\_\_\_: "Soybean Grows Big in the Amazon." in Amazon Newsletter, No. 15, June/July 1977. Banco da Amazonia, Belem, Brazil.
- Beals, Edward W.: "Agriculture and the Rain Forest: An Ecological Perspective" in Extinction or Preservation: What Biological Future for the South American Tropics?, A collage of Readings Assembled by Hugh H. Iltis. University of Wisconsin, Madison. 1978.
- Bene, J.G.; Beall, H.W.; and Cote, A: "Trees, Food and People: Land Management in the Tropics." International Development Research Centre. Ottawa, Canada, 1977.

Benge, Michael D." U.S. Beef Consumption and Its Contribution to Deforestation." Memorandum to COED Working Group on Reforestation. July 2, 1979.

Bennett, Charles F.: Man and Earth's Ecosystems. John Wiley and Sons, New York. 1975.

Bernet, Jean: "Brazil and International Capital." Rio de Janeiro. 1976.

Branford, Sue: "Ecological disasters threaten Amazon" in the Financial Times, April 18, 1978.

\_\_\_\_\_: "Savannah cattle may give way to soya" in the Financial Times, February 15, 1978.

Browne, Malcolm W.: "Vast Estate in Paraguay Is at Once Feudal and Modern" in the New York Times, November 12, 1970.

Brunig, Ebenhard: "The Tropical Rain Forest - A Wasted Asset or an Essential Biospheric Resource?" in Ambio. Vol. 6, no. 4: pp. 187-191. 1977.

Budowski, Gerardo: "A Strategy for Saving Wild Plants: Experience from Central America" in Extinction Is Forever, ed. by G.T. Prance and T.S. Elias, pp. 368-373. The New York Botanical Garden. 1977.

\_\_\_\_\_: "The Vulnerable Rain Forest" in Saving the Habitats.

\_\_\_\_\_: "Why Save Tropical Rain Forests? Some Arguments for Campaigning Conservationists" in Amazonia, Vol. 4, pp. 529-538. Kiel. April 1976.

Burger King: "Facts About Burger King Corporation." The Pillsbury Company, Minneapolis, Minnesota.

Business Week: "The Fast-Food Stars: Three Strategies for Fast Growth." July 11, 1977.

Callow, L.L.: "Ticks and tick-borne diseases as a barrier to introduction of exotic cattle to the tropics" in World Animal Review, Food and Agriculture Organization of the United Nations. No. 28-1978, pp. 20-25.

Carter, Jimmy: Environmental Message to the Congress of the United States. The White House. August 2, 1979.

\_\_\_\_\_ : "Memorandum of Disapproval Regarding the Meat Import Act of 1978." Office of The White House Press Secretary, November 11, 1978.

\_\_\_\_\_ : "Quantitative Limitation on the Importation of Certain Meat." Proclamation 4577, July 4, 1978. Federal Register, Vol. 43, no. 131. Friday, July 7, 1978.

Cepal: "Draft Annual Report, Work of the Commission since 8 May 1978." Economic Commission for Latin America, United Nations Economic and Social Council. 22 March, 1979.

\_\_\_\_\_ : "Report of the Executive Secretary to the Eighteenth Session of the Commission, La Paz, Bolivia, 18-26 April 1979." Economic Commission for Latin America, United Nations Economic and Social Council. 1979.

Chamber of Commerce of the United States: "International Policy Development and Business Diplomacy." International Division. 1979.

CIAT: Annual Report 1977. Centro Internacional de Agricultura Tropical, Apartado Aereo 67-13, Cali, Colombia. September 1978.

Committee on Government Operations: "Report on Export of Products Banned by U.S. Regulatory Agencies." Thirty-eighth Report by the Committee on Government Operations. U.S. Government Printing Office. 1978.

Committee on International Relations: "Briefing on Impact of Brazil's 'Economic Miracle' on the Amazonian Indians." Hearing before the Subcommittee on International Development of the Committee on International Relations, House of Representatives, Ninety-fifth Congress, September 6, 1978. U.S. Government Printing Office. Washington, 1978.

Conduru, Jose Maria Pinheiro: "Agriculture in the Brazilian Amazon" in Man in the Amazon, ed. by Charles Wagley. University of Florida, Gainesville. 1974.

Conrad, Joe H. and McDowell, Lee R.: Development of Efficient Mineral Supplementation Regimes for Grazing Ruminants in the Tropics. Institute of Food and Agricultural Sciences, Center for Tropical Agriculture, Department of Animal Science, University of Florida, Gainesville. 1979.

Consultative Group on International Agricultural Research:  
"Consultative Group on International Agricultural  
Research." New York. 1976.

Council of the Americas: 1978 Annual Report. New York.  
1979.

Craig, Jane: Land, People and Power: The Question of  
Third World Land Reform. Oxfam - Canada, Toronto.  
1977.

Cruz, Arturo and Sokolow, Richard: "U.S. Importation of  
Nicaraguan Meat: Strategy for Boycott." Circular.  
1979.

Cunha, E.; Alvarez, F.; Larez, O.; and Bryan, W.B.:  
"Beef Cattle and Water Buffalo Grazing Trials with  
Native and Introduced Grasses," Part IV of Pasture  
and Livestock Investigations In The Humid Tropics  
Orinoco Delta - Venezuela. Bulletin 45. IRI Research  
Institute, Inc., New York. 1975.

Cunha E.; Larez, O.; and Bryan, W.B.: "Milk Production  
Studies," Part V of Pasture and Livestock Investiga-  
tions In The Humid Tropics Orinoco Delta - Venezuela.  
Bulletin 46. IRI Research Institute, Inc., New York.  
1975.

d'Arc, Helene Riviere and They, Herve: "State and Entre-  
preneurs in the Development of Amazonia." Presented  
at the Conference on the Development of Amazonia in  
Seven Countries, University of Cambridge, England,  
September 23-26, 1979.

Dasman, R.F.; Milton, J.P.; and Freeman, P.H.: Ecological  
Principles for Economic Development. Wiley, London  
and New York. 1973.

Davis, Shelton H.: Victims of the Miracle. Cambridge  
University Press, New York. 1977.

de Alba, Jorge: Alimentacion del ganado en America  
Latina. Segunda edicion. Centro Regional de Ayudo  
Tecnica, Agencia para el Desarrollo Internacional  
(A.I.D.) Mexico. 1971.

