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AGRIBUSINESS INVESTMENT OPPORTUNITIES IN ECUADOR  
VOLUME I: RECONNAISSANCE SURVEY REPORT

PREPARED BY  
THE  
AMERICAN SOCIETY OF AGRICULTURAL CONSULTANTS  
UNDER A GRANT FROM  
THE  
U.S. TRADE AND DEVELOPMENT PROGRAM

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## I. INTRODUCTION

Acting under a grant agreement with the U.S. Trade and Development Program (TDP), the American Society of Agricultural Consultants International (ASACI) organized a Reconnaissance Survey Team to begin the first phase of work to identify potential agribusiness projects in Ecuador for prospective U.S. investors. Members of the team were Walter W. Minger, Burlingame, California; Joseph H. Marshall, Albany, Georgia; and Michael W. Hurley, McLean, Virginia.

To prepare the current report, the three man team first studied pertinent data available from U.S. sources, and then traveled to Ecuador for two weeks in January of 1986 to conduct interviews, make on-site inspections, and gather first hand information. Taking the stance of a potential U.S. investor, team members analyzed the agricultural sector, assessed the investment climate, and made a preliminary evaluation and selection of prospective project opportunities.

In the second phase of grant activities, a follow-up team of ASACI consultants will review the Reconnaissance Survey Report, and then work for three weeks in Ecuador to further evaluate and then select those prospective ventures of highest potential interest to U.S. investors. Project Investment Profiles on these preferred ventures will be drafted by the team to form the report Agribusiness Investment Opportunities in Ecuador. The investment profiles, upon approval by TDP, will then be made available through the marketing network of ASAC members to select U.S. potential investors. Other prospective investors and interested parties may obtain the current reconnaissance report at cost, and subsequently the profile report, by contacting ASAC headquarters at the following address:

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## II. SUMMARY AND CONCLUSIONS

The Reconnaissance Team during its two week visit was able to interview politicians, businessmen, farmers, agricultural trade group officials, as well as foreign government agency personnel. The interviews provided the team information on a broad and representative slice of Ecuador's agriculture and livestock economy.

The "movers & shakers" in Ecuadorean agribusiness have already initiated changes in their enterprises and appear to be the forerunners of a broad movement to modernize Ecuador's food system from field production to retailing. Potential entrepreneurs and operating businessmen all would welcome additional foreign (preferably U.S.) equity investment, loans (short, medium and long term in both dollars and sucres), and technology including middle management, improvement of production and processing methods, marketing expertise, and coordination of functions required by a modern food system.

While the aggressive and the brave have achieved some success in providing increased quantities of milk, poultry products, flowers, vegetables and fruits and some field crops, the gains have come at a high cost. The new administration has been only partly successful in converting the economy to a free market basis. The bureaucracy, huge in extent below the most senior administration officials, have continued to resist change and modernization. Their interest (income, careers, future) are too heavily dependent on the continued existence of the old, cumbersome, costly, inefficient system to welcome change of any sort. Much of President Febres-Cordero's good intentions have been negated by the inertia of the entrenched bureaucracy.

Ecuador has a nicely varied and benevolent climate, a large labor pool, a great amount of still undeveloped land, adequate water to accommodate additional land development. Its secondary roads, transportation (air, rail and truck), public and commercial infrastructure, its pool of middle managers, and attitudes about the virtues of private enterprise - all need improvement. The latter is particularly true of middle and lower level government bureaucrats.

While Ecuador has many favorable attributes, it also has some drawbacks. Its potential high unit value fruit and vegetable crops (excluding the tropical fruits that still need to be more widely introduced to the industrialized nations) are normally in adequate supply in the U.S. market - which is almost everyone's target market. The high returns needed to support the growing and marketing into "short windows of opportunity" may be difficult to obtain since these market niches may be filled by production from Caribbean Basin countries which are much closer to the U.S. markets than the Ecuadorean producer. Dedication to the concept of Ecuador becoming a reliable, consistent supplier of high quality, competitively priced fruits and vegetables needs to be maintained. There will be a long development period until adequate production volume is available in Ecuador to achieve the goals.

There is opportunity in Ecuador for foreign investors who are willing to bring both money and operational expertise to the venture. The latter may be knowledge and ability to solve transportation, marketing, processing, field production, labor relations, training, and functional coordination problems. Flower and shrimp production are two types of enterprises that can benefit from immediate infusions of capital and management talent. Of the two, capital is the larger need.

The other types of enterprises should be carefully studied and investment approached cautiously inasmuch as production techniques, varieties of products grown, insect and residue control, packaging and grading processes and facilities, transportation, markets, and coordination between government and the private sector all need to be improved before one could recommend serious and substantial investment by a U.S. investor.

### III. GENERAL BACKGROUND

#### A. Geography and Climate

Ecuador is located on the Pacific northwest coast of South America, and receives its name from the equatorial line which passes through the northern section of the country. Approximately the size of Colorado, Ecuador supports a population of 8.7 million people on its 104,506 square miles of territory. The climate varies from tropical to temperate, following the topographical changes from the central Andean highlands to the lowlands of the western coast and the eastern Amazonian region.

The country has four distinct geographical areas. Stretching from the Pacific Ocean to the Andes Mountains, the coastal plain which makes up more than one quarter of Ecuador's land area is a rich agricultural belt which produces most of the nation's tropical export crops. The highlands include an inhabited plateau 8,000-10,000 ft. above sea level which is 400 mi. long and 50-80 mi. wide, and covers another quarter of the country. The eastern jungle area of dense tropical forests begins on the eastern slopes of the Andes and extends to the flat valleys of the upper reaches of the Amazon's tributaries. It is in this area where nearly all of Ecuador's petroleum natural resources are found. The Galapagos Islands, situated 600 mi. off the Ecuadorean coast, form part of a rich tuna fishing area, and attract large number of tourists because of the islands' natural beauty and wildlife.

The different climates vary with the changing altitudes. While hot humid weather (65°F - 90°F) predominates in the tropical lowlands, the Andean Plateau has springlike weather with daily temperatures ranging from 50°F - 70°F.

#### B. History and Government

The Inca Empire which encompassed the area now belonging to Ecuador fell to the Spanish conquistadores in 1532. After gaining independence from Spain in 1822, Ecuador became a sovereign republic in 1830. Its

political history shows a troubled succession of presidents, dictators and military juntas operating under different regimes and constitutions up until recent years. In 1978 a new constitution was adopted by popular vote and went into effect in 1979. Under the constitution, two presidential elections were held in 1979 and in 1984, with the current president Leon Febres-Cordero serving a four year term until 1988. The constitution establishes a republic type of government with three branches. The executive branch is composed of a democratically elected president and vice-president and 12 appointed cabinet members. In the legislative branch there is a unicameral Congress composed of 71 representatives. Every four years the Congress appoints the justices of the Supreme Court, who in turn appoint judges for Ecuador's 20 provinces.

The current government of President Leon Febres-Cordero espouses policies that favor private enterprise and encourage foreign investment. President Febres-Cordero, a U.S. trained engineer, entered politics only in recent years after working in private enterprise for many years as a corporate manager and a large-scale cattle rancher. As president, he has recruited from private enterprise a cadre of competent businessmen and professionals to fill key administrative posts and to help him formulate and implement his program of government. Changing government policies and programs designed to benefit the agricultural sector and the investment climate are taken up in their respective sections of this report.

### C. The Economy

After four years of recession, the Ecuadorean economy rebounded in 1984 with real growth of 4.1 percent in Gross Domestic Product. Further real growth of 2.5 percent has been projected for 1985. The recession and negative growth were the result of a rapid growth in external debt especially short-term maturities, the effects of world recession, devastating floods in 1982-83, and a decline in world market prices for petroleum and Ecuador's traditional agricultural exports. Recent growth was accomplished by a resurgence of the agricultural and petroleum sectors, an upswing of the world economy, a robust merchandise trade surplus, and a rescheduling of foreign debt on a 12 year basis. A gradually stabilized

exchange rate and a reduction in inflation from 53 percent in 1983 to 25 percent in 1984 were further indicators of growth in economic strength.

An analysis of the 1984 Gross Domestic Product of \$12.5 billion dollars shows the service sector leading the economy (32.8%), followed by manufacturing (19.4%), petroleum (16.2%) and agriculture (13.5%). For a breakdown of the GDP by sector, see Appendix I, Table 1. Food processing, wood products, textiles and pharmaceuticals are important manufacturing activities. Leading agriculture products are bananas, coffee, cocoa, seafood, sugar, rice, corn, and livestock. To counteract declining petroleum prices, the Government of Ecuador (GOE) has increased production and has amended its hydrocarbon legislation to encourage foreign companies to enter into exploration/exploitation contracts. Risk-sharing agreements were signed with Occidental Petroleum and Exxon-Hispanola in the first semester of 1985.

Trade statistics for 1984 show exports at \$2.6 billion dollars with major markets being the United States (48%), Latin America (19%) and Europe (7%). Agricultural and industrial machinery, industrial raw materials, agricultural commodities, chemical products, and transportation and communication equipment accounted for much of \$931 million dollars of imports in 1984. Other trade statistics along with leading economic indicators can be found in Appendix I, Table 2.

The Ecuadorean monetary unit is the sucre. The Monetary Board has instituted a two tiered foreign exchange system: the Central Bank official rate of 95/96.5 sucres which is used for all exports and the majority of imports, and the floating free market rate which fluctuated around 125 sucres to the dollar at the beginning of 1986.

#### D. Human Resources and Employment

About 49% of the population of 8.7 million inhabitants live in the coastal plains, 47% in the highlands, and the remaining 4% in the Amazon and Galapagos areas. The adult literacy rate is 85.5%, and the population growth rate is 3%. There are two types of internal migration

occurring - from the highlands to the coastal areas and from the countryside to the cities. Although the population was heavily concentrated in the highlands a few decades ago, it is now equally divided between the mountains and the coast. Migration to the cities has increased the urban segment of the population to 55%.

The economically active labor force numbers 3 million people, with agriculture employing 1.3 million workers (43.3%), industry 0.5 million (16.6%), services 0.8 million (26.6%), and unallocated 0.4 million (13.5%). The unskilled labor force is plentiful and growing at 3 percent a year. Skilled and management personnel are in short supply. The country's minimum industrial/commercial wage is 10,000 sucres (\$80) per month, with agrarian wage levels 70% below the commercial minimum. Labor-management relations are generally good but not without problems. Employers complaints usually center on high rates of absenteeism and difficulties in firing workers whose performance is poor.

#### E. Infrastructure

Ecuador has four major ocean ports which receive regular service to/from the United States from three U.S. shipping companies and eight Ecuadorean firms. Guayaquil is the principal port city, followed by Manta and Esmeraldas.

Ecuador operates two international airports at Guayaquil and at Quito, the political capital. Though several airlines including one U.S. carrier provide passenger and cargo service to and from the United States, current cargo capacity is inadequate and constitutes a real obstacle to the promotion of non-traditional exports. Internal air transport is adequate and economical.

The highways are the principal means of transportation in Ecuador. Fifteen thousand miles of all weather roads connect all major ports and towns, but road maintenance and construction of needed rural roads are areas that need attention if economic growth is to continue. The narrow gage railroad system is outdated and has limited use.

Fuel prices are reasonable with 92 octane gasoline costing the equivalent of 53 cents a gallon and diesel 33 cents per gallon. Electricity costs between 2 and 3 cents the kilowatt hour, with an adequate electric supply to Guayaquil, but with occasional power outages in Quito during the dry season when hydropower production diminishes. Ecuador is rich in water resources, however, and the completion of additional hydroelectric plants and the input of new electric energy to the National Electric Grid should soon remedy any shortages.

International telephone and telex service is adequate, but internal communications between cities can be problematic with current overloading of circuits. Telephone communication to rural areas is inadequate and short wave radio communication is frequently used in these areas.

#### F. Ecuadorean Development Strategy

One major goal of current economic planning is to increase export earnings and to create savings of foreign exchange. Increasing the supply of hydroelectric power and thus reducing the domestic consumption of petroleum product is one method the Government is using to attain this goal. In order to increase further the volume of its oil reserves, production, and export potential, the government has recently changed hydrocarbon legislation to encourage foreign investment in the petroleum industry. The export of non-traditional agricultural products as an additional source of foreign exchange is also being fomented by current legislation which provides fiscal incentives to private investors - both national and foreign. The export potential of non-traditional agricultural products and the incentives for foreign investment are discussed later in this report.

#### IV. AGRICULTURAL SECTOR SURVEY

Agriculture is the mainstay of Ecuador's domestic economy and a major contributor to foreign exchange. Approximately 50 percent of the population lives and work on agricultural or rural lands. A large percentage of the population is engaged in subsistence farming in the highlands. Agriculture accounts for about 15 percent of the Gross Domestic Product and about 20 percent of Ecuador's foreign exchange, exporting principally bananas, cocoa, coffee and farm raised shrimp.

The principal domestic crops are corn, rice, barley and potatoes, along with dairy production, cattle for meat, sheep, goats and poultry.

##### A. Land Area and Utilization

The total land area of the country, as reported by the Ministry of Agriculture and Livestock, is 27,934,300 hectares (68,997,721 acres). It is commonly divided into four zones with three of the four zones having agricultural activity, as noted on the map on the following page, (Figure 1).

The largest area, the Oriente (eastern or jungle) area composes 46% of the land area and is devoted largely to forest land but with some agriculture. The second largest area is the Costa (coastal or tropics) area with 25% of the total land area and the location of most of the commercial agriculture. The third area is the Sierra (highlands or mountains) area comprising about 25% of the total land area and principally the area of subsistence farming by the indigenous population. The fourth land area, the Galapagos Islands, has virtually no agricultural activity.

In 1982 approximately 6% of the land area was in cultivated crops, 14% in pastureland, 52% in forest land, and 25% devoted to other uses. In 1983 the total cultivated area was estimated to be 1,370,529 hectares. It is estimated by various agencies that the cultivated area could be increased by 100 to 200 percent.



B. Crop, Livestock Production and Imports

Bananas, farm raised shrimp, coffee and cocoa are the largest export crops. Potatoes, cassava, yellow corn and rice are the largest crops for domestic consumption. Wheat, soybean oil, and rice are the largest import commodities.

A statistical chart of production, exports, imports is shown in the table on the following page. Important notes and trends not apparent in the table include:

- a. All of the soft corn, dry beans, potatoes, cassava and peanuts that are produced in Ecuador are used for local consumption.
- b. Production of coffee, cocoa, bananas, abaca and castorbeans are consistently in excess of local demand.
- c. Crops which fluctuate between sufficiency and deficiency include hard corn, and rice.
- d. Crops which traditionally were produced in adequate quantities or in excess but which have become deficient during the last 2 years include sugar cane and cotton (this was due largely to unfavorable weather).
- e. A crop which was previously produced in inadequate quantities but has shown improvement in recent years is oil palm.
- f. Crops which are consistently produced in deficient quantities include barley, wheat and soybeans, although the latter is a new crop with growth potential.
- g. Approximately 21 percent of the milk production is sold as pasturized milk.
- h. Beef production appears to be decreasing while total meat production is showing an increase.
- i. Poultry meat production is the fastest increasing production in the meat category, with increases of about 10 percent per year. Egg production is also increasing.
- j. Projection indicates a continued downward trend in beef cattle population, an increase in swine, a possible small increase in sheep and lamb, and continued increases in poultry in egg production.

CROPS AND LIVESTOCK PRODUCTION, EXPORT AND IMPORT

Ecuador, 1983

<u>Crop/Commodity</u>	Hectares	<u>Production</u> Metric Tons	<u>Exports</u> Metric Tons	<u>Imports</u> Metric Tons
	<u>Harvested</u>			
Coffee	320,000	82,860	99,000	-
Cocoa	277,000	55,000	55,000	-
Corn, Yellow	153,000	225,000	0	11,000
Rice, Milled	93,000	162,000	-	35,000
Corn, Sweet	90,000	76,500	-	-
Beans, Dry	60,000	34,500	-	-
Bananas	45,000	1,164,000	-	-
Barley	34,000	32,000	-	27,000
Potatoes	31,000	394,000	-	-
Oil Palm	29,800	62,000	-	0
Cassava	27,000	240,000	-	-
Sugar Cane	25,000	125,000	0	102
Wheat	22,000	23,000	-	358,000
Soybeans	20,000	35,000	-	260,000
Abaca	14,000	12,000	11,000	-
Castorbeans	9,500	7,500	4,000	-
Peanuts	9,500	5,700	-	-
Cotton, Lint	5,000	2,250	0	8,000
Tobacco	1,700	2,800	-	-
Tea	1,300	5,120	2,000	-
Sorghum	500	1,000	-	19,000
Oats	500	500	-	15,000
Pyrethrum	380	300	-	-
Milk Production	-	787 mil l.	-	-
Beef Production	-	98,000 tns.	-	-
Poultry Meat	-	41,000 tns.	-	-
Poultry Eggs	-	1,470 mil eggs	-	-

Note: Certain 1984 Production & Export Statistics are available in Appendix I, Tables 3 and 4.

C. Farm Size and Structure of Ecuadorean Agriculture

Traditionally, Ecuador had a latifundio/minifundio system where land holdings were often very large or very small. An agrarian reform program was begun in the 1960's and many large holdings, especially in the Sierra (highlands) were subdivided into small holdings. The coastal area (tropics) were not affected as much, and under the present government agrarian reform has been pursued in a more moderate manner.

The most recent information indicated that there are 516,916 farms in Ecuador. It was reported in 1982 that the small farms of less than 10 hectares (25 acres) each comprised 80% of the total number of farms and account for 15% of the farmland. Medium and large farms of 50 hectares (125 acres) and over occupy 57% of the farmland and account for 4.5% of the total farms.

The most recent published data available (1974) show the following percentage distribution of farm units by size.