\_\_\_\_\_: "Progress in the selection of the Latin American  
Dairy Criollo" in World Animal Review, Food and  
Agriculture Organization of the United Nations.  
No. 28-1978, pp. 26-30.

Del Monte: Del Monte Corporation 1978 Annual Report. San Francisco, California. 1979.

Denevan, William M.: "Cattle Ranching in the Mojos Savannas of Northeastern Bolivia" in Association of Pacific Coast Geographers Yearbook. Vol. 25, pp. 37-44. 1963.

\_\_\_\_\_: "Development and the imminent demise of the Amazon rain forest" in The Professional Geographer, Vol. 25, no. 2. May 1973.

\_\_\_\_\_: "The Causes and Consequences of Shifting Cultivation in Relation to Tropical Forest Survival" in The Role of Geographical Research in Latin America, W.M. Denevan, editor. Conference of Latin Americanist Geographers Publication No. 7, Muncie, 1978.

Dickerman, M.B.: "Conference on Improved Utilization of Tropical Forests" in Journal of Forestry, Vol. 76, No. 9. September 1978.

Durham, Kathleen Foote: "Expansion of Agricultural Settlement in the Peruvian Rainforest: The Role of the Market and the Role of the State." Paper prepared for presentation at the joint meeting of the Latin American Studies Association and the African Studies Association, Houston, November 2-5, 1977.

\_\_\_\_\_: Information on cattle ranching in Peru's Amazon Basin Region. Correspondence to Douglas R. Shane. September 1979.

Evans, Peter: Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil. Princeton University Press, Princeton, New Jersey. 1979.

Export-Import Bank of the United States: Annual Report 1975. Washington, D.C. 1976.

\_\_\_\_\_: "Supplement to the Annual Report 1975." Washington, D.C. 1976.

\_\_\_\_\_: 1977 Annual Report. Washington, D.C. 1978.

\_\_\_\_\_: 1978 Annual Report. U.S. Government Printing Office, Washington, D.C. 1979.

- Falesi, Italo Claudio: "Soils of the Brazilian Amazon" in Man in the Amazon, ed. by Charles Wagley. University of Florida, Gainesville. 1974.
- Farnsworth, Edward A. and Golley, Frank B.: Fragile Ecosystems. Springer-Verlag, New York, 1974.
- Fearnside, Philip M.: "Land Use Allocation of the Transamazon Highway Colonists of Brazil and its Relation to Human Carrying Capacity." Presented at the Conference on The Development of Amazonia in Seven Countries, University of Cambridge, England, September 23-26, 1979.
- Flynn, P.: "U.S. Agribusiness Drives Out Peasants" in Extinction or Preservation: What Future for the South American Tropics? A Collage of Readings Assembled by Hugh H. Iltis. University of Wisconsin, Madison. 1978.
- Food and Agriculture Organization: "Current World Food Situation." Seventy-fifth Session, Rome, 11-22 June 1979.
- \_\_\_\_\_: The State of Food and Agriculture 1977. FAO Agriculture Series No. 8. Rome 1978.
- Fosberg, F.R.: "Temperate Zone Influence on Tropical Forest Land Use: A Plea for Sanity" in Tropical Forest Ecosystems in Africa and South America: A Comparative View, Meggens, B.J., et al. Smithsonian Institution, Washington, D.C. 1973.
- Frome, Michael: "What Course for the Amazon?" in the Los Angeles Times, January 14, 1979.
- Frundt, Henry J., ed.: Agribusiness Manual, Background Papers on Corporate Responsibility and Hunger Issues. Interfaith Center on Corporate Responsibility, New York. 1978.
- Furley, Peter A.: "Development planning in Rondonia based on naturally renewable resource surveys." Presented at the Conference on the Development of Amazonia in Seven Countries, University of Cambridge, England, September 23-26, 1979.
- General Secretariat, Organization of American States: "Program of Regional Development." Washington, D.C. 1977.

- Gerassi, John: The Great Fear in Latin America. Collier Books, New York. 1965.
- Gilbert, Alan: Latin American Development. Penguin Books, Great Britain. 1974.
- Gill, Tom: Tropical Forests of the Caribbean. Tropical Plant Research Foundation and Charles Lathrop Pack Forestry Trust. 1931. (printed by the Read-Taylor Co., Balt. MD)
- Gomez-Pompa, A.: Vazquez-Yanes, C.; and Guevara, S.: "The Tropical Rain Forest: A Nonrenewable Resource" in Science, 177: pp. 762-765.
- Goodland, R.J. and Irwin, H.S.: "Amazonian Forest and Cerrado: Development and Environmental Conservation" in Extinction Is Forever, ed. by G. T. Prance and T. S. Elias, pp. 214-233. The New York Botanical Garden. 1977.
- \_\_\_\_\_: Amazon Jungle: Green Hell to Red Desert? Elsevier Scientific Publishing Company, New York. 1975.
- Greenland, D.J. and Lal, R.: Soil Conservation and Management in the Humid Tropics. John Wiley and Sons, Chichester, Great Britain. 1977.
- Greenwood, Leonard: "Model Ranch Hacked From Brazil Jungle" in the Los Angeles Times, February 8, 1979.
- Gregerson, Hans. M and Contreras, Arnaldo: "U.S. Investment in the Forest-based Sector in Latin America, Problems and Potentials" in Extinction or Preservation: What Biological Future for the South American Tropics?, A Collage of Readings Assembled by Hugh H. Iltis. University of Wisconsin, Madison. 1978.
- Gulf and Western Industries: "10 K Report," July 31, 1974.
- Hamilton, Lawrence S.: "Whither the Tropical Rainforest?" in Sierra Club Bulletin, pp. 9-11. April 1976.
- Hemphill, Alan K.: "Livestock Prospects Mixed in Central America-Mexico." in Foreign Agriculture, Vol XIV, No. 48, November 29, 1976.
- Higgins, Benjamin and Higgins, Jean Downing: Economic Development of a Small Planet. Norton, New York. 1975.

Holdridge, Leslie R.: "Pasture Lands in Central America and Panama." Inter-American Institute of Agricultural Sciences. Turriabba, Costa Rica. 1967.

Hollingsworth, Jr., Pierce: "On-Cor frozen entrees aim at eat-at-home market" in Processed Prepared Food, Vol. 148, no. 10, October 1979.