<u>Farm Size</u>	<u>Sierra</u>	<u>Coastal</u>	<u>Oriente</u>	<u>Total</u>
less than 1 ha	21.9	6.0	0.2	28.10
1 - 5	26.6	11.6	0.5	38.70
5 - 10	5.6	4.6	0.4	10.60
10 - 20	3.5	3.8	0.4	7.70
20 - 50	2.7	4.2	0.3	8.20
50 - 100	1.2	1.5	1.4	4.10
100 - 500	0.4	1.0	0.3	1.70
500 - 1000	0.1	0.1	0.1	0.30
1000 - 2500	0.1	0.1	0.1	0.30
2500	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>0.30</u>
	62.2	33.0	4.8	100.00

As is noted in the table, most small holdings are located in the highlands (near urban areas) and the medium and large size holdings are

located in the coastal area. There is relatively little farming activity of any size in the Oriente area.

As might be expected, the smaller land holdings are devoted mostly to subsistence farming and many of the largest land holdings are devoted to banana plantations, cattle ranching, etc. The category with greatest development potential includes the medium sized farms in the coastal area capable of producing corn, soybeans and other field crops. Important exceptions to this are some smaller holdings with location and ownership factors which foment the development of specialty crops such as vegetable and flower production. These exceptions are found in both the coastal and highlands areas.

#### D. The Agricultural Infrastructure

Ecuador has a limited infrastructure supporting its present agricultural economy. Recent progress has been made in certain areas while little progress has been made in others. There is both the need and opportunity for further development. Broadly speaking, the current state of infrastructure development is as follows:

Agricultural Credit: Agricultural credit is provided through local lenders, (rice millers, input suppliers, etc.) for short term loans at annual rates of interest estimated to range from 50 to 150% interest. In recent years the Banco Nacional de Fomento (The National Bank for Development) has made available capital to small farmers at concessionary rates ranging from 6 to 18% interest. Market interest rates are currently fluctuating from 23-27%.

Fertilizer/Chemicals: Ecuador has no basic fertilizer production but has two companies, one government owned and one privately owned, who provide blending and storage services. Plans are being made by the present government to offer the state owned facility for sale back to the private sector. All pesticides are imported by various private importers and generally available through dealers throughout the agricultural regions. Prices tend to be high because of the devaluation of the sucre.

Transportation: Ecuador has a limited highway system, but one that reaches into the most important agricultural regions. Some roads are unpaved and require "off highway" capability for transport vehicles. There is limited private or public freight transportation serving the country. Railroad service is very limited. Local passenger transportation of the great majority of the population is accomplished through local bus systems. National and international airlines offer adequate transportation within the country.

Storage: Ecuador has limited storage for grain and processed agricultural products, other than that developed by private agribusiness to serve their own corporate needs. A few private grain elevators offer the producer storage services. The present government owns some storage facilities which it wishes to sell to private enterprise.

Seeds/Breeding Stock: Until recently all importation of seeds was done by a government owned seed agency. The agency had followed a very restrictive policy on importing new varieties and on developing its own varieties, with local genetic improvement suffering as a result. However, the present national government has relaxed these restrictions making it possible to import new seeds and genetic material. The state owned company is reportedly being readied for sale to the private sector. Improved livestock and poultry breeding stock have been recently imported once restrictions were lifted by the current administration.

Farm Machinery: U.S. and other foreign farm machinery and irrigation systems are available in the country. No information was obtained on the availability of spare parts, etc. It was noted, however, that certain organizations are providing irrigation planning and installation services for fruit and vegetable crops.

#### E. The Role of Government in Ecuadorean Agriculture

The role of government in Ecuadorean Agriculture must be viewed in two perspectives: past and present.

The past, or traditional, role was one of government involvement in all phases of agriculture including guaranteeing prices for traditionally produced crops as well as government ownership of fertilizer plants, seed and storage facilities, processing plants, and regulation of the total agricultural economy. As a result, the costs of such programs became a major cost to the government and agricultural progress was slowed nearly to a halt. The present national government has moved to relax government control over the importation of inputs and supplies, price guarantees, and state ownership of the agricultural input system. Presently the Ministry of Agriculture and Livestock is readying for sale to the private sector 12 agricultural facilities now owned by the government.

Recently announced plans for the "traditional" agricultural commodities price support system include the abolition of the present system of guaranteed prices and replacement with a system whereby the government may intervene with purchases if commodity prices reach too low a level or intervene with sales if prices reach too high a level. There is no government regulation of prices for "non-traditional" crops such as fruits and vegetables for export, shrimp, etc.

Discussions with numerous private sector businessmen and observations by the Reconnaissance Team indicate that the top level Ministry officials are very capable individuals and fully committed to restoring private sector incentive to agriculture, and the lower level bureaucracy is still following its traditional practice of slow and inefficient response. The net result is that projects with top level Ministry awareness and endorsement receive approval much sooner and with less difficulty than under previous administrations.

The agrarian land reform program referred to earlier is still an official government program but is not being pursued with the vigor of previous administrations and is not considered a threat to large land holdings under active land management.

F. Basic Constraints to Agricultural Development

Ecuador is a nation with many natural resources for agriculture and food production. But it is also a land with many constraints to the optimal development of these resources. The more obvious constraints may be summarized as follows:

Technology: Ecuador has not taken full advantage of agricultural production and marketing technology available in other nations. Examples are the lack of hybrid corn, improved fertilizers, and pre-processing and pre-packing of fruits and vegetables for export. However, some new technology has been employed as is exemplified by the importation of Holstein dairy cattle, the integration of the broiler industry, and shrimp farming.

Infrastructure: One of the greatest obstacles to rapid development of the agricultural economy is the lack of adequately developed infrastructure. Progress is being made in some areas, but the lack of a good highway system, a good public transport system, dependable public utilities, lack of a wide range of production and marketing supplies - all contribute to restraining the rapid development of the agricultural sector. A prime example is the lack of dependable air transportation for the shipment of cut flowers and vegetables to the North American markets. The current system is not dependable with regular schedules, and an inadequate number of planes makes it necessary to transship the products one or two times en route. The products suffer not only in quality from inadequate handling conditions but also experience costly delays in delivery schedules. Such problems not only cause product and financial losses, but also the loss of buyer confidence in the seller's ability to be a dependable supplier.

Government Policies: Traditionally, government policies have been a major obstacle to agricultural development through its requirements and delays in approval of import permits, its restrictions on the private importation of improved seeds, its agrarian reform practices, etc. The present national government has made substantial progress in granting more

timely approvals of permits, granting new approvals, and offering tax incentives. However, there is still additional progress to be made in improving bureaucratic efficiency and in the implementation of such practices as grading and quality standards for export products.

Capital: Capital is a constraint to the employment of new technology as well as the establishment of operations efficient in size and the start-up of new enterprises of economic merit. Internal capital has often been nearly non-existent or not available because of lack of confidence in the economy, or from the absence of necessary financial incentives. External capital has been scarce because previous government policy or political stability has not provided foreign investors with adequate incentives or guarantees for their capital.

In summary, many basic constraints still exist in the development of the Ecuadorean agricultural economy. However, progress is being made in eliminating or lessening the constraints. The natural resources are abundant and where it is possible to eliminate or ameliorate the constraints viable investment or business opportunities exist.

#### G. Basic Recommendations for U.S. Agricultural Trade and Investment

The natural resources of Ecuador, the positive leadership of the present national government, and a small but active private sector element in Ecuador all contribute to offer trade and investment opportunities to the foreign community. These opportunities must be approached, however, with a careful analysis of the risks as well as the opportunities, and with an understanding of the domestic environment.

Some U.S. and European firms have had ongoing trade and investment projects in Ecuador for many years. Ministry of Industry, Commerce and Integration statistics show that in the first eight full months of the Febres-Cordero administration (September 1984-April 1985) the government authorized foreign investment worth 7.2 billion sucres, an increase of 132 percent from the level attained between September 1983 and April 1984. The

dollar value of authorized investments, calculated at average free market exchange rates, grew 79 percent. The notable increase in foreign investment appears due to the more favorable regulations regarding the treatment of foreign capital and profits enacted by the current government. These regulations are described in Section V of this report.

The Reconnaissance Team defines the areas of trade and investment for further consideration in the paragraphs below. A further analysis of these areas is found in a later section of this report.

Sale of Goods and Services: A general survey of the agricultural sector indicates that opportunity for U.S. trade arises from the desire of local entrepreneurs for improved technology and facilities in the production and marketing of both domestic and export crops. The ability and/or willingness to purchase is not as strong however as real need dictates. Thus, many business opportunities do not prosper. Broad opportunities exist in transferring hardware and technology in the production and processing of domestic field crops, and in the production and processing of plants, vegetables and other high value crops for export.

Investment in the Agricultural Sector: As mentioned above, there is a need and desire for investment capital in the agriculture sector -- for the production and processing of both domestic and export crops. There appears to be a number of private sector businessmen interested in joint ventures for domestic and export markets. Because the business environment in Ecuador has its peculiarities and its differences from the U.S. environment, the inexperienced U.S. investor might be wise to consider entering a joint venture with a reliable domestic partner. However, multinational companies and other organizations experienced in the Latin American business environment might well choose wholly owned subsidiaries as a more viable form of business organization, since this entity is permitted under Ecuadorean law.

V. INVESTMENT CLIMATE REPORT

A. Criteria for Assessing the Climate for Foreign Investment

Taking the stance of the potential U.S. investor, the reconnaissance team applied specific criteria in analyzing the current governmental's policies affecting investment and in evaluating the administration's performance on its program goals for improving the investment environment. These standards of judgement are set down for the reader in the text below before proceeding to evaluate foreign investment conditions.

1. The opportunity for profit should be better than that in the USA and commensurate with the degree of risk involved.
2. Government should provide shelter of income or markets through edict, guarantees, early years protection of start-up businesses, tax and/or import/export duty concessions, and favorable financing along with freedom from mandatory transfer of equity or profits.
3. If these aforementioned concessions are absent, there should be the presence of a "free market economy", a characteristic of such a system being the volatility of commodity prices responding to relationships between supply and demand. This creates opportunities for the entrepreneur.
4. There needs be a reasonable expectation that the difficulties encountered in carrying on a business can be overcome over a reasonable time and within a reasonable cost. A lack of an adequate technical, commercial, public, or social infrastructure would be too big an obstacle for most investors.
5. Passive investors look to have their returns on invested capital trouble-free. Active investors willing to make equity contributions and become managerially involved in a business want an environment in which the ethics and mores of the local business partner are similar to those the investor has previously experienced, or, if different, that he has a good initial understanding of the business climate that will be somewhat alien to him at first. The investor needs to be reasonably comfortable with his investment.

6. Accounting and business principles and the legislated procedures have to be straight forward. Their interpretation and implementation should not be subject to whims of government and/or "special arrangements" that encourage an environment that can be grossly inequitable.
7. The legal system should be one that does not discriminate inequitably against foreign interests in favor of local interests. The sanctity of contracts should be enforced.
8. The threat of expropriation or forced sharing of equity with government or government officials, or forced transfer of ownership, rights, or managerial control should be minimal.
9. Repatriation of profits with the ability to enter and exit an ownership position are important features of a viable business climate.
10. Reasonable freedom from physical danger, insurrection, and government oppression are necessary conditions.
11. A politically consistent succession of government leadership has to be assured.

B. Government Policies Affecting Investment Conditions

Early in 1984, Leon Febres-Cordero was narrowly elected on his campaign that promised to redirect Ecuador's economy toward a "free market" base utilizing an expanding private sector to accomplish the change while diminishing the heretofore pervasive role of government in all sectors of the economy.

High inflation, sizeable foreign debt, low reserves, and domestic budget deficits characterized the state of the economy as Febres-Cordero took up his presidential powers. As a successful businessman, and with recent experience as a congressman prior to his most recent election to the highest office, he was aware that he had inherited a sizeable, inept, and cumbersome bureaucracy - one difficult to manage or to improve in quality, and almost impossible to reduce in scope except through attrition from deaths and retirements. To his credit, the president was able to bring into the higher levels of his government a cadre of office holders who had

been highly successful business people before heeding the President's call to public service.

In recognition of the pressures emanating from the IMF-imposed financial austerity plan, the administration's promises, and the unsatisfactory condition of the domestic economy, the President's initial plans were to achieve the following:

1. Reduce the country's annual rate of inflation from over 50% to 20-25%.
2. Reduce the level of the basic agricultural commodity support prices to eventually reach world price levels.
3. Transfer by sale of assets or stock the numerous agricultural services under 100% government or majority control to the private sector and by so doing create a competitive business environment rather than one of government monopoly. Grain storage, fertilizer formulation, agricultural chemical importation and distribution are among the hundred or more public enterprises which are all badly managed and generally create a drain on the national treasury rather than contribute to the national welfare.
4. Modify the system of consumer food price and inventory controls so as to permit market conditions to be the principal determinant of the supply of foodstuffs. The administration recognized that some of the basic foodstuffs would need to increase in price and proposed letting the prices increase in gradual steps rather than jump in quantum moves.
5. Improve the country's agricultural extension service and the level of college and vocational school education in the agricultural sciences.

6. Develop a short and long range business plan for the Ministry of Agriculture, and an over-all agricultural policy for the country as a whole. Set up a coordinating council in the Ministry to improve communication within its own departments and with other Ministries.

7. Improve the investment climate for both domestic and, in particular, foreign investors by decree or legislation to modify and/or eliminate certain constraints contained in the various laws relating to companies, taxation, industry, trade, corporations, and others.

8. Increase the rate of perfected land titles granted to long-term legal occupants of agricultural lands.

9. Increase the supply of Foreign Exchange to facilitate the country's trading activities, improve Ecuador's performance in handling trade-related financial transactions and reduce the large dollar amount of deferred payments due under matured Letters of Credit.

10. Increase the scope and volume of agricultural credit to farmers, livestock men and agribusiness and speed up the agricultural credit delivery system to make the funds available on a more timely basis and at lesser cost to the borrower.

11. Replace the unrealistically low bank savings rates and low fixed lending rates with rates more closely aligned with market rates so as to encourage domestic capital formation and reduce the flight of capital.

The foregoing are not necessarily in the administration's order of importance nor is the list all-inclusive of the government's intentions. However, the eleven points do include most of the changes that if made, would have significant influence on the agribusiness sector and investment climate of Ecuador.

C. Effective Improvements in the Investment Climate

Two years have elapsed since the Febres-Cordero government took office. There are two years left in the term before new elections are held to elect the succeeding administration. What are some of the tangible changes that seem to have occurred?

The changes have come about in a relatively stable political environment. The direction of the government's efforts has been unswerving and in sync with the post inauguration game plan. The following changes are perceived as improvements in the investment climate for both foreign and domestic investors:

1. The restrictive provisions of the Andean Pact were relaxed so that a Foreign Firm (identified as an enterprise in which Ecuadorean investors have less than 51% ownership or management control) whose production is destined 80% or more for export to non-Andean Pact nations is not obligated to become a Mixed or National firm. A Mixed firm being one in which Ecuadoreans have from 51-80%, inclusive, ownership and a like degree of control; a National firm being an enterprise in which Ecuadoreans have more than 80% ownership along with the same degree of technical, financial, administrative, and commercial control. This means that foreign investors in this type of enterprise are not obligated to sell their shares evidencing ownership to Ecuadorean nationals nor are the foreign investors under any obligation to sell other rights that effectively transfer ownership to Ecuadorean Nationals.

Prior to this resolution, foreign investors were obligated to transfer certain percentages of stock ownership to Ecuadorean nationals so that over a span of 22 years, majority control would be vested with Ecuadorean Nationals.

2. Foreign investors in Foreign, Mixed, or National companies that export 80% or more of production have no limitations on remittance of earnings.

3. Companies with foreign investors that do not export 80% or more of production may now remit earnings to 30% of net registered capital.
4. Foreign firms are exempt from divestiture requirements if their products contain at least 35% of local inputs and at least 15% of sales are exports. Eligible enterprises are foreign manufacturing, fishing, mining, forestry, agricultural and livestock enterprises.
5. Foreign firms producing products destined 80% or more for export that have signed a divestiture (transformation) agreement may request cancellation of such agreement.
6. Ecuador has recently signed an Investment Guarantee Agreement with the Overseas Private Investment Corporation (OPIC). These agreements provide foreign investors (U.S.) with protection against political risks (of inconvertibility, expropriation and war, revolution, insurrection or civil strife) as well as financial services.
7. There has evidently been a decrease in the length of time it takes an investor to organize and register a stock company or joint venture. This is more a perception than a verified fact.
8. The Ecuadorean sucre has been devalued and continues to float against the U.S. dollar trading at S/125-130 to \$1 in mid-January 1986. There are effectively two exchange rates. The official rate and the intervention rate are at S/96.5 per dollar while the freely floating rate is in the range of S/125-130. Dollars generated from export sales are turned into the central bank which credits the domestic account of the exporter at S/96.5 per dollar. Likewise, sucre earnings that are to be remitted to a foreign investor are converted at S/96.5 per dollar.
9. Authorization has been granted the commercial banking system to sell deposit or investment certificates (commercial banks and financiers, respectively) at market rates of interest. While

maturities of up to 360 days are permitted, the banking institutions have limited the sale of certificates to 180 days. Unfortunately, these maturities do not match the seasonal need of agricultural borrowers who require loans and advances of up to a year in term. In spite of the cautious beginning, the financial institutions have enjoyed success in attracting funds, much of which has come out of the country's informal pool of capital. The pool of money collected by sale of these instruments is beginning to be substantial. The present cost of these funds is about 21% and they are lent at a market rate of 23% ±, a spread of 2% ±.

In an effort to force more of the lending on to the commercial sector, the Central Bank is beginning to reduce the amount of funds it makes available at concessionary rates of 12-18% to commercial banks for discounting their loans which meet Central Bank Guidelines. Of course, borrowers who have enjoyed below market rates are clamoring for access to these concessionary rate monies which are being allocated to borrowers via political intervention rather than sound credit and economic standards. This process simply enlarges the practice of adding "special fees" at each of the various stages involved in getting a credit commitment and further increases the effective cost of capital to the borrower.

There is a large need in the economy for sucres, both on a short and medium-long term basis. Inflation, while reduced from historical levels, is still about 30% in 1985-86 and the sucre has continued to lose value in relation to the dollar. Firms are reluctant to borrow dollars even though they can export some of their products into a dollar market. Many factors have caused borrowers to be leery of increasing their dollar debt exposure - impending further devaluation of the sucre, the now dual and potential three-tier exchange rate, the Central Bank's tight control of foreign exchange, and the reduction in the amount of dollars an exporter can accumulate because of increased government controls on export billing and invoicing practices. The authorization to permit sale of deposit/investment certificates adds some necessary flexibility to the private financial system but more needs to be done.

10. The exporter is given an income tax credit of up to 15% of export value. The amount is derived by taking the FOB export value and adjusting this amount for the percentage of value contributed from the use of Ecuadorean inputs. These tax credits are known as CAT (Certificados de Abono Tributario).

D. Constraints and Limitations

The quality of the investment climate in Ecuador for U.S. investors is heavily affected by the following constraints and attitudes:

1. Foreign investors who are parties to various types of performance contracts required in doing business with Ecuadoreans in Ecuador (and these contracts covering purchase of raw products, construction, various services, labor, sales, etc. are usually entered into under the assumption that a contract insures performance and/or rights to pursue legal means to recover damages to offset the lack of performance) should recognize that breach of contract does occur and that some Ecuadoreans do not feel a moral obligation to honor a contract when a better or more profitable opportunity appears. Pursuit of legal remedies is time consuming, expensive, and unrewarding. Probably 75% of the legal decisions rendered are in favor of the Ecuadorean investor. Present commercial practices and the legal processes associated with contract performance are doing little or nothing to change commercial mores to recognize the sanctity of contracts.

2. It will be up to the U.S. investor to make certain that USDA rules and regulations relating to Ecuadorean agricultural exports to the U.S.A. are complied with. Ecuadoreans do not always understand the USDA's firm administration of regulations pertaining to products imported into the U.S.A. that are free of chemical residues, local soils, insects, plant and animal diseases, viruses, animal filth, and other illegal material that may "piggy-back" in packaging and shipping materials.

3. There is at present no consistently reliable air freight service out of Ecuador. A foreign investor whose enterprise involves the shipping of highly perishable products such as cut flowers, trout, seafood, seasonal fruits and vegetables, etc. must make certain that the project is serviced by a logistics system (transportation, handling, storage) that meets the quality-maintenance needs of the product being exported to the U.S.A., to Europe, or elsewhere. This may involve much additional capital needed to provide cold storage on farm, at local truck terminals, and at airport freightliner facilities both in Ecuador and at points of destination; refrigerated trucking; fumigation, pest control, or controlled atmosphere facilities - all integrated into a system that minimizes temperature and humidity changes - plus the hiring of aircraft equipped to handle the product and meet pickup and delivery schedules.

4. While the present laws provide for tax and other concessions to importers of certain capital and production goods needed to aid in the development of the economy, the administration of those laws frustrates most potential beneficiaries. To circumvent the bureaucratic demands for documentation, "special fees" and to reduce the time lost in going through regular channels, most users bypass the formal process and rely on the "grey" market. While goods purchased in this market are much more expensive than the prices listed in formal channels, delivery is almost immediate. Hence, a U.S. investor will need to determine whether the project's development can afford a long gestation period or can stand the alternatively high investment cost to obtain production much sooner.

5. There is almost a total lack of middle management type people in Ecuador. The owners are the equity holders. They make all the decisions, do all the important supervision, and disclose very little of corporate plans to subordinates who have little management power. Delegation of authority is not widely practiced and most subordinates who have been delegated managerial duties and powers have not handled their duties well over any extended period. Subordinates, and even owners, have less appreciation of timing as a key ingredient in a

modern agribusiness society than do U.S. agribusiness owners and managers. Also, there seems to be a lack of personal commitment by staff people to take the responsibility for performance to see that a quality job gets done on time. An employee's unwillingness to "stand in the shoes of the master", theft, and "ripping off" foreign-owned enterprises, are all characteristics of the work force that a foreign enterprise must have an ability to work with. A U.S. investor must plan to spend more time on management and cover a broader scope of managerial detail until such time as an adequate cadre of middle and/or senior managers is developed.

To date, what has been accomplished in Ecuador to modernize its agriculture has been done by persistent, dedicated Ecuadorians, often aided by foreigners. The GOE, whose leaders seem progressive and anxious to see the economy grow, continues to be hampered by a huge bureaucracy that is impeding development.

#### E. Conclusions

It is vital to the further economic development of Ecuador that the policies and philosophy guiding the present administration be continued into succeeding administrations.

The changes this administration has made in its first two years in office and the direction those changes portend for the country appear to be positive and progressively moving Ecuador to a more free-market oriented economy.

The country has an excellent resource base (land, water, labor) for the further development of agriculture and livestock which if done right will benefit both the domestic economy and permit exploitation of its export potential.

Agriculture and consumers continue to be burdened by an ill-designed and poorly coordinated plethora of programs that attempt to increase farm income while maintaining cheap food prices.

High buying prices set for some crops so as to prop up farm income have created artificial surpluses priced too high to permit their utilization in livestock enterprises or in further processing for consumer products.

Historic low yields coupled with high farm input costs (credit, seeds, fertilizers, chemicals, machinery, transport) have resulted in high unit cost commodities that are not price competitive in either domestic or foreign markets.

In government, there is still much more rhetoric than actual evidence of change. Time, energy, and capital consuming constraints are a problem at all levels of administration and corruption is pervasive and inhibiting to further development of the agricultural sector.

A number of Ecuadorean entrepreneurs are already introducing new practices and building infrastructure and are attempting to capitalize on the country's climatic and physical resources. They are the innovators and risk takers who are becoming catalysts for others.

A long list of projects has been developed that could be investigated by prospective investors. There are also a number of enterprises already functioning that could benefit from additional infusions of capital, management, and technology.

Before one can judge the agribusiness investment climate to be strongly favorable, the Ecuadorean government must be willing to recognize the need for market-oriented price support programs, actual trading of commodities (traditional and non-traditional) on a world price basis, backing up buyer-seller performance under contracts, and reducing the impact of government-owned agricultural input supply and service companies upon the development of the private sector in these supply and service areas.

VI. POTENTIAL PROJECT INVESTMENT OPPORTUNITIES

During the Reconnaissance Team's time in country and in meetings with numerous private and public sector individuals, the team heard of many investment proposals, ideas, needs, etc. All were recorded and later given a preliminary evaluation according to criteria presented below. The evaluations are preliminary and judged for domestic or export markets. All projects will be given a more rigorous evaluation and economic analysis by a project profile team studying the projects and reporting within six months of this report. The project selection criteria included the following:

- a. Apparent Market. Preliminary evaluation had to indicate a reasonable market opportunity for the proposed product or service.
- b. Apparent Comparative Advantage. The proposed product or service had to appear on first examination to offer a unique comparative advantage when produced in Ecuador. The advantage could be due to the unique natural resources, climate, domestic market potential, or other feature which contributed to the economic/technical feasibility of the project.
- c. Apparent Adequate Profitability. Because of the risk factors involved, all projects had to appear to offer an annual return on investment of 33 to 50% or higher.
- d. Interested Local Partners. Because of the different business climate of Ecuador, all projects had to offer the potential of 50% local equity partners of good business reputation.
- e. Potential for Sale of U.S. Goods and Services. All projects were evaluated for their potential in utilizing U.S. goods and services in the production and marketing of the output of the project.
- f. Apparent Technical Feasibility. All projects were evaluated according to their technical feasibility utilizing known U.S. technical capability and resources.

PROSPECTIVE PROJECTS -- FIRST REVIEW

All projects considered worthy of further review were divided into projects producing export products yielding dollar sales and projects producing products for domestic consumption yielding sucres. The economic and technical criteria used were the same on both categories.

Projects for Export Markets

1. The Production and Export of Cut Flowers.

Within the past two years Ecuador has established 24 cut flower plantations producing mostly roses and carnations in the Quito area. Early indications are that Ecuador enjoys a climatic advantage over competing areas. Adequate technology is available and results to date indicate good product acceptance in the U.S. and Europe. A still unsolved problem is dependable air freight to the U.S., but solutions are being sought. Several apparently well managed and profitable plantations are seeking equity capital to expand their operations.

2. Integrated Shrimp Farm Production and Processing.

Ecuador has developed perhaps the world's leading shrimp culture operation along portions of its coast. At present, more than one hundred firms have shrimp farms utilizing shrimp seed (larvae) harvested from the ocean. Recent fluctuations in the supply of shrimp seed from the ocean has caused the development of shrimp "laboratories" producing shrimp larvae. The production technology is being proven and some ten laboratories are now in production or under development. Additional capital is being sought for additional laboratory facilities. The economics appear very favorable at this time.

3. Fresh Vegetable Production.

The tropical climate of Ecuador offers year round vegetable production and the ability to produce and ship fresh vegetables to U.S. and European

markets during the short period that normal supply sources do not meet market needs. Presently okra, asparagus, and snow peas are being produced for the U.S. market and with apparently good economic results, except for problems caused by undependable air freight to the U.S. Assuming this problem will be solved, Ecuadorean investors wish to join with U.S. equity and marketing partners to expand production.

#### 4. Fresh Fruit Production and Marketing.

Ecuadoreans are presently producing and shipping fresh pineapple, strawberries and melons to the U.S. market, fitting into the windows of supply not met from other areas. Assuming a solution to the earlier mentioned transportation problems and adherence to strict grading and quality standards for the U.S. market, an opportunity exists for expansion of this activity through joint ventures providing capital and U.S. marketing expertise to interested Ecuadorean partners.

#### 5. Trout Farming.

The highlands of Ecuador have many rivers and cool, unpolluted waters offering a unique opportunity for commercial trout farming. Ecuadorean investors are interested in developing a joint venture with U.S. equity and marketing partners.

#### 6. Tea Plantation.

Ecuador has two tea plantations -- one privately owned and one majority publicly owned. The publicly owned plantation has 600 hectares (1500 acres) of mature tea plants of the Black Assam variety but limited facilities for processing to tea bags. The owning government agency wishes to sell its shares. An opportunity exists for developing a profitable operation producing private label or national brand tea.

#### 7. Cocoa Butter and Liquor.

Ecuadorean firms that purchase and partially process cocoa beans are looking for venture partners to expand and intensify bean processing to cocoa butter and liquor.

## 8. Processed Vegetables.

The unique climate, fertile soils and abundant labor of Ecuador offer the possibility of producing gerkins, baby corn, canned asparagus (brined, pickled, or canned) and other labor-intensive, high-margin products for the U.S. markets. Frozen vegetables would be another possibility. Existing Ecuadorean canners are interested in joint venture partners providing equity and marketing expertise.

## 9. Processed Exotic Fruit Juices.

Ecuador produces many fruit juices now unknown to the U.S. market. The opportunity exists for U.S. equity and marketing partners to introduce and market concentrates and/or single strength juices and nectars from fruits such as mango, narajilla, papaya, lime, guava, watermelon, and passion fruit to the U.S. and other markets. Ecuadorean businessmen and processors are interested in joint venture partners.

### Projects Identified for the Domestic Market

#### 1. Certified Seed Production and Distribution.

Until the present national government, all seed breeding and distribution was handled by a government owned agency. The present government has opened up seed importation and declared the government owned agency for sale. The opportunity now exists for developing private seed breeding programs and for acquiring the assets of the state owned agency as well as offering improved variety seed for distribution.

#### 2. Commercial Corn, Soybean and Rice Production.

The coastal area of Ecuador has fertile, level lands producing corn, soybeans, and rice, and additional lands available for production. Average yields are much lower than those achieved in the U.S. The National Government supports these commodities at price levels much higher than

prices received by U.S. farmers. Under the new national government it is feasible to import new varieties of seed and other inputs. Several Ecuadorean landowners are interested in joint ventures with U.S. individuals or firms who can provide new technology and management for crop production.

### 3. Integrated Pork Production.

Pork is a favorite food of Ecuador. Pork production is still largely primitive and inefficient. There is an interest on the part of Ecuadorean groups in establishing a fully integrated pork production and processing system patterned after the U.S. broiler industry and now emerging in the U.S. pork industry. The groups wish to affiliate with a U.S. group who could supply the production technology and assist in developing the processing technology when appropriate.

### 4. Integrated Broiler Production and Processing.

Ecuador has several integrated broiler production and processing companies based on the U.S. models. Broiler production and consumption has been increasing in Ecuador and it is believed that the market will continue to grow as more broiler meat is available. Agricultural groups are interested in establishing joint ventures with U.S. companies which could provide technology, management, and a portion of the capital to start another integrated broiler production and processing industry.

### 5. Vegetable Production and Packing for Domestic Supermarkets.

Ecuador has an emerging supermarket industry patterned after the U.S. supermarket industry. One of the deficiencies in the industry is the non-availability of sufficient quantities of high quality fresh vegetables properly cleaned, sized, graded and packaged for supermarket merchandising. Major investors in the emerging supermarket industry are potentially interested in a joint venture to produce and package fresh vegetables for their operations. The U.S. joint venture partner would be expected to supply production and packaging technology and management, and supply a portion of the capital requirement.

6. Commercial Wheat Flour Milling in the Highland Region.

Wheat flour is a mainstay in the Ecuadorean diet. The country has two large flour mills in the coastal region. The flour milling industry in the Sierra is composed of many small village flour millers. Many observers believe that the region is ready for a "shake out" of smaller millers and a move to fewer, larger, more efficient operations. The opportunity exists for establishing a wholly owned flour milling operation in the region, or entering into a joint venture with one or more of the village millers interested in expanding but not having adequate capital or technology.

7. Fertilizer Production and Distribution.

Ecuador has presently two fertilizer blending plants but no basic production of fertilizer components. One of the blending plants is currently owned by the government and for sale as a part of the current government's policy of moving state owned industries to the private sector. With the government's emphasis on increasing agricultural production and foreign investment, the opportunity exists for a firm to acquire the existing operation for sale, or establish a new fertilizer operation in Ecuador. Large amounts of gas that could be used for nitrate production are currently flared in the oil fields of the Oriente region. The opportunity exists for establishing a nitrate producing operation independently or jointly with the government owned agency.

8. Beef and Dairy Cattle Production.

Since the Ecuadorean government recently relaxed artificially low political prices on meat and milk, sharply increased consumer prices for both commodities have revitalized the economic perspectives for cattle ranchers and dairymen. There is increasing interest and opportunity for genetic improvement of beef cattle and dairy herds through the use of artificial inseminations and ova transplants. Herd health and nutrition could benefit greatly from improved pasture management and veterinary practice. Several breeders expressed an interest in working with U.S. partners in upgrading the genetic quality, health, and nutrition level of their beef and dairy operations.

APPENDICES

APPENDIX I

Table 1: BREAKDOWN OF GROSS DOMESTIC PRODUCT BY SECTOR

<u>Sector</u>	<u>% Share of GDP</u>	<u>1984 Growth (Pct)</u>	<u>1985 Growth (Central Bank Projection, 5/85)</u>
Agrarian Sector	13.5	6.7	1.7
Crops	6.1	11.1	-.3
Livestock	5.4	3.3	2.4
Fishing & Hunting	1.3	14.8	6.0
Forestry	.7	-7.3	3.0
Petroleum/Mining	16.2	11.9	3.6
Manufacturing	19.4	-2.1	2.5
Utilities	.5	19.8	5.3
Construction	4.8	-2.5	3.8
Services	32.8	4.7	2.7
Public Administration	7.0	1.3	2.0
Domestic Service	.4	1.1	1.0
Other	<u>3.1</u>	<u>7.2</u>	<u>2.4</u>
Total GDP	100.0	4.1	2.5

APPENDIX I Table 2: KEY ECONOMIC INDICATORS

	1983	1984	PCT CHANGE 83/84
<u>NATIONAL ACCOUNTS AND PRODUCTION</u>			
GDP, Current Prices (bil/sucres)	555.7	784.9	41.2
GDP, Current Prices (mil/dollars)	12,573	12,502	-.5
GDP, Per Capita, Current Prices (\$)	1,419	1,372	-3.4
GDP, Constant ('75) Prices (bil/sucres)	150.5	156.6	4.1
GDP Per Capita, Constant (1975) Prices (sucres)	16,991	17,185	1.1
Petroleum Production (thou.bbl/day)	236.5	260.0	8.4
Petroleum/Mining Sector (% real growth)	26.9	11.9	-
Agrarian Sector (% real growth)	-14.6	6.7	-
Manufacturing Sector (% real growth)	-.1	-2.1	-
Construction Sector (% real growth)	-8.9	-2.5	-
<u>FINANCE/FISCAL (billions of sucres)</u>			
Money Supply (currency, demand dep.)	78.45	111.53	42.2
Private Banks' Time/Savings Deposits	15.44	26.53	71.8
Central Bank Credit	106.95	168.72	57.8
Natl' Consumer Price Index - % Inc. Q1 1985 March/March	52.5	25.1	-
Central Gov't Current Budge Rev.	60.2	101.6	68.8
Central Gov't Budge Expenditures	82.4	130.4	52.8
<u>TRADE AND BALANCE OF PAYMENTS (Money values in millions of dollars, rnded)</u>			
Mods. Exports (FOB, licenses granted)	2,224	2,583	16.1
Exports of Crude Petroleum (mil. bbl.)	54.4	59.3	9.0
Exports of Crude Petroleum (FOB)	1,503	1,623	8.0
Exports of Ref. Pet. Products (CIF)	106	194	83
Exports of Bananas (FOB)	153	135	-11.7
Exports of Coffee Beans (FOB)	148	175	18.2
Exports of Raw Cocoa (FOB)	8	96	1,100
Exports of Proc. Cocoa (FOB)	26	50	92
Exports of Shrimp	175	160	-8.6
Exports of Proc. Fish (FOB)	27	60	122
Exports of US (FOB, lic. granted)	1,257	1,649	31.2
Exports to US (% of total)	56.6	63.8	-
Total Imports (CIF, lic. liquidated)	1,300	931	-28.4
Imports from US (CIF, lic. granted)	498	528	6.0
Imports from US (% of total on CIF lic. granted basis)	34	30.8	-
Current Account Balance	-104	-209	-
Capital Account Balance	155	169	-
Balance of Payments (net change)	51	-40	-
Central Bank Gross Int'l Reserves	788	756	-4
Central Bank Net Int'l Reserves	151	171	13.3
External Public Debt	6,020	6,772	12.5
Registered Private External Debt	670	177	-78.6
Total External Debt	6,690	6,949	3.9
Total External Debt as Pct. of GDP	53.2	55.6	-
Total Debt Service	2,939	2,143	-27
Total Debt Service Ratio	109	72.1	-
Debt Service After Renegotiation	892	937	5
Debt Service Ration After Renegotiation	33.2	31.5	-