Hornblower, Margot: "Tropical Forests - A Threatened Resource" in The Washington Post. Monday, April 23, 1979. Pp A1 and A20.

Hume, David L.: "The Changing U.S. Role in the World Meat Trade" in Foreign Agriculture, Vol. XII, no. 6, February 11, 1974.

Institutions Magazine: "McDonald's Changing Image: Following, Leading and Perfect Timing." October 15, 1977.

Inter-American Development Bank: "A New Partnership for Development: The Participation of the Nonregional Member Countries in the Inter-American Development Bank." IDB, Washington, D.C. March 1978.

\_\_\_\_\_: Annual Report 1978. Inter-American Development Bank, Washington, D.C.

\_\_\_\_\_: "Basic Facts About the Inter-American Development Bank." Washington, D.C. 1979.

\_\_\_\_\_: Latin American-European Business Cooperation. Proceedings of the Symposium held in Montreux, Switzerland, October 23-26, 1977. Inter-American Development Bank, Washington, D.C. 1978.

\_\_\_\_\_: "Participation of the Bank in the Development of Agriculture in Latin America." Project Analysis Department, IDB, Washington, D.C. April 1977.

\_\_\_\_\_: "Participation of the Bank in the Development of Agriculture in Latin America." Project Analysis Department, IDB, Washington, D.C. April 1978.

\_\_\_\_\_: Proceedings of the Seminar on Agricultural Policy: A Limiting Factor in the Development Process, March 17-21, 1975. Inter-American Development Bank. 1975.

\_\_\_\_\_: "Progress in Development, A Summary of the Bank's Role in the Economic and Social Development of Latin America." Washington, D.C. January 1977.

- \_\_\_\_\_: "Progress in the Economic Community of Central America." IDB, Washington, D.C. May 1977.
- \_\_\_\_\_: Quince anos de actividades, 1960 - 74. IDB. 1975.
- International Agricultural Development Service: Report/1978. International Agricultural Development Service, New York. 1979.
- International Institute of Tropical Agriculture: IITA Research Highlights 1977. Ibadan, Nigeria. May 1978.
- International Union for Conservation of Nature and Natural Resources: Proceedings of the Latin American Conference on the Conservation of Renewable Natural Resources. IUCN, UNESCO and FAO. Marges, Switzerland. 1968. Held 27 Mar- 2 Apr. 1968, San Carlos de Bariloche, Arg.
- Irwin, Howard S.: "Coming to Terms with the Rain Forest" in Garden Magazine. Vol. 1, no. 2: 28-33. 1977.
- Jackson, Wes: "Toward An Ecological Ethic" in The Association of Southeastern Biologists Bulletin. Vol. 23, no. 3, pp. 123-132. July 1976.
- Jahoda, John C. and O'Hearn, Donna L.: "The Reluctant Amazon Basin" in Environment, Vol. 17, no. 7. October 1975.
- Janzen, Daniel H.: "The Uncertain Future of the Tropics" in Natural History. Vol. 61, no. 9, pp. 80-89, November 1972.
- \_\_\_\_\_: "Tropical Agroecosystems" in Science, Vol. 182, 21 December 1973.
- Johnson, Peyton: "Fighting the Frontier Fever" in CERES, FAO Review on Agriculture and Development. Vol 11, no. 4, July-August 1978.
- Jonas, Susanne and Tobis, David (eds.): Guatemala. North American Congress on Latin America, Berkeley, California. 1974.
- Jones, Robert A.: "Rain Forests Shriveling as Man Intrudes" in the Los Angeles Times, May 7, 1979.
- \_\_\_\_\_: "Science Busy Sketching Final Rain Forest Profile: in the Los Angeles Times, May 8, 1979.

- Judd, B. Ira: Handbook of Tropical Forage Grasses.  
Garland STPM Press, New York & London. 1979.
- Kamarck, Andrew M.: The Tropics and Economic Development.  
The Johns Hopkins University Press, Baltimore. 1976.
- Kandell, Jonathan: "Bolivia Pushing Into a Last Frontier"  
in the New York Times, October 14, 1975.
- King, Kenneth: "We have forgotten the people," address  
to the Eighth World Forestry Congress, Jakarta,  
Indonesia, October 1978.
- King, Wayne: "The Wealthy Anastasio Somoza" in the New  
York Times, Sunday, July 22, 1979, pp. 1 and 9.
- Kverno, Nelson B. and Mitchell G. Clay: "Vampire Bats  
and their effect on cattle production in Latin  
America" in World Animal Review, Food and Agriculture  
Organization of the United Nations. No. 17-1976,  
pp. 1-7.
- La Bastille, Anne: "Heaven, Not Hell" in Audubon  
Magazine November, 1979, Vol. 81, no. 5, pp. 68-103.
- Larez, O.R.; Velasquez, E.R.; Parra, O.; and Bryan, W.B.:  
"Observations on Forage Grasses and Legumes," Part I  
of Pasture and Livestock Investigations In the Humid  
Tropics Orinoco Delta - Venezuela. Bulletin 42.  
IRI Research Institute, Inc., New York. 1975.
- Leach, Gerald: "The Energy Costs of Food Production" in  
The Man/Food Equation, Steele and Bourne, eds.  
Academic Press, 1975.
- Ledogar, Robert J.: Hungry for Profits. IDOC/ Inter-  
national Documentation No. 70, New York. 1975.
- Long, William R.: "Brazil Spares Forests in Developing  
Amazon" in the Miami Herald, August 11, 1978.
- Lovejoy, Thomas E. and Schubart, Herbert O.R.: "The  
Ecology of Amazonian Development." Presented at  
the Conference on the Development of Amazonia in  
Seven Countries, University of Cambridge, England,  
September 23-26, 1979.
- \_\_\_\_\_: "The Tropical Rain Forest Problem." Memorandum  
to Charles E. Warren, Chairman, Council on Environ-  
mental Quality. October 19, 1978.