APPENDIX I

Table 3: AGRICULTURAL IMPORTS FOR ECUADOR, Calendar Year 1984  
(Thousands U.S. Dollars)

Commodity	<u>Agricultural Imports (CIF)</u>		
	Total	From U.S.	% U.S.
Wheat	61,042	61,042	100
Soybean	39,148	39,148	100
Sugar	20,808	0	0
Cotton	19,466	19,466	100
Bovines	9,661	103	1
Barley	8,335	0	0
Soybeans	7,274	7,274	100
Tallow	6,996	6,996	100
Corn	6,122	6,122	100
Rice	5,650	0	0
Powdered Milk	5,251	0	0
Oats	3,192	0	0
Tobacco	2,969	132	4
Modified Milk	2,939	209	7
Lupulin Extract	2,356	2,355	100
Tomato Paste	1,931	0	0
Soybean Meal	1,237	1,237	100
Pasture Seeds	1,121	764	68
Lentils	1,087	742	68
Poultry	1,069	1,019	95
Vegetable Seed	1,065	946	89
Wines	1,044	0	0
Dietetic Prep	731	0	0
Soybean Seed	655	159	24
Milk Replacer	619	196	32
Other Vegetable Oils	536	258	48
Other Seeds	447	228	51
Fruits: Fresh	333	0	0
Semen	223	222	100
Sorghum	130	90	69
Vegetable Dried	36	36	100
Spices	25	21	83
Others	14,594	5,941	41
<b>TOTALS</b>	<b>228,092</b>	<b>154,706</b>	<b>68</b>

Source: Central Bank of Ecuador - Import and Export Permits Granted  
Revised 02/12/85

APPENDIX I

Table 4: AGRICULTURAL EXPORTS FOR ECUADOR, Calendar Year 1984  
(Thousands U.S. Dollars)

Commodity	Agricultural Exports (FOB)		% U.S.
	Total	To U.S.	
Bananas	127,618	76,264	60
Cocoa Beans	95,991	58,924	61
Nat. Rob. Coffee	88,698	75,744	85
Washed Rob. Coffee	34,318	31,557	92
Chocolates	29,961	21,067	70
Wash. Arab. Coffee	29,608	25,587	86
Nat. Arab. Coffee	22,115	17,249	78
Soluble Coffee	19,505	13,700	70
Sugar	15,271	15,271	100
Abaca	11,822	4,157	35
Cocoa Liquor	10,247	4,423	43
Wood	8,325	7,401	89
Cocoa Butter	7,516	4,958	66
Plantains	5,168	5,161	99
Banana Products	4,281	1,772	41
Vegetable Extracts	3,288	742	23
Particle Boards	2,739	1,783	65
Roasted Coffee	2,528	2,501	99
Cocoa Cake	2,109	1,164	55
Molasses, Inedible	1,563	1,563	100
Canned Fruits	1,338	236	18
Tea	1,175	554	47
Tobacco	993	334	34
Ivory Nut	645	2	0
Cut Flowers, Fresh	587	569	97
Cocoa Powder	521	75	14
Melons	511	492	96
Pyrethrum Extract	346	109	32
Other Canned Prod.	265	70	26
Other Fresh Fruit	262	98	37
Cereal Flours	261	31	12
Castorbeans	201	0	0
Others	130	101	78
TOTALS	529,906	373,659	70

Positive Trade Balance, Total \$ 301,814  
Positive Trade Balance, USA \$ 218,945

Source: Central Bank of Ecuador - Import and Export Permits Granted  
Revised 02/12/85

APPENDIX II

MEMBERS OF THE RECONNAISSANCE SURVEY TEAM

Walter W. Minger

A retired Senior Vice President - Agribusiness of the Bank of America, San Francisco, California, Mr. Minger now has his own consulting practice in the Bay area. Drawing upon his 38 years of experience with the Bank of America, he specializes in the review and critique of foreign agricultural projects as also in the analysis of agricultural credit delivery systems.

Among his other executive duties, Mr. Minger currently serves as President of the Agricultural Banking Institute, President also of the U.S. Agricultural Development Corporation, and Director of the Tri-Valley Growers Association, San Francisco.

Mr. Minger served in 1984 as a member of the U.S. Presidential Agricultural Mission to Ecuador, and has been chosen by ASAC International to act as Team Chairman for the Reconnaissance Survey and Project Profile Teams to Ecuador.

Joseph H. Marshall

Dr. Marshall is President and Managing Director of Southern Plantations Group, Inc, (SPG), Albany, Georgia. In 1978, he co-organized SPG, which is a professional land management and consulting organization providing services to investors in agricultural and rural land. Before 1978, he was employed by Gold Kist, Inc., Atlanta, Georgia, for 15 years. Gold Kist is a regional Agricultural Cooperative operating in 13 southern states. Dr. Marshall's last position was Vice President, Corporate Development, which included responsibility for the administration of the company's activities in strategic planning, research and development, engineering and related services.

Dr. Marshall has a doctoral degree in Agricultural Economics and has been a certified member of ASAC since 1982, serving as the Society's Secretary-Treasurer and Eastern Director. He is past President of the Georgia Association of Agricultural Economists, and of the Georgia Chapter of the American Society of Farm Managers and Rural Appraisers.

Michael W. Hurley

Mr. Hurley is the ASACI Director of International Agribusiness Teams, working under the 1985 and 1986 grant agreements with the U.S. Trade and Development Program. His previous experience includes nine years of work in Latin America as sales and marketing manager for an agricultural development company, and as project director for the design and installation of grain storage, handling, and processing facilities.



PN/ABH-378

AGRIBUSINESS INVESTMENT OPPORTUNITIES  
IN ECUADOR

VOLUME II: PROJECT PROFILE REPORT

PREPARED BY  
THE  
AMERICAN SOCIETY OF AGRICULTURAL CONSULTANTS  
UNDER A GRANT FROM  
THE  
U.S. TRADE AND DEVELOPMENT PROGRAM

JUNE 16, 1986

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## I. INTRODUCTION

Working under a Grant Agreement with the U.S. Trade and Development Program (TDP), the American Society of Agricultural Consultants International (ASACI) sent a five-man Project Profile team to Ecuador to examine project opportunities identified by an earlier Reconnaissance Survey team (see: Agribusiness Investment Opportunities in Ecuador, Volume I: Reconnaissance Survey Report). The earlier team identified sixteen project areas for potential investment. The Project Profile team utilized the Reconnaissance Report as a basis for initiating its work in identifying potential investment opportunities.

From May 5 through May 23, 1986, the five-man team of consultants worked in Ecuador developing and preparing information leading to this present document Agribusiness Investment Opportunities in Ecuador, Volume II: Project Profile Report. The team was composed of the following members: Walter W. Minger, Team Chairman, Burlingame, California; Jack Martin, Sterling, Colorado; George L. Greene, Germantown, Maryland; James Rinella, Fort Myers, Florida; and Michael W. Hurley, McLean, Virginia. A professional profile of team members appears in Appendix I.

After careful review of potential projects, the Profile Team identified for further development the following specific investment opportunities:

- Establishing a Modern Dairy
- Setting Up a Tissue Culture Lab
- Producing Roses for Export
- Producing Fresh and Processed Strawberries for Export
- Farming Marine Shrimp for Export.

The report also describes other project opportunities that would merit investor interest.

It is the hope of the project profile team that prospective U.S. investors would further explore potential ventures in the above mentioned areas of opportunity.

It should be noted that because the report is only a preliminary analysis of the different project opportunities, each potential investor must make his own independent investigation and assessment of a prospective venture before making any investment decision. To facilitate follow-up on individual project opportunities, the report lists with each profile potential Ecuadorean partners interviewed by team members. For the potential U.S. investor, who would want to pursue the prospective ventures, the U.S. Trade and Development Program (TDP) has available funds for financing feasibility studies for Ecuadorean projects. For further information, a potential investor should contact TDP, Suite 300, SA-16, IDCA, Washington, D.C. 20523, tel: (703) 235-3657.

The ASACI consultants who prepared this report are also available to the potential investor interested in following up on Ecuadorean project opportunities, as is the agricultural expertise of other consultants that are members of the American Society of Agricultural Consultants International. The prospective investor may obtain the current study (and earlier report) at a reasonable cost, as well as information on ASACI consultants by contacting The Society's headquarters at the following address.

American Society of Agricultural Consultants International  
8301 Greensboro Drive  
Suite 260  
McLean, Virginia 22102  
tel: (703) 893-8303/04  
telex: 704419 ASACI MCLN UD

## II. CONCLUSIONS ON THE INVESTMENT CLIMATE

The Reconnaissance Survey Team visited Ecuador in January 1986, and reached a number of conclusions relative to the investment climate existing there. The team reported these investment conditions in the Survey Report which was written for potential U.S. investors, those Americans who might desire to provide capital and/or technical assistance to existing and potential agribusinesses within the country.

Certain of these conclusions were based on the avowed intentions of the then two year old government headed by President Febres-Cordero and on the evident or perceived progress that was being made to convert the country's economy to a more "world-market price" basis along with efforts to change laws, practices, and procedures in order to stimulate foreign investment in the country.

It is necessary to up-date the original conclusions, eliminate some because they are no longer valid, and add some that recognize the changes that have occurred since the Team's visit in January, 1986.

1. At this time, it is not prudent to recommend that a U.S. investor purchase and/or recapitalize any one of the government owned controlled parastatal companies originally scheduled to be sold to the private sector. These included the large state-owned seed company, Emsemillas; the warehouse and commodity trading company, ENAC; dairy processing plants; a juice concentrate plant; and others. Only the tea company is likely to be sold - to British interests - in the near term. Political realities have slowed down the process of appraising the entities, evaluating the impact on the economy of public vs. private ownership, developing good historical and current accounting data, and setting sales prices. The cumulative effect is that no major offerings can be made before 1987.
2. Inflation continues in real terms at levels above the government's target rates. The sucre, exchanged at about 125:1 U.S. dollar in the free exchange market in January 1986, is now trading at about 160:1

(May 21, 1986). The most serious failure of government has come from not yet solving the Foreign Exchange problem which has great influence on the willingness of foreigners to invest in hard currencies, especially dollars, in Ecuador. Dollars invested in the country are still being registered at 98.5 to 104.5:1, and export earned dollars, once delivered to the Central Bank, are converted to sucres and credited to the exporter's domestic sucre account at the aforementioned rates. Also, more policing is being done of the manner in which exports are billed out to an offshore trading company in sucres and the recording of sales which the trading company is realizing in dollars. Prior to the recent tightening up, this mechanism allowed Ecuadorean exporting companies to build up substantial off-shore dollar deposits. Now, less margin is allowed between the respective billings. The fewer the sheltered dollars, less attractive the exporting process becomes. However, the difference between billing out in sucres to the exporting company and the export sales proceeds realized in dollars is evidently still substantial enough to continue to be attractive for some commodities.

Also, any repatriation of after-tax sucre profits is remitted at the official rate in dollars, often with a time lag because of the unavailability of foreign exchange. Should the U.S. investor desire to liquidate his Ecuadorean holdings and remit his original investment plus retained earnings, his sucres would be converted at the official rate or the free market rate whichever he chooses. The official exchange rate has been increasing periodically. In either case, his investment in dollars would be sharply discounted by the degree of inflation and the difference between exchange rates.

3. The reconnaissance team recommended projects that would return 33.33 - 50% per annum. Since at best only 40% of after-tax earnings can be repatriated in dollars (unless 100% of the product is exported, in which case there is no limit) and given the continued existence of the multi-tier exchange rates, the continued high inflation, interest rates of 23-35%, and U.S. opportunity costs (income) of 8-10%, it is apparent that higher returns would be needed to make a project opportunity attractive to a potential U.S. investor.

Ecuadoreans anticipate that the government to be elected to office following the Febres-Cordero's business oriented regime will be neutral, and that the government following Febres-Cordero's successor will be much more liberal or leftist in its tendencies. Therefore an investment in Ecuador should be amortized over the next 6 years - a period covering Febres-Cordero's last 2 years in office plus four years of a neutral government that is likely to be middle-of-the-road.

4. A thin market exists within Ecuador for quality packed fresh fruits and vegetables similar to those that most U.S. retail food stores receive daily or every other day. However, the mass market representing those in the population who have adequate incomes and purchase most of their foodstuffs from commercial outlets (ranging from stores owned by two supermarket chains to the thousands of mom and pop shops) is not very quality conscious. Price determines the buying decision. The chain store operators do not believe that there are sufficient numbers of consumers who will pay for the value added through grading, washing, and packing to justify the cost. Until the thin veneer of affluent consumers, hotels, and restaurants thickens, adequate volume potential is still in the future.
  
5. Both the governments of the United States and Ecuador are committed to the development of the agricultural sector in Ecuador. Producers in Ecuador are trying to produce, pack, and ship products that meet the requirements of the U.S. market for quality and compliance with U.S. health, safety, disease and pest control laws. It requires a certain amount of good faith by producer/shipper, importer/distributor and governmental offices involved in regulating and monitoring food shipments, particularly fresh fruits and vegetables to create and maintain trading. Increasing the frequency and level of communications relating to U.S. import grading standards, revisions of lists of prohibited fruit and vegetable imports, and dissemination of reports detailing reasons for the rejection at U.S. ports of Ecuadorean shipments would improve the credibility of previously stated U.S. intentions to assist Ecuador. It would also serve to educate the neophyte Ecuadorean grower/shipper. A satisfactory

trading relationship really hinges on the understanding and acceptance of the whole U.S.-Ecuador food system.

6. The role of a U.S. investor in an Ecuadorean agribusiness should be well defined. Capital is needed, both dollars and sucres, but the investor's contribution of expertise in growing, processing, and marketing is highly desirable. A passive investor is not likely to be a successful investor. Because of the peculiarities of the Ecuadorean business/political environment, the U.S. investor must accept the condition that he/she will need to spend more management time and handle a broader scope of problems than those required by an investment of similar size in the states.
7. Ecuadorean labor productivity is poor. The hourly, monthly, and piece work rates for the hired work force are low. However, when the high fringe benefits are added (annual wages are a total of 15 to 17 monthly wage payments) the result is comparatively high labor costs per unit of output. In some companies, the leftist unions having jurisdiction are in control of the labor force. Many enterprises though, are non-union, and most firms have developed their own strategies to minimize or eliminate stoppages. Nonetheless, disputes involving management and labor are generally settled in favor of labor inasmuch as Ecuador's labor laws are strongly biased in favor of hired manpower.
8. The team attempted to do a thorough analysis of each profile subject, but encountered a general lack of depth in management, planning, and good cost accounting among Ecuadorean firms. This situation reduced the number of projects the team could identify, develop, and recommend to U.S. investors for their further investigation and possible investment. Those projects selected appear to have reasonable, though not outstanding returns.
9. An agricultural producer, no matter his form of business organization, is not required to keep records of any kind, is exempted from income taxes, and would probably not be required to share profits with his

labor force as food processors are required to do. These exemptions are contained in Corporation Law #46, and would be of particular interest to those potential U.S. investors reviewing the profit margins of the project profiles.

### III. PROJECT INVESTMENT SUMMARIES

Name of Project: A MODERN LOWLAND DAIRY PROJECT

Location: Ecuador

Project Proposal:

To form a joint venture to establish a 500 head dairy farm on the Ecuadorean coast.

Potential Profitability:

The monthly gross profit on a cow producing 35 pounds of milk per day is approximately US\$50 per head.

Investment/Risk/Ownership:

Various joint venture arrangements are negotiable with local dairy farmers.

Resources from local partner: land, basic infrastructure, present herd, management/labor, some capital - 50% equity share.

Resources from U.S. partner: prime dairy cows through the USDA dairy buy-out program (as capital contribution), technical advice and supervision.

Project Viability:

Technical Aspects: An upgrading of herd genetics will be accomplished by bringing U.S. dairy heifers. U.S. technical assistance will be required to establish nutrition programs.

Market: The Guayaquil market demand is for 500,000 liters daily and current supply provides only 50,000 liters per day. A current loosening of price controls will improve margins to producers.

Personnel: Certain local dairymen are progressive and dedicated to modernizing their operations. Technical assistance is needed to help them establish and maintain proper nutrition, genetic, and herd management programs.

Credibility of Foreign Investors:

There are progressive and dedicated young dairymen like Nicky Olsen and his family who would welcome an opportunity to form a joint venture to convert his operation into a model dairy farm.

Name of Project: A MODERN HIGHLAND DAIRY FARM

Location: Ecuador

Project Proposal:

Investment to establish a modern dairy farm which could be used as a staging area for cattle purchased from the USDA dairy herd buy-out program.

Potential Profitability:

Imported heifers at US\$950/head, acclimated and bred through artificial insemination, would be resold on a 90 day basis at US\$1,200. This would give a gross profit of \$200/head, \$30,000/cycle, \$120,000 per year.

Investment/Risk/Ownership:

Total Investment: US\$ 330,000

Foreign partner: 180,000

U.S. partner: 150,000

Resources from local partner: farm, management/labor, capital - 55% equity share.

Resources from U.S. partner: capital (or dairy heifers as equity investment) and technical assistance - 45% equity share.

Project Viability:

Technical Aspects: The USDA dairy herd buy-out would provide prime heifers to expand and upgrade the highland and dairy industry.

Market: The demand in the Quito area is for 350,000 liters per day, while current supply only provides 150,000 liters/day. Increased milk production is needed.

Personnel: Though there are progressive, dedicated local dairymen, technical assistance would be needed to assure good nutrition and genetic practice in project execution.

Credibility of Foreign Investors:

In association with the large SUPER-MAXI Supermarket chain, a group of dairymen own a milk processing plant which produces a quality and hygienic product. These dairymen are the potential local partners who are interested in joint ventures to improve and expand highland dairy production.

Name of Project: TISSUE CULTURE LABORATORY

Location: Ecuador

Project Proposal:

The new development of a Tissue Culture laboratory to produce 8-10 million pieces a year to service agro needs of Ecuador and Andean Pact countries.

Potential Profitability:

An initial capital investment of \$750,000 would produce yearly gross sales revenues of \$1,800,000.

Investment/Risk/Ownership:

Capital Investment Required: US\$750,000  
Fixed: US\$500,000  
Working: US\$250,000

Ownership/Risk Structure

Foreign Investor: Provides 50% of capital, local/regional distribution network.

U.S. Investor: Provides 50% of capital, state of the art technology.

Project Viability:

Production: The technology does exist in the States and is applicable to Ecuador.

Market: An identified need for disease-free and resistant varieties of bananas, coffee, cocoa, tropical flowers, etc.

Personnel: Experienced U.S. personnel would have to be brought in until local managers and technicians can be trained.

Credibility of Foreign Investors:

CLASAGRO is a newly created and wholly owned subsidiary of CLASE ECUADOR, a large holding company controlling ten different Ecuadorean corporations which include a petroleum exploration company, a finance company, an automobile assembly plant, and two London and Miami based trading companies. International Clyde Petroleum Corporation is one owner of the holding company.

The SAN CARLOS Corporation is a long established and diversified agro-industrial firm which is looking for investment and production alternatives in agribusiness.

Name of Project: FORMULATION OF THE NEMATACIDE "MOCAP"

Location: Ecuador

Project Proposal:

Investment of US\$100,000 to purchase machinery for the formulation of MOCAP, a nematocide used in the production of bananas.

The project has the full support of Rhone-Poulenc, the manufacturer of MOCAP. This is an expansion of an ongoing business, to be set up as a new company.

Potential Profitability:

A gross annual operating profit of US\$100,000 is projected on estimated yearly sales of US\$1.2 million.

Investment/Risk/Ownership:

Total Project Cost: US\$300,000  
Resources from local company: land, capital, plant/equipment, and a trained sales force - 70% equity share.  
Resources from U.S. investor: equity investment capital (US\$100,000), equipment supply, and technical assistance - 30% equity share.

Project Viability:

Technical Aspects: The local company has been given exclusive rights to formulate the proprietary nematocide MOCAP by the manufacturer. Technical assistance will be required.

Market: Primarily, the Ecuadorean banana growers, a total potential market of US\$6.25 million, projected market share of 20%. Export of formulated product to Andean Pact nations is also projected and would have preferred status, and tax-free advantages.

Personnel: Local managerial and sales staff is competent. Installation/production technical personnel would be needed.

Credibility of Foreign Investor:

FITOSAN S.A., established in 1973 is a distributor of agricultural pesticides with 1985 sales of US\$4.4 million, and 70 employees. Owner and manager is Mr. Andres Argudo. Financial references: Banco del Pacifico, Banco Bolivariano, Guayaquil.

Name of Project: MANUFACTURE OF HERBICIDE "PROPANIL"

Location: Ecuador

Project Proposal:

Investment of from US\$250,000 to US\$1,000,000 for working capital to purchase raw materials and cover labor costs for the fabrication and formulation of PROPANIL, a weed killer vital to rice production.

Potential Profitability:

Projected sales are US\$3 million to the local markets with a net profit before taxes of US\$1 million, and sales of US\$3 to US\$6 million for the export market with a net profit of US\$500,000 to US\$1 million.

Investment/Risk/Ownership:

Resources from local company: land, capital, industrial plant and equipment, production and distribution expertise - 51% equity share.  
Resources from U.S. partner: equity investment (working) capital for raw materials and start-up operations - 49%.

Project Viability:

Technical Aspects: The plant is in the final stages of construction and should be in production by July/August 1986.  
Market: Local Ecuadorean rice producers either directly or through a dealer, and the export market of the Andean Pact nations. Virtual monopoly for the product.  
Personnel: Competent technicians and managers are available from the international company with years of experience in the Latin American market.

Credibility of the Foreign Investor:

Interamerica Cris-Quim, established in 1984, has as its parent company Crystal Chemical Interamerica, with offices in Houston; San Jose, Costa Rica; and Bogota, Colombia. Local Financial Reference: Banco de Guayaquil. Mr. Ronald Amack is the managing director and part owner.

Name of Project: ROSE PRODUCTION FOR EXPORT

Location: Ecuador

Project Proposal:

U.S. investment of \$350,000 to permit expansion of present rose growing operation for export to U.S. and Europe. 7,000 square meters of plastic covered grow-out houses will be built. Area in plants will increase from present 6.17 acres to 8.6 acres.

Potential Profitability:

Gross operation profits of US\$421,200 would be earned on gross sales US\$3,240,000.

Investment/Risk/Ownership:

Resources from local company: land, capital, plant, equipment, and management - 60% equity share.  
Resources from U.S. company: capital investment of \$350,000, some management/marketing assistance - 40% equity share.

Project Viability:

Technical Aspects: Excellent growing conditions, export-grade product being grown and exported now.

Market: United States and Europe.

Personnel: Competent and experienced technicians and managers now on hand. Some managerial/marketing assistance desired.

Credibility of Foreign Investor:

El Rosedal, S.A., established in 1985, is a stock company with current assets of US\$406,250. Current debt slightly more than net worth. Annual sales of US\$500,000 to \$1,000,000. Number of employees: 25-50. Financial References: Banco de Fomento, Quito, Ecuador.

Other Potential Joint Venture Opportunities:

FLORSANBA, ROSAS de CUSIN, FLOREXPOR.

Name of Project: FRESH STRAWBERRY PRODUCTION

Location: Ecuador

Project Proposal:

The expansion of the growing/export potential of successful Ecuadorean producers by contributing capital and post harvest handling and marketing knowledge.

Potential Profitability:

A four hectare expansion requiring US\$50,000 in investment would bring a minimum of US\$150,000 in gross annual sales revenues.

Investment/Risk/Ownership:

Capital Investment Required: US\$50,000

Fixed: US\$35,000

Working: US\$15,000

Ownership/Risk Structure, 50-50%

Foreign Investor: Provides land, production capability, capital.

U.S. Investor: Provides capital, post harvest and marketing assistance.

Project Viability:

Production: Current production is cost efficient, good quality strawberry.

Market: U.S. and European market window. Improvement needed in storing, shipping, and marketing product.

Personnel: Production capability is good. Marketing and post harvest handling people will be needed.

Credibility of Foreign Investor:

Mr. Rafael Davila. Sole owner and manager of a very sophisticated and high density planting system on four hectares. In operation for seven years. Financial and personal reference data available by contacting: Mr. Rafael Davila.

Name of Project: PROCESSED STRAWBERRIES FOR EXPORT

Location: Ecuador

Project Proposal:

Investor to take a 50% equity position in an existing Ecuadorean company now growing, processing, freezing, and exporting frozen strawberry, products to the United States.

Capital is needed to retire short term debt, expand growing areas, and improve on plant and equipment, to increase gross sales potential and improve earnings.

Potential Profitability:

A yearly gross operating profit of US\$480,000 is earned on US\$2,760,000 of gross sales.

Investment/Risk/Ownership:

Total Investment: \$1,132,000  
Foreign: \$ 632,000  
U.S.: \$ 500,000

Project Viability:

Technical Aspects: Growing conditions are excellent, present product is good, but production/cost efficiency needs to be increased and improved. Processing plant has to be brought up to full capacity.

Market: Currently the United States. Hopefully, the U.S. partner would be integrated into the wholesale/distribution channels and/or be an end user of the products.

Personnel: A U.S. partner is needed with industry knowledge at the growing and processing ends to improve efficiency.

Credibility of Foreign Investor:

The 12 AGROMOD corporate investors have paid in capital of US\$632,000. If no joint venture, they intend to invest US\$375,000 more. Bank references: COFIEC and Banco de Pichincha. Mr. Diego Iragorri is managing director.

Name of Project: INTEGRATED MARINE SHRIMP PRODUCTION

Location: Ecuador

Project Proposal:

Contribution of capital and production/managerial expertise to a marine shrimp project which would integrate hatchery and grow-out operations.

Potential Profitability:

Hatchery: To set up a facility to produce 8-12 million larvae per month. A capital investment of US\$1.1 million would be required and would produce US\$1.2 million in gross annual sales, with net profits before taxes and debt amortization of US\$700,000.

Grow-out: A 250 ha. grow-out facility would require a capital investment of US\$3 million, with gross annual sales of US\$2.5 million, with net profits before taxes and debt amortization of US\$1.5 million.

Investment/Risk/Ownership:

Various joint venture arrangements are currently negotiable, ranging from acquiring a minority share to purchasing a controlling interest in a shrimp farm.

Project Viability:

Technical Aspects: Shrimp production has suffered from lack of supply of seed stock. Integrating a hatchery to grow-out ponds is vital for profitable production.

Market: The world market for shrimp remains strong, and is expanding faster than current supply.

Personnel: Experienced production technicians would be needed.

Credibility of Foreign Investor

Ecuadminsa. A large management company which controls the activities of 22 subsidiaries is valued at US\$30 million and is willing to sell portions of their holdings not logistically well positioned to their main effort. One example is a 1,033 ha. farm, 169 ha. of which have been developed into shrimp ponds.

Prexamar - Ecualarva. Mr. Felipe Orellana, founder of the Ecuadorean Shrimp Growers Association, is the majority owner of this integrated operation. He is willing to offer a minority share to an active U.S. investor.

#### IV. PROJECT INVESTMENT PROFILES

##### A. INVESTMENT OPPORTUNITY TO ESTABLISH A MODERN DAIRY

##### 1. Overview of the Ecuadorean Dairy and Beef Industry

Beef and dairy production in Ecuador is described by two separate production centers, the highland area and the lowland area. The highland area supports a temperate type of agriculture while the lowland area is tropical. The estimated population of cattle in Ecuador is one million beef cattle and eight hundred thousand dairy cattle.

The population of cattle in the highland region is composed primarily of dairy cattle of which the Holstein is the predominate breed. The lowland regions have both dairy and beef herds. Due to the tropical conditions of the lowlands, Brahman cattle have been used extensively in a crossbreeding program for both dairy and beef cattle. The dairy herds are predominately Brahman x Brown or Brahman x Holstein crosses. The beef herds are straight Brahman or Brahman crosses with European breeds.

##### Dairy Production in the Highlands

Dairy and beef production in Ecuador is nearly 100% pastoral. The highland area has a temperate climate and sufficient rainfall to support grass production throughout the year. Irrigation systems have been installed on many farms to augment the rainfall and maximize production. The soil appears to be quite fertile as the stocking rate is one cow per acre without the benefit of fertilizer.

Under this pastoral method of production, little or no supplement feeding is practiced. Milk production under these conditions will range from 20 to 35 pounds per head per day. A few progressive dairymen have started making grass silage from surplus acres and are feeding small amounts of supplemental feed, i.e., molasses, urea, minerals, rice bran and wheat middlings. With this supplemental feeding, milk production has increased to 45 to 50 pounds per head per day.

Due to a general lack of nutritional and managerial technology, lifetime milk production of the cow remains below the U.S. standards.

#### Dairy Production in the Lowlands

As with the highland dairy herds, little or no supplemental feeding is practiced by the lowland dairy farmers. In general, the dairy herds are larger in size, but only 20 to 30 percent of the cows will be in the milking string at any given time. Milk production for the lowland dairy cows ranges between 20 and 30 pounds per head per day. The better herds are producing up to 45 pounds per head with supplemental feeding. Bananas, rice bran, brewer's grains, urea, soybean meal, molasses and wheat middlings are available at reasonable prices for feeding. Heat, humidity and parasites are a problem in the lowlands. To overcome these problems, Brahman (Zebu) are crossed with dairy breeds. Confinement units can maintain dairy breeds without the crossbreeding with Zebu cattle.

#### Problems Facing the Ecuadorean Dairy Industry

1. Political - There is a ceiling price on milk sold in plastic bags. Though milk sold in cartons or jugs is not controlled, a fixed percentage of processed milk is to be packaged in the plastic bags. As a rule, milk plants use imported powdered milk to manufacture reconstituted milk most of which is packaged in plastic bags for the controlled-price market. The fresh milk goes into the higher margin markets.
2. Quality Control - Due to the ceiling price, much of the milk is sold as raw milk outside of the price controlled market. Refrigerated storage at the farm is not common. As a result, most people boil their milk before using it.
3. Technical - Nutritional technology appears to be a void in Ecuador. The cows are of high genetic quality, and are continually being improved through artificial insemination. Without a corresponding improvement in the nutritional level, the cows cannot reach their genetic potential.

4. Labor - The national labor policy allows for only a 40 hour work week and encourages low productivity through liberal severance pay allowances.
5. Feed Cost - Corn is the only readily available grain for feeding and is currently selling for US\$200 per ton. On the farm milling is not practiced and commercially prepared feed carries a wide profit margin.
6. Production - Many dairy farmers allow the calf to nurse 25% of the milk during the week, and 100% on the weekend to help compensate the shortage of labor. Because of the low energy intake, cows do not cycle on schedule and calve on 14 to 16 month intervals. The milking period ranges between 5 and 9 months with 7 months being the average for the better dairies.
7. Parasites - Internal and external parasites are a serious problem in most of Ecuador. In a pastoral type of production, reinfestation of parasites is a continuous problem. Producers dip for ticks once a month and treat for internal parasites every 3 to 4 months. Switching to a confinement type of dairy production would greatly reduce the parasite load.

#### Opportunities in the Ecuadorean Dairy Industry

1. Market Potential - The greater Guayaquil area has an estimated daily requirement of 500,000 liters of fluid milk. The current supply is approximately 50,000 liters per day. A similar supply and demand ratio exists for the other areas of the nation.
2. Technology Transfer - Management, milling, production, nutritional, breeding, disease and quality control programs are needed. This expertise could be supplied by the potential investor, as a portion of his cash investment.
3. Vertical Integration - The dairy industry is in its infancy in comparison to its U.S. dairy industry. Ecuadorean partners are

available for the entrepreneurial American who can supply the technological expertise in milk production and processing. The cost of production of milk is approximately 50% of the price paid by the milk processing plant. The retail price is 1.6 times the farm price. Vertical integration, from production to marketing, should be considered.

4. Due to price controls on fluid milk, many producers have switched to cheese and yogurt production and as a result have developed a large and growing market for these products.
5. Quality control - The producer of quality milk enjoys a ready market. Much of the quality milk is sold on the black market.
6. Feed Production - Most of the dairy producing areas are blessed with rich soil that would grow corn or barley. The current corn varieties available would produce 25 tons of silage per acre per crop. It should be possible to grow two crops per year. The highland area produces alfalfa that can be fed as green chop, or ensiled and fed as haylage.
7. USDA Dairy Herd Buy-out - The dairy industry in the highland area wants to improve the genetic make-up of its herds as rapidly as possible. Artificial insemination is employed and ova transfers are being considered. The American dairy farmer who has agreed to the dairy buy-out program should give serious consideration to exporting his herd to Ecuador. An intact herd of genetically superior animals could make a significant contribution to an equity position in a dairy operation, and at the same time improve the genetic base of the dairy breed in Ecuador.

#### The Beef Industry in Ecuador

The beef industry in Ecuador is primarily a passive industry insomuch as the cattle are maintained to utilize excess forage or by-products that would otherwise be wasted. With the exception of the progressive ranchers,

input costs are held to a minimum. This situation is not unlike most of the beef producing areas of the world.

In the highland area, beef is produced from surplus dairy stock or from the small herds of beef cattle. In the lowland area, an organized ranching industry exists with herds of cattle ranging in size from a few head up to 20,000 head.

The fattening program usually consists of an intensive grazing system where the cattle are rotated every 2 to 3 days to a new pasture. Each pasture will be grazed every 28 to 30 days. Supplemental feeding consists of additional chopped forage, salt, mineral mix, and/or cane molasses. The animals reach slaughter weight between 26 to 30+ months of age. Slaughter weight is approximately 1,000 pounds.

Numerous packing plants exist but only two or three have refrigeration. Most of the meat is sold by small shops with no attention paid to the method of cutting. Neck meat and bone sell for the same price as the loin.

Ranch land prices have been inflated from US\$10 per acre to US\$150 per acre in the last 10 years. During that time, little has been done to improve the breed or to increase productivity to offset the increase in production cost.

#### Problems in Ecuadorean Beef Production

1. Genetic - The native criollo cattle have been improved by crossbreeding with Bra'man (Zebu) bulls and some European breeds. Because of the genetic make-up, the reproductive rate of the female is low.

From experience, most cattlemen have found the best breeding program is one that contains 5/8 Zebu and 3/8 English or European breeds. Through heavy selection and production testing, this ratio could be narrowed. Few ranchers if any are production testing. No systematic breeding programs were observed.

2. Nutrition - New pasture grasses are being tried by the cattle ranchers and are proving to be very productive. Many of the improved grasses grow at a rate that exceeds the grazing capacity of the herd. The grass then becomes too mature for optimum performance. Energy appears to be the first limiting factor to good nutrition, followed by protein and the macro and micro minerals.

The replacement heifers are bred to calve at three years of age. The larger ranches breed the mature cows to calve during the seasonal dry period of October, November, December and January. The smaller ranchers leave the bulls with the cows year round.

The calves are weaned at approximately 240 days of age with an average weaning weight of approximately 375 pounds. A year later they will weigh only 500 to 600 pounds. The calves are weaned prior to the dry period when the nutritional level of the grass is going down. No supplemental feeding is practiced during this period to help the calves adjust.

3. Parasites - Liver flukes, skin grubs, flies, ticks, screw worms, and internal parasites are abundant.
4. Marketing - Beef is slaughtered as grass fat and is sold mostly in small shops. The small shops do not cut the beef in identifiable cuts but simply sell "chunk" beef. The large supermarkets have started slaughtering their own beef and are now selling a small volume of standard cuts. Refrigeration is usually found only at the supermarkets.
5. Breeding Stock - The beef herds in Ecuador are nearly crossbreds. There appears to be no seed stock herds on breeding programs to develop a breed unique to Ecuador. Most improvement in the genetic pool is through importation of bulls or semen.