- Lowe, Karen: "Land Sales in Amazon A Hot Issue" in the Miami Herald, January 23, 1979.
- Machado, Paulo de Almeida: "The Role of Education and Research in the Development of the Amazon" in Man and the Amazon, ed. by Charles Wagley. University of Florida, Gainesville, 1974.
- Madalena, F. E.: "Grassbreeding systems for beef production in Latin America" in World Animal Review, Food and Agriculture Organization of the United Nations. No. 22 - 1977, pp. 27-33.
- Mann, I.: Meat Handling In Underdeveloped Countries, Slaughter and Processing. Food and Agricultural Organization of the United Nations. FAO Agricultural Development Paper No. 70. Rome 1970.
- Martin, Everett G.: "Getting Bolivia Beef to Market Can Make You a (Gasp) Wreck" in the Wall Street Journal, April 2, 1976.
- Martine, George: "Recent Colonization Experiences in Brazil: Expectations Versus Reality." Presented at the Conference on the Development of Amazonia in Seven Countries, University of Cambridge, England, September 23-26, 1979.
- Martinez, Hector; Ramon, Cesar; and Garcia, Mario: Colonizacion Tingo Maria - Tocache - Campanilla. Ministerio de Agricultura, Lima, Peru. 1974.
- McCuish, Deborah: "U.S. Meat Imports - Quota from Costa Rica," memorandum to Tom Stoel, Michael Wright and Tom Lovejoy. August 16, 1977.
- McDonald's Corporation: Annual Report 1978. McDonald's Corporation, Oak Brook, Illinois.
- \_\_\_\_\_ : "McDonald's Corporation General Information." McDonald's Corporation, Oak Brook, Illinois.
- McDowell, Lee R. and Conrad, Joe R.: "Trace mineral nutrition in Latin America" in World Animal Review, Food and Agriculture Organization of the United Nations. No. 24 - 1977, pp. 24-33.
- McDowell, Robert: Improvement of Livestock Production in Warm Climates. W. H. Freeman. 1972.

McNeil, Mary: "Lateritic Soils." November 1964. (Source unknown.)

Meat Importers Council of America, Inc.: "The Facts About Imported Lean Beef." Arlington, Virginia. January 1978.

Medina, Ernesto: "The Future of the Amazon Basin" in Interciencia, Vol. 3, no. 4, pp. 197-198.

Meggers, Betty J.: Amazonia: Man and Culture in a Counterfeit Paradise. Aldine Publishing Company, Chicago. 1971.

Mexican National Confederation of Livestock Producers: "Brief of Mexican National Confederation of Livestock Producers," presented to the U.S. International Trade Commission. Washington, D.C. September 29, 1977.

Miller, Kenton R.: "Conservation and Development of Tropical Rain Forest Areas." Presented to the Session on Management of Non-Agricultural Lands, International Union for Conservation of Nature and Natural Resources, 12th Technical Meeting, Banff, Canada, 11-16 September 1972.

Miller, Lee D. and Williams, Darrel L.: "Monitoring Forest Canopy Alteration Around the World With Digital Analysis of Lands at Imagery." Paper presented at ISP/IUFRO International Symposium of Remote Sensing Observation and Inventory of Earth Resources and the Endangered Environment, Freiburg, Germany. 1978.

Mueller, Charles C.: "Recent Frontier Expansion in Brazil: The Case of Rondonia." Presented at the Conference on The Development of Amazonia in Seven Countries, University of Cambridge, England, September 23-26, 1979.

Myers, Norman: Conversion Rates of Tropical Moist Forests. National Academy of Sciences, Washington, D.C. 1979 (Unpublished manuscript.)

\_\_\_\_\_: "Discounting and Depletion, The Case of Tropical Forests." in Futures. December 1977.

\_\_\_\_\_ : The Sinking Ark. Pergamon Press, London. 1979.

\_\_\_\_\_ : "Tropical Wastelands" in Not Man Apart. Friends of the Earth. Vol. 9, No. 8, July 1979.

Nagel, Stuart S.: "Incentives for Compliance With Environmental Law" in Ecosocial Systems and Ecopolitics: A Reader on Human and Social Implications of Environmental Management in Developing Countries, ed. by Karl W. Deutsch. UNESCO. 1977.

National Academy of Sciences: Underexploited Tropical Plants with Promising Economic Value. Washington, D.C. 1975.

National Restaurant Association: "Statement of Kolbet Schrichte, Corporate Secretary of the National Restaurant Association Before the Subcommittee on Trade, Committee on Ways and Means, U.S. House of Representatives, on Proposals to Amend the Meat Import Quota Act P.L. 88-482." May 30, 1979.

\_\_\_\_\_ : "Wholesale Price Outlook - 1979, Beef and Veal" in Foodservice Trends, May 1979, Vol. 1, no. 4, p. 5.

\_\_\_\_\_ : "Why Hamburger Prices Are Rising" in Foodservice Trends, August 1979, Vol. 1, no. 7, pp. 4 and 9.

Nations, James D.: "Indigenous Agroecosystems and the Export Beef Cattle Industry in Tropical Latin America - Their Role in Food Production and Malnutrition." Paper prepared for the Xth International Congress of Anthropological and Ethnological Sciences, New Delhi, India, December 10-16, 1978.

Nations, James D. and Nigh, Ronald B.: "Cattle, Cash, Food, and Forest." in Culture and Agriculture, August 1978, No. 6.

Natural Resources Defense Council: "Minutes of the Joint Meeting of the U.S. Government Task Force on Tropical Forests and the NGO Working Group, January 29, 1979."

\_\_\_\_\_ : Report of the Non-governmental Tropical Forest Working Group. Draft. June 1979.

Nelson, Michael: The Development of Tropical Lands, Policy Issues in Latin America. Resources for the Future, Inc., Washington, D.C. 1973.