Opportunities in Ecuadorean Beef Industry

1. Breeding - Through heavy selection of the current cow herd, plus the importation of desirable genetic traits, a herd could be developed to supply seed stock to the industry.
2. Feeding - Steers are grazed until three years of age before slaughter. Feeding corn silage or moderate levels of concentrate with grass would shorten the grazing time required to reach slaughter weight.
3. Marketing - Beef produced from a grain or silage fattening program could be sold at a premium to the leading hotels, restaurants or retail outlets.
4. Management - Bulls run with the cows for a 90 to 120 day breeding season. A shorter breeding season followed by a pregnancy check would result in a more productive herd.
5. Nutritional - Replacement heifers can not be bred to calve until three years of age. Supplementing the feeding of weaned replacement heifers with a well balanced ration would assure breeding to calve at two years and increase productivity.
6. Farming - Much of the farm land is in sugar cane, rice or other crops. An alternate crop for sugar cane would be desirable. Corn for grain is not a highly profitable crop due to low production rates of 55 to 75 bu per acre. Corn grown for silage would produce 25 tons per acre. Two crops per year could be grown. Corn silage could be used with molasses and a protein supplement to finish the calves in a conventional manner at a much younger age. Income per acre of corn silage could equal the gross income from sugar cane.
7. Profit Margins - The price of beef during the last 10 years increased from 16 sucres per pound to 52 sucres per pound. At the present time, the cost of production is estimated to be approximately 26 sucres per pound.

## 2. Lowland Dairy Production - Project Profile

### a. The Project and Its Rationale

In the Guayaquil area approximately 5,000 milk cows are in production yielding only 10% of the needed supply of fluid milk. The daily demand is for 500,000 liters. Due to a number of factors, the production rate of the cows is low. There are progressive individuals in the area who would welcome an opportunity to form a joint venture for the establishment of a modern dairy farm. An investor from the U.S. could scale an investment to the size that would meet his investment limitations.

The market for the milk would be local. The raw milk could be sold to processors in the area. Since the cost of producing milk in the Guayaquil area is approximately 50% of the sales price it could well be processed by the dairy and sold directly to the consumer.

The average production per cow of milk for resale is approximately 20 pounds or 9 liters per day. A procedural change in the method of managing the milking string could increase production 20 to 50%.

Because of the acute shortage of fresh fluid milk in the Guayaquil area, the Ecuadorean government would welcome any effort by an individual to expand milk production.

### b. Description of the Project

The opportunity exists in the Guayaquil area to establish modern dairy farms. These farms could range in size from 200 acres upward, and with a herd size of 500 head or more. The project could be integrated by including a small processing plant to process and produce a high quality fluid milk or milk products.

The farm should be located within a 50 mile radius of Guayaquil to keep the freight cost at a minimum. The farm should contain some tillable land for grain and/or corn silage production. Corn grain production levels

are low and the price high. Corn silage, on the other hand, will yield 25 tons per acre and two crops per year can be grown. Additional products such as bananas, citrus pulp, brewers grain, milling by-products and cannery waste are available.

A milking parlor, lounging area and feeding area would need to be constructed. The cost of construction would be minimal as outside walls and insulation are not required in the tropical climate.

Milk cows in the area are selling for US\$750 and up, depending on breed and genetics. High producing dairy cows from the Gulf Coast area of the U.S. could be imported as a foundation herd for a breeding program. These cattle could be obtained through the USDA Dairy herd buy-out program. Or, a dairyman agreeing to the buy-out program might consider shipping his herd to Ecuador for an equity position in a dairy farm. Cattle imported from the U.S. would have a resale value of US\$1200 per head.

c. Market Considerations

The market for fluid milk or milk products would be local unless a speciality product was developed that could be exported. The current estimated requirements for fluid milk in the Guayaquil area are 500,000 liters per day. The present supply of fluid milk is approximately only 50,000 liters per day. In order to fill this shortfall the dairy herds need to be increased by 50,000 head. A producer of quality milk could expect to be in a sold-out position from day one.

Nationally, milk is packaged in three types of containers: plastic bags, paper cartons and plastic gallon jugs. There is a ceiling price on milk sold in plastic bags. The ceiling price was established by a previous government in an effort to assist the low income households. Unfortunately, the milk being packaged in the plastic bags frequently is being reconstituted with an excessive amount of water. This reconstituted dry skim milk or milk often goes out of condition because of non-hygienic processing and handling. To a lesser extent, the same adulteration occurs in the other packaged milk. As a result, most people boil the milk prior to using.

Due to the ceiling price put on milk in plastic bags, an active black market exists. The milk entering the black market is both raw and pasturized milk, usually transported without the benefit of refrigeration. It is general practice among Ecuadorean consumers to sterilize the black market milk.

The milk processors are required to package a percentage of their production in plastic bags - a price-controlled commodity. However, the sale price of the plastic bag milk will not meet production cost. In order to stimulate production and improve quality standards, the present government proposes to raise or eliminate the ceiling price following the June 1986 elections.

There are a few quality producers of milk in the area. This milk is sold out within minutes after arriving at the store. Sometimes milk is sold as a tie-in sale with other products. The entrepreneur that is willing to invest his time and money could develop a dairy and dairy product processing business that could be very profitable.

d. Technical Considerations

Technical problems that must be overcome to support a large dairy operation are as follows:

1. The Production of High Energy Feed - Most grain produced in Ecuador is used for human consumption. The yield of corn grain, per acre, is low (75 bu. to 85 bu. per crop) because high yielding varieties have not been developed. Currently, the prime corn producing areas are being used for sugar cane production. Corn for silage can be grown in many areas of the country and should be considered as the basic feed for the dairy herd. Corn raised for silage will produce 25 tons per acre per crop. The development of a superior corn variety would hasten the switch from sugar production to corn production.
2. Genetics - The current dairy herd is a mixture of the native Criollo, American Brahman, Holstein, milking Zebu and Brown Swiss. If the cows

are kept in confinement, the breeding could involve pure dairy breeds such as the Holstein. If the cows are allowed to graze one third to one half the time, Zebu blood would be required. One method to increase the genetic milk potential of the country's milking herd would be to import large numbers of young stock from the USDA dairy buy-out program.

3. Nutritional - The critical nutrient limiting milk production in the Guayaquil area appears to be energy, followed closely by protein. The mineral feeding program should be studied as the trace mineral status of the soils and forages in the area has not been determined.
4. Breeding - The improvement in the dairy breed in the Guayaquil area has been hampered by nutritional limitations and tropical conditions. Raising the nutrient intake level would allow the cow to reach her genetic potential. An artificial insemination program, using various breed crosses, could then be integrated to develop a superior animal for tropical conditions.
5. Labor - The labor law in Ecuador allows for only a 40 hour work week. The wage scale is only about US\$2 per day, so overtime pay is not a big factor. In order to prevent or reduce overtime pay, husband and wife teams could be hired to work split shifts.
6. Farming Equipment - The practice of making ensilage is not common in Ecuador nor is growing corn on a large commercial scale. For this reason, corn planting and harvesting equipment will have to be imported. Currently, there is no import duty on farm equipment in Ecuador. An individual in the U.S. dairy buy-out program who is interested in shipping his herd to Ecuador should also consider exporting his equipment.

e. Project Profitability

The monthly gross profit on a cow producing 35 pounds of milk per day is approximately US\$50. An improvement in the nutritional level would

increase the profit potential on a monthly basis and also sustain a much longer production cycle. Milk in the Guayaquil sells at the farm for 28 sucres per liter or approximately 18¢ (U.S. cents) per liter. The cost of production is between 8 to 10¢ per liter, giving an 8-10 cent profit margin per liter.

f. Project Acceptability to Ecuador

Due to the chronic shortage of fluid milk in Ecuador, the Ecuadorean Government would welcome any effort by an investor to help reduce the shortfall. Local businessmen and dairy farmers are willing to start a joint venture with an outside investor who is interested in improving the dairy industry and receiving a fair return on his investment.

g. Potential Investor Partners

Anyone interested in investing in a modern dairy farming project in the Guayaquil area should contact:

1. Mr. Adolfo Giler Giler  
or Mr. Eduardo Crespo Del Campo  
Genetica Agropecuaria S.A.  
Centro Comercial Los Ceibos No°14  
P. O. Box 10808  
Guayaquil, Ecuador  
tel: 352-613  
353-584
2. Asociacion de Ganaderos  
(Cattlemen's Association)  
Escobedo 1210  
Guayaquil, Ecuador  
tel: 512-748  
ATTN: Mr. Jaime Neot, President  
Mr. Sergio Cedeno, Executive Secretary
3. Mr. Nicky Olsen  
Agricola L.S. Danesa C. LTD.  
P. O. Box 741  
Guayaquil, Ecuador

3. Highland Dairy Production - Project Profile

a. Project Investment Summary

Location: Cayambe, Ecuador

Investment Required:	Farm M-1	US\$ 150,000
	Farm M-2	<u>200,000</u>
	Total	US\$ 350,000

Farm M-1 is an irrigated, 64 hectare, track of land that has the potential to be developed into a 150 head dairy farm. Farm M-2 is a 93 hectare, dairy farm, currently milking 113 head of dairy cows. The plans are to expend the herd size on Farm M-2 to 200 head.

The market in Quito and the surrounding area for fluid milk is approximately 350,000 liters per day. The estimated production is approximately 150,000 liters per day. A shortfall of this size will assure a good market for several years.

The area has been involved in dairy farming for many years. The cows in the area have a high genetic potential. Production is low due to a lack of supplemental feeding and the necessary expertise to formulate a well balanced nutritional program.

Farm M-1 will produce an estimated 2,000 liters of milk per day while M-2 will produce 2,500 liters per day. Cost of production will be approximately 50% of the sales price.

Milk production in Ecuador is supplying only a third of the country's projected needs. An effort to increase production through improved technology would be welcomed by the government and the local leaders in the dairy industry.

Interested investors should contact:

Mr. Damian Miranda P.  
Casilla 8570 Suc. 8  
Quito, Ecuador

b. Brief Description of the Project and Its Rationale

The milk production in a 100 kilometer area surrounding Quito is estimated to be approximately 150,000 liters per day. The daily requirement is estimated to be approximately 350,000 liters per day and growing. An opportunity exists to form a joint venture with an Ecuadorean businessman to capitalize on this market shortfall.

There are many dairy farms in the highland area which could be expanded and improved through a joint venture arrangement. Several members of the Highland Cattlemen's Association would be good candidates for a joint venture and can be contacted through the Association or through the Agricultural Attache's office at the U.S. Embassy. This profile features as a representative example the investment opportunity presented by the dairy farming operation of one progressive highland dairyman, Mr. Damian Miranda.

Mr. Miranda has two farms that are suited for dairy production. The farms are located near Cayambe which is approximately 50 kilometers north of Quito. One farm (M-1) of 64 hectares has just recently been purchased. The property will need to be developed for dairy production. The second farm (M-2) of 93 hectares is currently milking 113 cows.

The farm labeled M-1 is mostly irrigated pastures and could be used immediately as an area to receive and acclimate young dairy stock purchased from the USDA dairy buy-out program. This young stock would be flown from Miami to Quito, held on the pasture until acclimated, bred and resold to local dairymen. The necessary facilities to convert the farm to a dairy operation could be constructed during the time the farm is being used as a backgrounding operation.

The farm labeled M-2 is an operating dairy farm that is currently milking 113 head of cows. The plans are to expand this operation to a milking string of approximately 200 head. With an expanded milking herd, modest improvements in the facilities might be considered but would not be required.

The investor could consider a joint venture in either farm separately or both farms as a single business opportunity. Mr. Miranda would consider one or two U.S. partners, with shares of up to 50% of the corporation.

c. Market Considerations

The potential fresh fluid milk market in the Quito area is approximately 350,000 liters per day. The current production level is 100,000 to 150,000 liters per day, of which a significant amount is sold into other areas of the country. To fill the milk shortfall, the dairy cow numbers will need to be doubled or tripled.

There are a number of milk processing plants in the area, but only five are in operation. Of these, only one is dedicated to producing a quality product. This plant is owned jointly by a group of dairymen and the supermarket chain, Super Maxi, in Quito. The proposed joint venture could participate in this marketing program.

At the present time, the only quality market for milk is through the Super Maxi Supermarkets. The volume sold through these stores is limited as the majority of their patrons are the higher income families. A large quality market for milk has not developed because the milk shortage eliminates competition. In time, the consumer will demand a higher quality product and the dairy which produces quality milk will demand premium prices.

In addition to the fluid milk market, there is a large demand for milk to make cheese, yogurt, ice cream, etc. Many processors have switched to further processing in order to increase their profit margin when the ceiling price was placed on milk. A lessening of price controls after the June, 1986 elections will hopefully result in more competition and improved profit potential for both the processor and the dairyman.

The company jointly owned by the dairymen and Super Maxi Supermarkets was paying the dairymen 28 sucres per liter for milk, processing it, and selling it to Super Maxi for 38 sucre per liter. The price in the coolers

at Super Maxi is 43 sucres per liter. The exchange rate at this time was 155 sucres per dollar.

Dairy heifers ranging in age from 10 to 14 months were priced at US\$665, F.O.B. Miami. Air freight from Miami is US\$261. After acclimating and breeding, the heifers would sell for US\$1200 per head. There is a ready market for 1000 to 1500 head of these heifers.

d. Technical Considerations

The dairy industry in the highlands is composed of small farmers with milk cow numbers ranging from 1 to 140 head. The dairy program largely is pastoral in nature with only the larger dairies of 100 head or more feeding a commercially concentrate. The requirement for feed concentrates has been minimal, so the large poultry feed mills have been supplying the dairy industry with low quality bagged feed.

With present growth in the dairy feed industry, a dairy feed mill has been established to produce feed only for the dairy industry. At the present time, all feed produced by this plant is bagged since none of its customers have bulk storage facilities. The plant could produce in bulk and would pass the savings in bags and bagging on to the dairymen. In like manner, milk is handled in cans rather than bulk. It might be desirable to install a bulk milk handling system to obtain additional cost savings.

Milk production in the area averages approximately ten liters per cow utilizing a pastoral production system. Feeding the cows green chop overnight in a dry lot plus feeding six to ten pounds of concentrate would increase the milk production to 16 liters per cow. Consideration should be given to increasing the concentrate feeding rate and feeding green chop in dry lot rather than allowing the cattle to graze. This would permit an increase in the number of cows in the herd and improved profit potential.

The climate in the highlands allows for good forage growth the year round. Alfalfa is the primary forage crop grown in the area. The alfalfa plus grass forages are green chopped, blended and fed to the cows in the lounging area prior to milking or during the overnight stand.

e. Project Profitability

Farm M-1 was recently purchased for \$180,000 with a down payment of \$90,000. The balance is being carried by the previous owner with no demands for an early payment. The farm contains 64 hectares or 157 acres. This farm could be used as a staging area for cattle purchased from the USDA dairy herd buy-out program. Young heifers could be delivered to the farm for approximately US\$950 per head. After acclimating and breeding through artificial insemination, the heifers would have a resale value of US\$1200. This cycle could be repeated every 60 to 120 days depending on the age and size of the heifers.

The size of the farm would limit the number of heifers that could be backgrounded at one time to approximately 150 head. This would give a gross profit of approximately \$200/head or \$30,000 per cycle. These cattle could also be used to stock the farm for an operating dairy.

If the farm is converted to an operating dairy, there would be approximately 150 cows in the milking string. These cows should produce at least 2,000 liters per day. This would give a gross sale of 54,000 sucres per day or \$337.50 at the current exchange rate of 155 sucres per dollar.

The farm was purchased in May 1986 for \$180,000 with a down payment of \$90,000. The owner has \$65,000 in operating capital. The U.S. investor would be expected to have matching funds, cattle, or equipment of equal value. Any additional operating capital would be obtained through a bank loan.

Farm M-2 is an operating dairy farm with 113 head of cows in the milking string. The farm is developed and contains 93 hectares, or 230 acres. It is the desire of the Ecuadorean owner to expand this farm to a 200 head or more milking string. The projected production from this dairy would be 2500 liters per day with a gross sale of 67,500 sucres or \$422.00 per day.

The investment requested for farm M-2 is \$200,000 to be used to purchase additional cattle and some equipment.

f. Potential Investor Partners

The potential U.S. investors in these two dairy projects have the option to take an active or passive position in the operation of the farms. A dairy farmer that has agreed to the USDA whole herd buy-out program might elect to ship his herd to Ecuador for his share of the equity base. If he so desires, he could emigrate to Ecuador and be the working manager of the farms, or he could sell his herd, and using his milk payment, invest in the project. An investor without a dairy background is welcome, as the competent Ecuadorean management of the project is available.

A detailed projected cash flow statement is available by contacting:

Mr. Damian Miranda P.  
Casilla 8570, Suc. 8  
Quito, Ecuador  
tel: 553-755  
telex: 22140 or 22240 IETEL ED

Contact with other highland dairymen interested in joint ventures may be made through the following parties:

Mr. Arturo Gangotena, President  
Highlands Cattlemen's Association  
Edificio Banco de los Andes, Office 808  
Avenidas Amazonas y Robles  
Quito, Ecuador  
tel: 546-136

Mr. Cleveland Marsh  
Agricultural Attache  
U.S. Embassy  
Avda. Partia y 12 de Octubre  
Quito, Ecuador  
tels: 548-000  
529-088  
telex: 02-2329 USICAQ-ED

Dr. Kamal Dow  
Chief of Mission  
Technical Cooperation Mission - Livestock  
U.S. AID Program  
Ministry of Agricultural  
Av. Amazonas y Eloy Alfaro  
Quito, Ecuador  
tel: 554-295  
554-122, ext. 337

B. INVESTMENT OPPORTUNITY TO SET UP A TISSUE CULTURE LABORATORY

1. Project Investment Summary

Location: Ecuador

Investment Required:

Fixed	US\$ 500,000
Working	<u>250,000</u>
Total	US\$ 750,000

Market:

The Ecuadorean agricultural sector does not enjoy any sophisticated, state of the art rapid propagation facilities which can assure the supply of disease free planting material. Nor does it have the ability to rapidly reproduce (clone) those varieties of subtropical and tropical plants which it has found of commercial value for export to the United States, Canada and European markets.

Demand now exists within the country of Ecuador and even in the neighboring Andean Pact nations for selected, disease free planting material.

Proposal:

The development of a TISSUE CULTURE LABORATORY as a joint venture with an Ecuadorean partner. This laboratory would have the capacity to initially produce between 8 to 10 million pieces a year.

The Ecuadorean partners are seeking a foreign investor with tissue culture industry expertise and off-shore access to state of the art technology. Access to patented rights or licensing of proprietary material would also be attractive.

Potential Product Lines:

Identified need exists for the propagation of disease free and resistant varieties of bananas, coconuts, oil palm, cut flowers such as roses, carnations, mums, etc., papaya, babaco, tree tomatos, cassava, strawberries, etc.

Government Support:

This is an area of great concern to the Government of Ecuador and a project which is fully supported as being in the nation's best interest. Full cooperation can be expected in developing such a project.

Spin-off Potential:

The laboratory will necessarily have a nursery operation and this can possibly be coupled with a rapid propagation seed germination plant, such as a Speedling System or some other type.

2. Brief Description of the Project and Its Rationale

Ecuador has varied micro-environments throughout the country depending on the topography and location within its boundaries.

Elevations range from sea level to thousands of feet above sea level. Temperature ranges, rainfall patterns, and sunlight intensity create practically every environment required to grow a multitude of traditional and non-traditional crops at commercial scales.

Although Ecuador is blessed with these micro-climes and excellent soils, little has been done to develop large scale plantings of the many viable crops which have potential for export, due to the lack of adequate planting material. At the same time, those who do have a interest in this area are faced with having to gather planting material from backyard sources and developing their own nurseries with little regard for selection, disease control and/or quality.

The nurseries are rustic and ineffectual, giving rise to disease and quality problems in the production areas.

A maristem-tissue culture laboratory would be a welcome facility since it would provide the agricultural community with access to selected, disease free planting material as well as a rapid propagation system for those selected varieties of exotic plants which are native to Ecuador and have great commercial value, but are in short supply.

Identified needs for tissue culture propagation exist in the areas of production of bananas, oil palm, tropical fruits, coconuts, coffee, cacao, cassava, tropical flowers, to name a few.

This is a wide open opportunity at this time. The country can easily handle more than one facility depending on the size of installations and the desired specialization of each.

Trained personnel are not available locally, so laboratory technicians would have to be brought in from abroad to operate the laboratory for at least two years while local technicians are being trained.

A cursory look into the need for planting material on an annual basis was made. Potential demand would indicate a volume of between 30-50 million pieces per year.

Based on a moderately sized laboratory, with a potential of 6-10 million pieces per year, a start-up facility could comfortably begin with 20% of the market potential and expand as trained personnel developed.

### 3. Potential Demand

<u>CROP</u>	<u>ESTIMATED ANNUAL VOLUME</u>
Bananas - Sigatoka & Nematode resistant varieties	2.0 million
Palm oil - Dwarf tenera varieties	2.0 million

Cassava - new high yielding varieties - 10 to 12 t/acre	5-10.0 million
Strawberries	8.0 million
Tropical Flowers - Roses, Carnations, Ginger, Mums	4 -6.0 million
Other - coffee, cacao, coconuts	<u>5.0 million</u>
TOTAL	32.5-47.5 million

Based on a cost effective sizing of a tissue culture laboratory, dedicated to propagation and not to research, an effective volume throughput would be in the range of 6-10 million pieces per year.

A laboratory of this size would require an initial capital investment of approximately US\$500,000 for land, buildings and equipment. An additional working capital of at least US\$250,00 would be required to carry the project until sufficient cash flow would be generated in the second year.

Tissue culture laboratories are very labor intensive and the rated capacity of a plant is a function of the quality and expertise of the staff operating it as well as the type of material being produced.

It is assumed that at least two expatriate personnel would be required on a full time basis during the first two years. Local operators would be trained by these technicians. At least 10 hoods would be installed to start production with. The laboratory would have sufficient space to double that number at a later date.

Total annual sales volumes would depend on the product-mix pricing, but assuming that 10 million pieces would be produced in the US\$0.10 to US\$0.25 range with an average of US\$0.18 each, the lab would produce gross sales of US\$1,800,000.

Experienced tissue culture operators will find this an attractive opportunity, not only for the potential internal market within Ecuador, but

likewise for the production of selected material for export to neighboring Andean Pact nations.

It would also provide for the sale of currently produced materials in the U.S. to the laboratory in Ecuador for reproduction there under license agreements for those materials which are proprietary in nature, such as tropical flowers, new color shades, gene-split vegetable varieties, etc.

#### 4. Potential Ecuadorean Joint Venture Partners

Of the many agricultural companies which the team met with, it would recommend to the potential U.S. investor contact with the CLASAGRO company in Quito and the SAN CARLOS group in Guayaquil.

##### a. The Clasagro Group

An identified Ecuadorean Company interested in joint-venturing a tissue culture laboratory with a foreign investor who can bring the necessary technology to the venture is CLASAGRO.

CLASAGRO is a newly created division and a wholly owned subsidiary of CLASE ECUADOR, a large holding company controlling 10 different Ecuadorean corporations.

CLASE ECUADOR is a "mixed corporation" as it has foreign investors in the parent holding company, namely International Clyde Petroleum Corp., a British company.

Some of the major subsidiaries of CLASE ECUADOR are:

CEPO	- A petroleum exploration corporation
CEPSA	- A packager and distributor of lubricants
INVESPLAN	- A finance company
PRODATA	- A computer service company
IMESA	- An automobile assembly plant
CONDOR PRODUCE	- A London based trading company
PENTAGONA	- A Miami based trading company
* <u>CLASAGRO</u>	- Newly formed agri-business company

CLASAGRO is in an experimental stage looking for agri-industrial opportunities that they can exploit for export to the U.S., Canada and Europe.

To date, they have been experimenting with the growing of snow peas, tree tomatos, strawberries, and are about to begin planting asparagus, babacos and honeydew melons.

They have made trial shipments of snow peas to ConAgra and honeydew melons to CalFruit in the U.S.

They have also shipped fresh strawberries, purchased from Ecuadorean growers, to the U.S. and London markets. Of all of these, strawberries was their biggest volume item. They managed to break even on this product and are very encouraged by their experience to date.

CLASAGRO, through its parent CLASE ECUADOR, is a very well organized and capitalized company that is looking for a joint venture partner with technical and marketing experience in agri-business.

They are wide open at this time to entertain serious, medium and large scale proposals, as long as these are geared for producing export products.

One area of interest to them is the development of a tissue culture laboratory capable of rapidly propagating selected varieties of tropical fruits, vegetables, exotic flowers, ornamental horticulture plants, etc.

CLASAGRO perceives itself basically as a marketing company and has no in-house agricultural expertise. They are willing to enter into farm gate operations, however, if the right partner can be found to bring the needed expertise to the joint venture.

The tissue culture laboratory appeals to them as they could use their already well established marketing and distribution network to handle this business as well as being in a pivotal role in the agri-business development of the country.

They feel that by being a supplier of planting material, it would provide them with an opportunity to be involved while at the same time giving them time to study the various crops and markets further before committing themselves to any major farm gate project. At that point, the tissue culture laboratory would be a link in near vertical integration of nursery-production-export-distribution and marketing.

Contacts are:

CLASAGRO  
Edificio Sonelsa, 2o. Piso  
Mariscal Foch y 6 de Diciembre T.  
P.O. Box 686  
Quito, Ecuador  
tels: 554-528  
523-134  
523-466  
telex: 2206 ECANGL ED  
2965 DAVSO ED  
Dr. Diego Pozo V., General Manager  
Ing. Gaston Burgaentzle, Mgr. Commercial Division

b. The San Carlos Group

This is a long established agricultural and agro-industrial firm which has extensive plantings of sugar cane, operates a sugar mill, and grazes beef cattle. The company, well organized and well managed, is looking for investment and production alternatives in agribusiness, and would entertain association in agribusiness with an American firm in exploring and implementing innovative projects in agricultural production. They would be most interested in contact from a qualified U.S. investor. They may be contacted at the following address:

Mr. Mariano Gonzalez Portes, President  
Mr. Russell Crawford, Assistant Manager  
Sociedad Agricola E Industrial San Carlos, S.A.  
P.O. Box Letra "S"  
Elizalde No. 114  
Guayaquil, Ecuador  
tel: 511-280  
cable: "AGRICOLA"  
telex: 3446 ED

C. INVESTMENT OPPORTUNITY TO PRODUCE AGRICHEMICALS

1. Brief Description of the Project and Its Rationale

Agrichemicals can be divided into two subsectors, fertilizers and pesticides/growth regulators. At present, fertilizers are produced mainly for internal consumption. In Ecuador two fertilizer producers, Fertisa and Abonos del Estado, are to be divested by the government. The former, a blending and bagging operation whose principal product is urea, is apparently a well run, money making venture. Abonos del Estado makes organic fertilizers. Inasmuch as the prospectuses for the divestiture will not be published for perhaps a year, no further investigation into these companies or the fertilizer subsector was carried out. In any case, these companies, which operate on a high volume, low profit margin basis, might be unattractive to outside investors because of sucre instability.

Opportunities in the pesticide/growth regulator subsector are more interesting to outside investors since formulated product may be exported to Andean Pact nations. Under current provisions of the Pact, Ecuador has a more favorable status than does Colombia, the current major formulator and exporter of pesticide products. Under these provisions, if Ecuador were to manufacture, and not merely formulate a pesticide, the manufacturer would be given a monopoly on that product throughout the Andean Pact countries. The importation of that product from outside the Pact region thereafter would be prohibited. "Manufacturing" in this sense means making or importing reactants and solvents, and carrying out controlled reactions to produce the final product, a technical grade active ingredient pesticide chemical. Formulating implies diluting and blending with inert ingredients to the proper final concentration to make the saleable product. The formulator usually also packages and readies the product for delivery to the user.

In Ecuador there seems to be two sorts of formulating plants, "legal" and "illegal". "Legal" plants operate after having obtained all the proper government approvals, registrations and other documentation. "Illegal" plants operate without all the required documentation. The authorities

have cast a blind eye on these plants because of the shortages of pesticides and the facilities to make them. It is certain that as adequate capacity is achieved in the "legal" plants, the authorities will shut down the "illegal" ones.

Several investment opportunities were identified in this subsector. FITOSEC, a privately owned company, built several years ago a sophisticated and fully equipped formulation facility in the industrial area just north of Guayaquil. It is reputed to have cost some \$2.5 million to construct, and is quite large even by U.S. standards. It never went into production, and has been standing idle ever since its completion. Its owners are said to be considering going into production in the near future. This facility was not further investigated due to lack of time, but its presence is a consideration for any potential investor.

FITOSAN, whose principal stockholder is Andres Argudo, is one of the top three pesticide distributors in Ecuador. Sr. Argudo is planning to set up a separate company to formulate a proprietary nematocide for sale to banana growers, and has been given exclusive rights to do this by the manufacturer.

INTERAMERICA CRIS-QUIM is in the process of building a manufacturing facility that will be completed in July, 1986, for making an herbicide vital to growing rice. Like Sr. Argudo, the owners of Interamerica Cris-Quim are interested in obtaining joint venture capital to complete and launch their projects.

## 2. Pesticide Formulation Project: The Nematocide MOCAP

Sr. Argudo founded Fitosan 15 years ago. Along with Ecuaquimica and Agripac, the company is among the three top distributors of pesticide products in Ecuador. Fitosan's staff of 70 covers the entire country. The company is the exclusive distributor in Ecuador for Dow Chemical Co., Rohm and Haas, and Rhone-Poulenc. Among the products they distribute are 2, 4-D, Tordon, Lorsban, STAM propanil, Dithane M-45, and Mocap. The company also represents Snap (Triumph) spray equipment and Teejet spray nozzles.

These lines of products are used for the most extensively grown crops in Ecuador, and Fitosan's cadre of technical salesmen are often the only source of technical information for the local growers.

Ecuador has some 8.5 million inhabitants of whom 1.2 to 1.6 million are engaged in commercial agriculture (as opposed to sustenance farming). The leading crops are pasture grasses (1 million hectares), rice (120,000 has.), bananas (50-65,000 has.), maize (40,000 has.), soybeans (35,000 has.), African oil palm (30,000 has.), and cotton (20,000 has.). Fitosan works with Dow products in rice and the other major crops; with Rohm and Haas products in rice, soybeans and bananas; and with Rhone-Poulenc in bananas.

Sr. Argudo wishes to formulate a nematocide, MOCAP, at his facility near Daule, an industrialized zone just north of Guayaquil. Fitosan's main offices, warehouses and packaging plant are located on the site. Sr. Argudo proposes to construct an addition to the present buildings to blend and package Mocap. The manufacturer of this proprietary pesticide has approved the venture.

The standard Mocap formulation is a 10% granular that is currently being imported into Ecuador. This means that 90% of the imported product is inert material which in this case can be obtained from within Ecuador. Mocap is used to treat banana plants for nematodes (wireworms), soil borne organisms that attack the banana plant's root system, and can cause significant losses in yields. The estimated cost of product, which has been used in bananas for many years, is \$0.06/plant/application. The product is normally applied 1.5 times per year for a yearly cost of \$0.09/plant/application. Since normal planting density for bananas is about 1700 plants/ha, the cost of treatment per hectare is \$150.00. If we assume that there are 50,000 has. in production for export, and we use a more realistic cost/ha of \$125,000, the potential market is about \$6.25 million. Allowing that 75% of the bananas will be treated with nematocide, and that Fitosan can capture 25% of the market, we are estimating gross sales of \$1.2 million per year.

In order to formulate Mocap, Fitosan will have to erect a simple structure with ample storage space for raw materials - active ingredient, fine sand, crushed pumice. Their present warehouse space is of ample size for storing finished product. They will have to purchase a screw type mixer incorporating a sprayer/doser to apply measured amounts of the technical material to the inert ingredients; weighing and bagging equipment; and aluminum-lined, printed bags to hold the finished product. Active ingredient can currently be brought into the country under the law of Agricultural Development (Ley de Fomento Agricola) free of import duties.

Sr. Argudo is seeking an investment of about \$100,000 in return for 20% to 30% ownership. He would provide land, capital, plant and equipment, and a trained sales force. He would expect the investor to provide equity investment capital, equipment supply, and technical assistance. The largest operating costs would be for imported active ingredient and bags. However, by formulating, a number of exchange rate costs would be reduced, and new export markets opened up in the Andean Pact countries. Estimated payback time would be less than three years, and since exports are involved a dollar return can be expected.

3. Pesticide Manufacturing Project: The Herbicide PROPANIL

INTERAMERICA CRIS-QUIM is completing the construction of a pesticide manufacturing plant that is also located in the Daule industrial region. The parent company, Crystal Chemical Interamerica, has offices in Houston; in San Jose, Costa Rica; in Bogota, Columbia; and in Guayaquil. Mr. Ronald Amack, a U.S. national, is the owner of the Bogota branch, which is engaged in importing and selling formulated pesticides products in Colombia. Mr. Amack has invested start-up capital in the Ecuadorean plant. The plant is to be in production by July, 1986. The operators are seeking equity funding of enough working capital to support operations until the plant is on a self supporting basis. The funds would be employed for purchasing raw materials, transportation, and labor.

The building is a new structure with total floor area of 400 square meters. This provides ample office, laboratory, production, and storage space. Equipment presently being installed consists of two 6,000 liter stainless steel reactors with the column and all tubes of stainless steel, a thermal oil heating and cleansing unit, and two 12,000 liter heated stainless steel mixing tanks. The oil circulates at 15 psi, heating one reactor by way of a jacket and the other by way of internal coil. This avoids the problems associated with the use of high pressure steam as a heat source. The oil cleansing unit removes water contamination that might occur and shorten the life of the oil. Once the plant is in operation, Mr. Amack intends to buy grinding and blending equipment for making flowable formulations of other pesticides.

The immediate mission of the plant will be the manufacture of propanil, an herbicide essential for the production of rice. The process consists in reacting dichloroaniline (DCA) with propionic acid or propionic anhydride at 200°C for 20 hours. The resultant technical propanil is piped to the mixing tanks and blended with the inert ingredient, isopherone, to prepare the finished product. This is packaged in 55 gallon drums for sale to growers.

Sales will be to both the local and export markets. The local Ecuadorean market is estimated at a 1 million liters/year. Raw materials are estimated to cost \$2/liter with an expected price gross margin (PGM) of 50% or \$1/liter. The export market, principally Colombia, will generate a PGM of 25% minimum plus a 7% to 15% export bonus from the Ecuadorean government. Colombia should purchase 1 to 2 million liters with a net return before taxes of at least \$0.50/liter.

Mr. Amack is seeking from \$250,000 to \$1,000,000 in funding, and is willing to share up to 49% equity in return. The funds need not be invested all at once. Alternatively, they could be held in a dollar escrow account and used to guarantee loans in Ecuador. In the latter case, payment of interest and loan fees would be for the account of the outside investor. Payback would be in three years, and in dollars. The plant can easily be used, as is, to manufacture most pesticides except paraquat,

which requires glass lined tanks. (Though longer lasting than stainless steel, glass lined reactors are subject to liner cracking. In such an event, the entire reactor would have to be replaced, and they generally have to be made to order.)

About \$100,000 is presently invested in the basic equipment. The "Propanex" trademark is widely recognized in Central and South America, having been sold for over 10 years. It is respected for its high quality and for the fact that it does not burn the rice when applied.

Approval has been obtained to export herbicides from Ecuador to any of the Andean Pact nations, which give preferred status to Ecuador. No duties need be paid to the importing nations. The present duty is 8% on such imports. Once production is under way, the company will be given a monopoly in the local market on any product manufactured. They plan to request protection for formulated products as well. A further advantage to this investment is that the Ecuadorean government, to encourage exports and the inflow of hard currency, offers exporters a bonus of 7% to 15% over cost, effectively guaranteeing a profit.