- North American Congress on Latin America: "Del Monte: Bitter Fruits - NACLA's Latin America and Empire Report," Vol. X, no. 7, September 1976. New York.
- \_\_\_\_\_ : "Nicaragua: NACLA's Latin America and Empire Report," Vol. X, no. 2, February 1976. New York.
- Odum, Eugene P.: Ecology: The Link Between the Natural and the Social Sciences. Holt, Rinehart and Winston. New York. Second Edition. 1975.
- Office of The White House Press Secretary: "Fact Sheet on Meat Imports." The White House. June 8, 1978.
- O'Reilly, Alejandro Koffmann: "Coffee, Beef Price Rise Aids Central America" in Journal of Commerce, February 15, 1977.
- Ortiz Mena, Antonio: Development in Latin America - A View From the IDB. Inter-American Development Bank, Washington, D.C. 1975.
- Overseas Private Investment Corporation: Annual Report 1978. OPIC, Washington, D.C.
- \_\_\_\_\_ : 1976 Annual Report. OPIC, Washington, D.C.
- \_\_\_\_\_ : 1977 Annual Report. OPIC, Washington, D.C.
- \_\_\_\_\_ : "Private Investment: Helping people to help themselves." OPIC, Washington, D.C. February 1979.
- Panagides, Stahis S. and Magalhaes, Vande Lage: "Amazon Economic Policy and Prospects" in Man in The Amazon, ed. by Charles Wagley. University of Florida, Gainesville. 1974.
- Parsons, James J.: "Cotton and Cattle in the Pacific Lowlands of Central America" in Journal of Inter-American Studies, Vol. VII, no. 2, pp. 149-159. University of Miami. April 1965.
- \_\_\_\_\_ : "Forest to Pasture: development or destruction?" in Revista de Biologica Tropical, 24 (Supl. 1): 121-138. 1976.
- \_\_\_\_\_ : Review of The Development of Tropical Lands: Policy Issues in Latin America by Michael Nelson, in Annals of The Association of American Geographers, Vol. 64, No. 3, September 1974.

- \_\_\_\_\_: "Spread of African Pasture Grasses to The American Tropics" in Journal of Range Management, Vol. 25, no. 1, January 1972.
- \_\_\_\_\_: "The Changing Nature of New World Tropical Forests Since European Colonization" in Ecological Guidelines for Development in the American Humid Tropics. Proceedings of meeting at Caracas, Venezuela, 20-22 February 1974. International Union for the Conservation of Nature and Natural Resources, Morges, Switzerland.
- Phillips, Ralph W.: Breeding Livestock Adapted to Unfavorable Environments. FAO Agricultural Studies No. 1. Food and Agriculture Organization of the United Nations. Washington, D.C. 1949.
- Pillsbury Company: 1978 Annual Report. The Pillsbury Company. Minneapolis, Minnesota.
- Place, Susan: "Some Effects of Cattle-related Deforestation in Guanacaste, Costa Rica." Correspondence to Douglas R. Shane. September 1979.
- Policy Sciences Center, Inc.: "Consultation on Agricultural Chemicals," Summary of a conference held February 26-28, 1978, San Jose, Costa Rica. 19 pages.
- Poore, Duncan: Ecological Guidelines for Development in Tropical Rain Forests. IUCN Books, Morges, Switzerland. 1976.
- \_\_\_\_\_: "Saving tropical rain forests" in IUCN Bulletin, Vol. 5, no. 8, August 1974.
- \_\_\_\_\_: "Values of Tropical Moist Forests" in Improved Utilization of Tropical Forests, Section II: Environment and Silviculture. No date or publisher listed.
- Putnam, P.A. and Warwick, E.J.: "Beef Cattle Breeds." Agricultural Research Service, U.S. Department of Agriculture. Farmers' Bulletin No. 2228. U.S. Government Printing Office, Washington, D.C. February 1975.
- Raven, Peter H.: "The Destruction of the Tropics" in The Bulletin. Pacific Tropical Botanical Garden. Vol. 8, no. 3, pp. 60-61. July 1978.

- Reingold, Edwin: "The Burger That Conquered the Country" in Time Magazine, September 17, 1973.
- Richards, Paul W.: The Tropical Rain Forest. Cambridge University Press. 1952.
- Rohter, Larry: "Amazon Basin's Forests Going Up in Smoke" in The Washington Post, Friday, January 5, 1979. P. A14.
- \_\_\_\_\_: "Hopes of Amazon Pioneers Dashed in Nightmare of Misery" in The Washington Post, January 28, 1979.
- Rouse, John E.: The Criollo: Spanish Cattle in the Americas. University of Oklahoma Press, Norman. 1977.
- Rowen, Hobart: "Third World Aid to Dwindle, Report Issued by World Bank Affiliate" in The Washington Post. September 13, 1979, pp. C1 and C5.
- Sanchez, Pedro A. and Tergas, Luis E.: Pasture Production in Acid Soils of the Tropics. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. 1979.
- Santa Gertrudis Breeders International: "Santa Gertrudis International Directory" and Information Package. Kingsville, Texas.
- Santhirasegaram, K.: "Recent advances in pasture development in the Peruvian tropics" in World Animal Review, Food and Agriculture Organization of the United Nations. No. 17 - 1976, pp. 34-39.
- Schenck, Linda E.: "Fact Sheet on Tropical Rainforests." Sierra Club, Office of International Environment Affairs, New York. 1977.
- Schiff, Bennett: First Steps - The Inter-American Foundation's First Three Years 1971-1973. The Inter-American Foundation, Rosslyn, Virginia. 1974.
- Schumacher, E.F.: Small Is Beautiful. Harper and Row, New York. 1973.
- Shane, Douglas R.: A Latin American Dilemma: Current Efforts to Develop the Tropical Forest Areas of Thirteen Latin American Nations. Museum of Natural Sciences, National Museums of Canada, Ottawa. Unpublished manuscript. 1978.

Shane, Jeffrey N., Project Director: Environmental and Natural Resource Management in Developing Countries. (Volume I: Report). U.S. Agency for International Development. Washington, D.C. February 1979.

Shoumatoff, Alex: "The King Ranch," Chapter Two in The Rivers Amazon. The Sierra Club, San Francisco, CA. 1978.

Sieniawski, Michael: "Business empire flourishes in Amazon jungle: in the Christian Science Monitor, July 6, 1978.

Silva, Rodolfo: Letter to Henry A. Kissinger, Secretary of State, pertaining to Costa Rican beef exports and the U.S. Voluntary Restraints Program. Embassy of Costa Rica, Washington, D.C. December 20, 1976.

Smith, Gary C.: "How modern food technology benefits consuming public" in The National Provisioner, Vol. 181, no. 16, October 20, 1979.

Smith, Nigel J.H.: "Agricultural Productivity Along Brazil's Trans Amazon Highway." in Agro-Ecosystems, 4, pp. 415-432. Elsevier Scientific Publishing Company, Amsterdam. 1978.

Soil Science Department, North Carolina State University: Agronomic - Economic Research on Soils of the Tropics - Annual Report for 1976-1977. Raleigh, N.C. November 1978.

Sommer, Adrian: "Attempt at an Assessment of the World's Tropical Forests." FAO Committee on Forestry Development in the Tropics, 4th Session. UNASYLVA 28 (112/113): 5-25. 1976.

Sternberg, H. O'Reilly: "Development and Conservation" in Ecosocial Systems and Ecopolitics: A Reader on Human and Social Implications of Environmental Management in Developing Countries, ed. by Karl W. Deutsch. UNESCO. 1977.

\_\_\_\_\_: "Man and Environmental Change in South America" in Biogeography and Ecology of South America, Vol I, pp. 413-445. Junk, The Hague. 1968.

Superintendency for the Development of Amazonia: Amazonia New Universe. Ministerio do Interior, SUDAM. Belem, Brasil. 1977.

Tannen, James C.: "U.S. Cattlemen Buy Spreads in Central America to Exploit Good Grazing, Growing Demand for Beef" in The Wall Street Journal, July 27, 1972.

Tarbell, Marta: "The Agent Orange Time Bomb" in Penthouse, August 1979, pp. 75-117.

The Data Center: "Agrodinamica." Oakland, California.

The Los Angeles Times: "Destruction of the Earth's Nursery," Editorial. May 11, 1979.

The National Provisioner: "Plentiful Lean Beef By 1982?" in The National Provisioner. Vol. 181, no. 3, July 21, 1979.

The New York Times: "Nicaragua Shifting Emphasis to Cattle," August 3, 1958.

Time, Inc.: "Billionair Ludwig's Brazilian Gamble" in Time Magazine, September 10, 1979.

Tosi, Joseph A.: Letter to Mr. David Hill, Rare Animal Relief Effort, c/o National Audubon Society, New York, New York, pertaining to U.S. meat import quota and Costa Rica. June 21, 1977.

\_\_\_\_\_: "Some Relationships of Climate to Economic Development in the Tropics" in The Use of Ecological Guidelines for Development in the American Humid Tropics. IUCN, Morges, Switzerland. 1975.

Tosi, Joseph A. and Voertman, Robert F.: "Making the best use of the tripics," in UNASYLVA, Food and Agriculture Organization of the United Nations. 1975-IV, Vol. 27, no. 110, pp. 2-10.

Treaster, Joseph B.: "A Question of Land," Part One of "Brazil: Everything Is Booming But Democracy" in The Atlantic Monthly, August 1979, Vol. 244, no. 2 pp. 6-13.

UNESCO: UNEP: FAO: Tropical Forest Ecosystems: A State-of-Knowledge Report. UNESCO-UNEP, Vendome, France. 1978.

United Brands Company: John Morrell and Co. Acquires New Product Brands" in Update, November 1978.

- \_\_\_\_\_ : "New Agricultural Research Lab to Open in Honduras" in Update. May 1979.
- \_\_\_\_\_ : "Report for Six Month Fiscal Period Ended June 30, 1978." New York. 1978
- \_\_\_\_\_ : "79th Annual Meeting Held in Cincinnati, Ohio on May 17, 1948," in Update. September 1978.
- U.S. Agency for International Development: "Agricultural Development Policy Paper." AID. Washington, D.C. June 1978.
- \_\_\_\_\_ : Natural Resources Conservation, Project Paper - Costa Rica. Draft. U.S.A.I.D., U.S. Department of State. U.S.A.I.D. Mission to Costa Rica, American Embassy, San Jose, Costa Rica. June 6, 1979.
- \_\_\_\_\_ : "Statement of Loan Implementation and Disbursement Progress." Bureau for Latin America and the Caribbean, USAID. Washington, D.C. April 1979.
- \_\_\_\_\_ : Watershed Management Project Paper - Panama. U.S.A.I.D., U.S. Department of State. U.S.A.I.D. Mission to Panama. November 30, 1978.
- U.S. Congress: "H.R. 2727 Report No. 96-238 To modify the method of establishing quotas on the importation of certain meat, to include within such quotas certain meat products, and for other purposes." A Bill before the 96th Congress, March 8, 1979.
- \_\_\_\_\_ : "Public Law 88-482: An Act to provide for the free importation of certain wild animals, and to provide for the imposition of quotas on certain meat and meat products." 88th Congress, H.R. 1839, August 22, 1964.
- United States Council of the International Chamber of Commerce, Inc.: ICC Handbook 1978. International Chamber of Commerce, Paris. 1978.
- U.S. Council on Environmental Quality: Entering the Twenty-first Century, Report to the President by the U.S. Council on Environmental Quality and the Department of State. Draft.
- U.S. Department of Agriculture: "Australia: Beef and Veal Exports, Fresh, Chilled, or Frozen, 1972-77 - Product Weight." Foreign Agricultural Service, USDA, Washington, D.C. October 1978.

- \_\_\_\_\_ : "Beef and Veal: Total U.S. Imports By Month, Product Weight, Annual 1972-77." Dairy, Livestock and Poultry Division, Foreign Agricultural Service, USDA, Washington, D.C. February 1978.
- \_\_\_\_\_ : "Beef and Veal: U.S. Exports By Country of Destination - Product Weight, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "Beef and Veal: U.S. Imports By Country of Origin - Product Weight, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "Beef and Veal: U.S. Imports By Type and Country of Origin, Product Weight - 1977." Dairy, Livestock and Poultry Division, Foreign Agricultural Service, USDA, Washington, D.C. February 1978.
- \_\_\_\_\_ : Foreign Meat Inspection 1977. Report of the Secretary of Agriculture to the Committee on Agriculture, House of Representatives, and the Committee on Agriculture and Forestry, U.S. Senate, U.S. Department of Agriculture. March 1978.
- \_\_\_\_\_ : Foreign Meat Inspection 1978. Annual Report of the Secretary of Agriculture to the Committee on Agriculture, House of Representatives, and the Committee on Agriculture and Forestry, U.S. Senate. U.S. Department of Agriculture. March 1979.
- \_\_\_\_\_ : Guide for U.S. Cattle Exporters. Agriculture Handbook No. 217. Foreign Agricultural Service, USDA, Washington, D.C. December 1976.
- \_\_\_\_\_ : "History of the Meat Import Law (PL 88-482) and Program for 1977." Undated.
- \_\_\_\_\_ : "Livestock, Meat, and Meat Products: Value of U.S. Imports, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "Livestock, Meat, and Meat Products: U.S. Imports - Product Weight Basis, 1973-78 Annual." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.

- \_\_\_\_\_ : "Livestock Statistics in Selected Countries 1960-1975" in Foreign Agriculture Circular. Foreign Agricultural Service, USDA, Washington, D.C. September 1978.
- \_\_\_\_\_ : Meat and Poultry Inspection Directory, June 1978. Food Safety and Quality Service, Meat and Poultry Inspection Program, USDA, Washington, D.C. June 1978.
- \_\_\_\_\_ : "Meat and Poultry Inspection Regulation, Section 327, Imported Products." Meat and Poultry Inspection Program, Animal and Plant Health Inspection Service, USDA, Washington, D.C.
- \_\_\_\_\_ : "New Zealand: Beef and Veal Exports, 1970-75 - Product Weight." (Source: The New Zealand Meat Producer.) Foreign Agricultural Service, USDA, Washington, D.C. 1976.
- \_\_\_\_\_ : "Nicaragua; Livestock and Meat." Information from Agricultural Attache, U.S. Embassy, San Salvador, El Salvador. April 26, 1979.
- \_\_\_\_\_ : "Second Quarterly Outlook for World Meat Production and Trade in 1979" in Foreign Agriculture Circular. Foreign Agricultural Service, USDA, Washington, D.C. May 1979.
- \_\_\_\_\_ : "The Beef Cattle Industries of Central America and Panama." Foreign Agricultural Service, USDA, Washington, D.C. July 1973.
- \_\_\_\_\_ : "U.S. Customs Bureau Monitoring of Meat Subject to the Meat Import Law, January 1, 1979 through July 6, 1979." Foreign Agricultural Service, USDA, Washington, D.C. July 1979.
- \_\_\_\_\_ : "U.S. Customs Bureau Monitoring of Meat Subject to the Meat Import Law, January 1, 1979 through September 7, 1979." Foreign Agricultural Service, USDA, Washington, D.C. September 1979.
- \_\_\_\_\_ : "U.S. Exports and Imports of Livestock and Livestock Products Up for January/June 1979" in Foreign Agriculture Circular. Foreign Agricultural Service, USDA, Washington, D.C. August 1979.
- \_\_\_\_\_ : "U.S. Imports of Beef, Veal, and Cattle from Mexico - 1960-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Services, USDA, Washington, D.C. February 1979.

- \_\_\_\_\_ : "U.S. Imports of Beef and Veal, Canned, Prepared and Preserved, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "U.S. Imports of Beef and Veal from Specified Countries By Major Tariff Categories, Annual 1976-77." Dairy, Livestock and Poultry Division, Foreign Agricultural Service, USDA, Washington, D.C. February 1978.
- \_\_\_\_\_ : "U.S. Imports of Beef and Veal From Specified Countries By Major Tariff Categories, Annual 1977-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "U.S. Imports of Cattle and Calves From Mexico Excluding Dairy and Breeding Cows, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "U.S. Imports of Fresh, Chilled, and Frozen Beef and Veal By Country of Origin - Product Weight, Annual 1972-77." Dairy, Livestock and Poultry Division, Foreign Agricultural Service, USDA, Washington, D.C. February 1978.
- \_\_\_\_\_ : "U.S. Imports of Meat Items Covered By the Meat Import Law - Product Weight, Annual 1970-75." Dairy, Livestock and Poultry Division, Foreign Agricultural Service, USDA, Washington, D.C. January 1976.
- \_\_\_\_\_ : "U.S. Imports of Meat Subject to Meat Import Law, By Country of Origin, Average 1967-71 - Annual 1970-76." Foreign Agricultural Service, Dairy, Livestock and Poultry Division, USDA, Washington, D.C. March 1977.
- \_\_\_\_\_ : "U.S. Imports of Meat Subject to Meat Import Law, By Country of Origin, Annual 1970-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.
- \_\_\_\_\_ : "U.S. Imports of Meat Subject to Public Law 88-482 (Meat Import Act), By Country of Origin, 1958-69." Foreign Agricultural Service, USDA, Washington, D.C. March 1977

\_\_\_\_\_ : "U.S. Imports of Meat Subject to Public Law 88-482 (Meat Import Act), By Country of Origin, 1958-69." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.

\_\_\_\_\_ : "U.S. Livestock Product Exports Exceed Import in 1977" in Foreign Agriculture Circular. Foreign Agricultural Service, USDA, Washington, D.C. March. 1978.

\_\_\_\_\_ : "U.S. Trade in Live Cattle With Mexico, Annual 1973-78." Dairy, Livestock and Poultry Division, Commodity Programs, Foreign Agricultural Service, USDA, Washington, D.C. February 1979.

\_\_\_\_\_ : "World Livestock Numbers, Red Meat Production, Consumption and Trade 1974-78" in Foreign Agriculture Circular. Foreign Agricultural Service, USDA, Washington, D.C. September 1978.

U.S. Department of Commerce: "U.S. General Imports, Schedule A, Commodity By Country." Bureau of the Census, U.S. Department of Commerce, Washington, D.C. 1979.

U.S. House of Representatives: "International Development and Food Assistance Act of 1977, Conference Report (to accompany H.R. 6714)." 95th Congress, June 14, 1977.

\_\_\_\_\_ : "Meat Import Act of 1979, Report together with additional supplemental, and dissenting views (to accompany H.R. 2727)." 96th Congress, June 6, 1979.

U.S. Department of State: Letter to Rodolfo Silva, Ambassador of Costa Rica, pertaining to Costa Rican beef exports and the U.S. Voluntary Restraints Program. Office of the Secretary of State, Washington, D.C. December 14, 1976.

\_\_\_\_\_ : Incoming Telegram from U.S. Embassy in San José, Costa Rica, pertaining to rates and causes of deforestation. (Unclas section 1 of 2 San Jose 1548). April 1979.

\_\_\_\_\_ : Incoming Telegram from U.S. Embassy in San Jose, Costa Rica, pertaining to U.S. beef imports and deforestation. (Unclas section 2 of 2 San Jose 1548). April 1979.

\_\_\_\_\_ : "Proceedings of the U.S. Strategy Conference on Tropical Deforestation." Sponsored by U.S. Department of State and the U.S. Agency for International Development, June 12-14, 1978, Washington, D.C. October 1978.

\_\_\_\_\_ : The World's Tropical Forests: A U.S. Policy, Strategy and Program. Report to the President by a U.S. Interagency Task Force. Draft. 1979.

U.S. International Trade Commission: Conditions of Competition in U.S. Markets Between Domestic and Foreign Live Cattle and Cattle Meat Fit for Human Consumption. USITC Publication 842. Washington, D.C. November 1977.

\_\_\_\_\_ : Live Cattle and Certain Edible Meat Products of Cattle. USITC Publication 834. Washington, D.C. September 1977.

U.S. Senate: "The International Development Assistance Act of 1978: Report of the Committee on Foreign Relations, United States Senate, Together with Additional Views on S. 3074 to Amend the Foreign Assistance Act of 1961 to Authorize Development Assistance Programs for 1979, and for other purposes." 95th Congress, 1978.

Valdés, Alberto and Nores, Gustavo: "Growth Potential of the Beef Sector in Latin America - Survey of Issues and Policies." Paper presented at the IV World Conference on Animal Production, Buenos Aires, August 1978. International Food Policy Research Institute, Washington, D.C.

Velasquez, E.R.; Larez, O.: and Bryan, W.B.: "Fertilizer Trials with Introduced Forage Grasses," Part II of Pasture and Livestock Investigations In the Humid Tropics Orinoco Delta - Venezuela. Bulletin 43, IRI Research Institute, Inc., New York. 1975.

Velasquez, E.R. and Bryan, W.B.: "Grass-Legume Associations," Part III of Pasture and Livestock Investigations In the Humid Tropics Orinoco Delta - Venezuela. Bulletin 44. IRI Research Institute, Inc. New York. 1975.

Walter, Heinrich: Ecology of Tropical and Subtropical Vegetation. Van Nostrand Reinhold Co., New York. 1971.

- Wambeke, Armand Van: "Properties and Potentials of Soils in the Amazon Basin" in Interciencia, July-August 1978, Vol. 3, no. 4, pp. 233-241.
- Ware, Leslie: "The Pesticide Boomerang" in Audubon Magazine, September 1979, Vol. 81, no. 5, pp. 150-153.
- Webster, Bayard: "In the Rain Forest, a Complex and Threatened World" in The New York Times, April 17, 1979.
- Wendy's International, Inc.: 1978 Annual Report. Wendy's International, Inc. Dublin, Ohio.
- West, R.: "Recent Developments in Cattle Raising and the Beef Export Trade in the Middle America Region." Paris, Act. XL, Congr. Americanistes, September 2-9, 1976. 1:391-402.
- Williamson, G. and Payne, W.J.A.: An Introduction to Animal Husbandry in the Tropics. Tropical Agriculture Series. Longmans, Green and Co., Ltd., London. 1965.
- World Bank: Annual Report 1978. World Bank, Washington, D.C.
- \_\_\_\_\_: Forestry: Sector Policy Paper. World Bank, Washington, D.C. February 1978
- \_\_\_\_\_: "IDA - International Development Association." World Bank, Washington, D.C. April 1978.
- Wynia, Gary W.: The Politics of Latin American Development. Cambridge University Press. 1978.

#### ADDENDA

- Arens, Richard, ed.: Genocide in Paraguay. Temple University Press, Philadelphia, 1976.
- Basch, Antonin and Kybal, Milic: Capital Markets in Latin America. Published for the Inter-American Development Bank. Praeger Publishers, New York. 1970.
- Budowski, Gerardo: Correspondence with the author, December 11, 1979.

Congressional Record: H.R. 5395 pertaining to imported meat. September 25, 1979.

Duncan, Elizabeth: "Corporations Rule World Economy" in The Ottawa Citizen, February 18, 1978, p. 2.

Goff, Fred: "Bank of America has a man-on-the-spot in Latin American Agribusiness" in NACLA Newsletter, Vol. IV, no. 5, September 1970.

Hansen, Roger D.: The U.S. and World Development, Agenda For Action 1976. Published for the Overseas Development Council, Praeger Publishers, New York, 1976.

Hecht, Susanna: Unpublished thesis. 1980.

Inter-American Development Bank: Economic and Social Progress in Latin America. Washington, D.C. 1978.

Keenan, Bill: "Tropical Deforestation: Getting the Green Out" in Conservation News. National Wildlife Federation, Vol. 44, no. 22, pp. 11-14, November 15, 1979.

Latin American Agribusiness Development Corporation: LAAD 76. Annual Report. 1977.

\_\_\_\_\_: "Proposed Loan to Belize Beef Corporation, Ltd." December 5, 1978.

McKitterick, Nathaniel and Middleton, B. Jenkins: The Bankers of the Rich and the Bankers of the Poor: The Role of Export Credit in Development Finance. Overseas Development Council, Monograph Number 6. 1972.

Melo, Hector and Yost, Israel: "Funding the Empire: U.S. Foreign Aid - Part One" in NACLA Newsletter, Vol. IV, no. 2, April 1970.

National Advisory Council on International Monetary and Financial Policies: Annual Report 1977. Washington, D.C.

United Nations Development Programme. Building Self-reliance in Developing Countries, 1975 Annual Report. United Nations Development Programme, New York, 1975.

U.S. Agency for International Development: Congressional Presentation Fiscal Year 1979, Main Volume. Washington, D.C. 1978.

\_\_\_\_\_ : Development Issues, U.S. Actions Affecting the Development of Low-Income Countries. Washington, D.C. 1978.

\_\_\_\_\_ : "Latin America, Economic Growth Trends." November 1977.

\_\_\_\_\_ : "Proposal and Recommendations for the Review of the Development Loan Committee, Caribbean Regional - LAAD, Regional Agribusiness Development." November 25, 1975.

U.S. Department of Agriculture: "U.S. Customs Bureau Monitoring of Meat Subject to the Meat Import Law, January 1, 1979 through December 31, 1979." Preliminary Statistics. Washington, D.C. February 1980.

\_\_\_\_\_ : "World Livestock Numbers, Slaughter, Red Meat Production, Consumption and Trade 1976-80" in Foreign Agriculture Circular (FLM 2-80). February 1980.

World Bank: Agricultural Land Settlement, A World Bank Issues Paper. Washington, D.C. January 1978.

\_\_\_\_\_ : 1979 Annual Report. Washington, D.C.

#### FINAL ADDENDA

Hartshorn, Gary S.: Report to the Institute of Current World Affairs on Jari Forestry and Agricultural Enterprises. Unpublished paper, used with permission of author. September 1979.