The owners of Interamerica Cris-Quim have operated in Latin American markets for many years. They are being especially careful to comply with all regulations, and to obtain all required licenses and permits. To avoid labor problems the number of workers will be kept to a minimum.

For more detailed financial and technical information, contact:

FITOSAN, S.A.  
1 ro de Mayo y Tulcan  
Casilla 8745  
Guayaquil, Ecuador  
tel: 393-462  
telex: (04) 3832  
Attn: Sr. Andres Argudo

INTERAMERICA CRIS-QUIM Cia. Ltda.  
Chimborazo 203 y Velez  
Casilla 7270  
Guayaquil, Ecuador  
tel: 525-417  
telex: 43466 CAMCOM-ED  
Attn: Sr. Ronald Amack

D. INVESTMENT OPPORTUNITY IN ROSE PRODUCTION

1. Introduction

Cut flower production started in Ecuador over fifteen years ago. After a promising start, the fledgling industry was beset with labor problems so severe that the major pioneer growers moved their operations to Colombia where the industry has prospered. However, political problems, higher and higher land values and other disincentives in Colombia again have encouraged the development of cut flower operations in Ecuador. Within the last several years, about 24 flower plantations have been established.

These plantations are in various stages of development. They are located in scattered Andean valleys, generally around the capital city of Quito. The valleys are identified by the principal communities within them such as Tabacundo, Cayambe, Checa, Tumbaca, Puellaro, Cotopaxi, Cuenca, and Pichincha.

To date, roses, carnations, chrysanthemums and pompoms, gypsophila, and statice have been grown and exported. Roses account for most of the volume. Generally, the quality of bloom is excellent due to the constant intense light conditions. Yields, with good management, have been good. Market receptivity of the flowers has been good in the U.S. but is really dependent on the quality of air service available to the Ecuadorean flower shipper so that he can deliver in timely fashion and maintain flower quality and shelf life. A list of the members of the local flower exporter's trade association is given in Table 1 on pages 56-57. Most need additional capital in the form of equity and would welcome the interest of potential U.S. investors. Mr. Pablo Ruiz Perez, President of the Ecuadorean Flower Exporters Association can be contacted about interested growers, in addition to those highlighted in this profile. His address is P.O. Box 94-09, Suc. 7, Quito, Ecuador; tel: 525-340, telex: 22429 COMER ED.

## 2. Specific Joint Venture Opportunities

In speaking with the past and current presidents of the Ecuadorean Flower Growers Association, the Profile Team learned that several association members would be interested in discussing joint venture opportunities, where U.S. capital, managerial/technical expertise, and marketing assistance would be needed. Due to time limitations, and varied degrees of information from individual Ecuadorean producers, the Team chose to profile fully the El Rosedal rose operation, which offers solid data for a potential U.S. partner, and in addition establishes some general parameters that would prove useful to potential investors in evaluating the feasibility and profit potential of other floriculture projects.

For example, various elements of the El Rosedal venture profile could be applied in pursuing rose production for export with FLORSANBA and ROSAS de CUSIN, two companies that expressed an interest in joint ventures with U.S. companies. The team also visited other flower operations producing chrysanthemums, pompoms, carnations, etc., which are considering the production of roses. Profit opportunities do exist among these producers. The owner of one mum operation FLOREXPORT, Dr. Marco Tulio Ganzalez (past president of the Association), would be one potential joint venture partner willing to explore rose production with U.S. interests.

Presented below then are the El Rosedal profile, data on two other rose producers, a brief description of the FLOREXPORT opportunity, and a list of the members of the Association.

### a. El Rosedal, S.A.

El Rosedal S.A. is a company growing long stemmed roses for the export market. It was started on May 22, 1985 with four principal stockholders consisting of Pablo Ruiz Perez 40%, Teodoro Cresgo 20%, Rodrigo Espinoza 20%, and Hernando Monroy 20%, capitalized by paid-in and contributed in-kind equity of approximately 35 million sucres. To date, it has total assets of about 65 million sucres. Debt amounts to slightly more than net worth. (Sucres exchange 160:1 U.S. as of 5/20/85).

The company's field operations are carried out on 16 hectares of land in the Tabacunbo area 45 kilometers N.E. of the country's capital city of Quito. The land is improved with a complete rose growing and flower processing facility consisting of four shade canopies, each about 7000 square meters in area. Poles and cable hold plastic sun screening over the beds of roses which are irrigated via drip system from a large holding pond fed from a nearby natural stream. In addition, there are concrete block structures housing the refrigerated holding rooms, the packing rooms, offices, combination employee dining and training room, showers, restrooms, and two apartments. A well supplies potable water which is treated as a further precaution against possible pollution. Each of the four canopies shelters some 40,000 rose plants of French origin. On the basis of a short history of production each will produce 1½ blooms per month meeting the market demands for stem lengths of 30-40-70 centimeters.

Local labor is utilized for the day-to-day harvesting and packaging into cardboard containers which are then trucked over hard surface roads to the Quito International Airport approximately 1 hour 15 minutes away.

The major stockholder and general manager, Mr. Pablo Ruiz Perez, is an attorney by education and a flower grower by desire. He has been aided by one of his stockholders, a large and successful Colombian flower grower, who is providing advice and counsel. In addition, a Colombian agronomist and a farm superintendent are on the work staff. Both the latter are also experienced in flower growing. Results to date have been as originally anticipated. Hence comes the desire to acquire an additional investor(s) who can provide both capital and hopefully some technical assistance and help in marketing.

The elevation of the property is about 8500' in an Andean mountain valley. The climate is mild throughout the year and the sunlight is fairly constant though intense which requires the sunshaders to protect the plants. Occasional strong winds are mitigated by the wind barriers erected on the windward sides of the growing areas. The required pest control applications are made by hand-operated back pack sprayers. The nutrients and any systemic products are applied through the irrigation water.

The property is the source of much of the building material used for the sun-screen canopies because there is a good growth of 6'-7" Eucalyptus timber. Only the plastic, cable and irrigation system DVC and nozzles are purchased.

Marketing is crucial to maximizing returns. Rosedal S.A. is shipping twice per week to the U.S. via Ecuatoriana and Eastern airlines and several times weekly to Europe via Lufthansa, Iberia Air, Air France, and KLM. This gives the company access to markets in Frankfurt, Amsterdam, Madrid and Paris. U.S. marketing is through several brokers in Miami. The physical aspects of the shipments are taken care of by FRESCO, air/freight service company. To date, performance of the carriers, brokers and service company has been adequate.

The company is desirous of adding another 7000 square meters of canopy and broadening its products to include other flowers among which Astromarias, a colorful, hardy new South American flower may be included. Present ownership of the company is willing to add another shareholder to a substantial position of minority interest. However, the company does not anticipate relinquishing local control of ownership. Based on the recent past history of fixed costs, approximately US\$300-350,000 will be needed to construct the additional growing facilities and increase the working capital to a modest extent.

Following is a schedule detailing the estimated expense of developing a rose growing operation. The costs are judged to be typical of those one would experience in developing a 200,000 plant farm. The estimated costs are also reasonably consistent with those the management of Rosedal S.A. experienced if Rosedal's costs are adjusted for inflation.

BALANCE SHEET

March 1986		March 1987, US\$350,000 invested during 1986
Current Assets	24.5%	23.5%
Other Assets	<u>75.5%</u>	<u>76.5%</u>
TOTAL ASSETS	100.0%	100.0%
Current Liabilities	1.7%	1.2%
Term Debt	<u>46.7%</u>	<u>31.8%</u>
TOTAL LIABILITIES	48.4%	33.0%
Equity & Retained Earnings	<u>51.6%</u>	<u>67.0%</u>
TOTAL LIABILITIES & CAPITAL	100.0%	100.0%
Working Capital	14:1	19:1
Debt to Worth	.94:1	.49:1

INCOME/EXPENSE STATEMENT

Revenues: 160,000 plants x 18 blooms per year less 10% culls = 2,592,000 saleable blooms @ 22¢ avg. net to grower (remittances vary from 18¢-45¢ per bloom throughout the year)	\$ 570,240
Cash operating expenses 9¢ per bloom	<u>233,280</u>
Gross margin	\$ 336,960
Less depreciation 10 to 25 year life; 3¢/bloom	<u>75,000</u>
Net income available for debt service, dividends, reinvestment	261,960*
Assume 20% amortization of long term debt including interest	<u>129,000</u>
	\$ 132,960
Assume 70% pay-out to dividends	93,072
Repatriation of 40% to U.S. investor	37,229
Investors Return: 10.6%	
Investors Return with 100% pay-out of earnings: 15.2%	

\* Ordinary commercial venture in Ecuador faces a 40% income tax rate on earnings and must deduct prior to income tax calculation a 15% of net earnings as a bonus to labor. Agricultural producers are exempt from keeping any accounting records and hence would be unlikely contributors to labor's bonus.

With the additional \$350,000 U.S. investment, a 7000 square meter flower grow-out greenhouse will be added to existing facilities. The U.S. investor is offered 40% of the controlling stock in the venture which has only one class of stock. Income/expense relationships will improve as follows:

200,000 rose plants each producing 18 blooms annually, less 10% culls, @ 22¢ each	\$ 712,800
Cash operating expenses @ 9¢ per bloom, 3,240,000 saleable	<u>291,600</u>
Gross Margin	421,200
Less Depreciation	<u>90,000</u>
Net income available for debt service, dividends & reinvestment	331,200
Assume 20% amortization of term debt including interest	<u>129,000</u>
Available for dividend and reinvestment	202,200
Assume a 70% pay-out of earnings as dividends	141,540
40% repatriated to U.S. investors	56,616
Investor's return: 16.2%	
Investors return if 100% of earnings are paid as dividends: 23%	

Earnings could be enhanced and protected by setting up a U.S. based subsidiary trading company to which Rosedal S.A. could ship and invoice at a legally acceptable (Ecuadorean) sucre price. The trading company would assume all market and exchange risks in selling into dollar denominated markets. Dollar proceeds would be domiciled in a domestic U.S. account out of which periodic transfers of dollars would be made to the Ecuador Central Bank to satisfy its money management practices governing Ecuadorean exporters.

The potential U.S. investor may contact Mr. Ruiz at the following address:

El Rosedal, S.A.  
Grower of Roses  
P.O. Box 94-09, Suc. 7  
Amazonas 477  
Quito, Ecuador  
tel: 525-340  
telex: 22429 COMER ED

b. ROSAS DE CUSIN

ROSAS de CUSIN, designed to be a 9 hectare rose production operation when fully implemented, is currently starting up operations with a 1½ hectare module. Fixed and operating capital are estimated at 40 million sucres (\$250,000). The investor group which includes prominent businessmen would welcome the interest and potential capital/marketing contribution of

U.S. investors in expanding production to 9 hectares. Interested investors may contact the firm at the following address:

Sra. Carmen Correade Crichton  
P.O. Box 8917  
Edificio Vascones, Second Floor  
Juan Leon Mera 381 y Robles  
Quito, Ecuador  
tel: 525-380  
551-856

c. FLORSANBA

FLORSANBA is an export flower company that currently produces one hectare of roses. The firm is owned by the Ribadeneira family which has significant land holdings in the area which they had planted to strawberries over the last two years. The team visited the firm's production facility and observed that culture practices and the end product were good - of export quality. FLORSANBA's president, Ernesto Ribadeneira, told the team that they were interested in expanding their rose production and would be interested in exploring a joint venture with U.S. partners. Mr. Ribadeneira may be contacted at the following address:

Florsanba  
Flores de Exportacion  
Ernesto Ribadeneira T.  
Casilla 11155 CCNU  
Yanez Pinzon 272  
Quito, Ecuador  
tel: 525-225  
telex: 2806 PANAT-ED

d. FLOREXPORT

Another flower venture, FLOREXPORT DEL ECUADOR, offers a somewhat different opportunity to a U.S. investor. FLOREXPORT consists of two parcels of land, one of 8 ha., another of 9 ha. (total 41.99 ac.) presently developed to a pompom - chrysanthemum growing operation complete with housing, nursery, packing house, irrigation system, greenhouses and shade - providing flower grow-out houses. Property is somewhat rundown. Owner offers two options: to invest \$200,000-\$250,000 to upgrade the facilities

and provide hands-on management and technical assistance. The latter would encompass growing of vigorous nursery stock of marketable "mum" and pompon varieties, insect control, greenhouse operations and marketing. Flowers now being produced for the local market generate revenues almost adequate to meet break-even point. Significant improvement in profitability can result from re-entry into the export markets with quality blooms.

The second option is to purchase the entire operation for \$375,000-\$435,000. A bank appraisal and balance sheets of operations were provided to the Team by Dr. Gonzalez, and would be made available to the qualified serious U.S. investor. A potential investor, however, would receive more comprehensive information through direct contact with Dr. Marco Tulio Gonzalez, FLOREXPORT DEL ECUADOR, P.O. Box 3639, Calle Guayaquil 1228, 6° Piso, Quito, Ecuador, tel: 513-436 or 513-777, telex: 2850 FESAED.

TABLE 1: MEMBERS OF THE FLOWER EXPORTER'S ASSOCIATION OF ECUADOR

\* The 11 listed below are dues paying; another 13± are non-dues paying members

1.	Rosas Del Ecuador Ing. Jaime Munoz 18 de Septiembre y Paez 232-297	4.94 acres of roses
2.	Arbusta	5.5 acres of roses
3.	Agroflora Econ. Mauricio Davalos Edif. Multicentro, oïc. 507 554-409	6.18 ac. of roses
4.	Floralia	2.47 acres of roses
5.	Rosas de Cousin	2.47 acres of roses
6.	El Rosedal Pablo Ruiz Perez Edif. Banco Los Andes Ofc. 612 525-340	8.6 acres of roses
	Lic. Pablo Ruiz Perez is general manager of El Rosedal and also president of the Association.	
7.	Flor Samba	2.47 acres of roses
8.	Serena Flowers Ing. Neptali Bonifaz Av. Los Shyrís 3433 459-900	19.76 ac. of carnations
9.	Flores Equinocciales Dr. Oscar Garcia Multicentro, 10 <sup>o</sup> Piso 230-202	24.7 ac. of carnations 4.94 ac. of statice
10.	Flores Del Pacifico Econ. Fernando Justicia Baquerizo 238 y Tamayo 551-505	9.88 ac. of pompoms and chrysanthemums
11.	Flor y Sol	12.35 acres of chrysanthemums
12.	Flolexport Del Ecuador Tullio Gonzalez Edificio Gonzalez, 5to. Piso Guayaquil 1228 513-436	37 ac. of pompoms

- |  |  |
|--|--|
| 13. Pascor<br>Ing. Carlos Vallejo<br>Av. Amazonas 239, Ofc. 307<br>553-564 | 29.6 ac. of carnations                                 |
| 14. Flores Benami  | 4.94 acres of roses                                    |
| 15. Eden Flowers   | 19.76 acres of carnations                              |
| 16. Ecuarosas  | 7.41 acres of roses                                    |
| 17. Rosas de Cayambe   | 2.47 acres of roses                                    |
| 18. Roger Chiriboga  | 24.7 acres of pompoms                                  |
| 19. Flor Americas  | 19.76 acres of pompoms,<br>chrysanthemums, gypsophelia |

E. INVESTMENT OPPORTUNITY FOR FRESH AND PROCESSED STRAWBERRIES

1. Brief Description of the Project and Its Rationale

Opportunities exist to joint venture with Ecuadorean companies currently involved in the growing, processing, and exporting of strawberries to the U.S. and European markets.

This is a relatively new subsector in Ecuador, with the oldest operations being only three years old. As such, the sector is going through start-up problems involving the identification of proper varieties which will provide the highest yields and quality under Ecuadorean conditions, the correct agronomic practices required, quality control systems, post harvest handling techniques, processing and freezing techniques, adequate transportation systems, and the establishment of sound marketing relationships.

With the above identified problem areas, it was no wonder that an overcrowding occurred in this sub-sector during 1985, wherein the producers turned to the local market as an escape valve when they ran into problems in the export market. The local market became saturated with the oversupply and prices tumbled creating economic chaos for several of the producers. This has resulted in an industry readjustment, wherein approximately 96 hectares have gone out of production leaving the better and stronger producers still in business.

Currently, the remaining producers are those who only grow for the fresh local and export markets and those who grown only for the processing operations as frozen product for export. A minor amount of reject fruit for fresh ends up in the local jam and jelly production.

The planted acreages are small, averaging 3.5 ha (9 acres) to 25 ha. (63 acres) on a single farm. All of the growers contacted are interested in expanding, but only after they have satisfactorily resolved their current agronomic problems. As of this writing, approximately 60 hectares (150 acres) are still in production.

### Production Techniques

Field growing techniques vary from bedded double and triple row plantings with densities of 80,000 plants per hectare (32,000 per acre) with sprinkler irrigation to very intensive plantings using vertical cylinders with 32 plants growing in the surface of each cylinder. The cylinders are spaced at one meter centers, 10,000 to the hectare, 320,000 plants per hectare or 128,000 per acre. This system uses drip irrigation feeding each of the cylinders with required water and nutrients.

Many different varieties are being tried from California, Michigan and Florida. Some of these are Pajaro, Shasta, Driscoll, Yukon, and Tuft which appears to be the most popular.

### Shipping Form

Fresh strawberries are being shipped in 12 one-pint boxes weighing 10 pounds each and are stowed in aircraft cargo containers at the packing plant whenever these are available. Otherwise, the packed boxes are transported to the Quito airport and are stowed in the containers at that point, just prior to shipment. None of the packers has cold storage capacity at their respective packing plants and must transport their products to Quito and use space there whenever it is necessary to hold the fruit for any length of time.

On the other hand, frozen strawberries, in either whole or sliced form (with or without sugar added), are shipped via refrigerated sea containers from the port of Guayaquil. Depending on the customer preference, the fruit is either packed in 40 pound plastic pails (US 5 gals) or in plastic bag lined drums holding 450 pounds (US 55 gals).

### Transit Times

Due to the types of equipment in service, frequency of flights and transshipment requirements on some routes, the availability of cargo air space is limited to the U.S., but excellent to Europe with five regularly

scheduled 747's a week leaving Quito. These are 2 Lufthansa flights to Germany, 1 Iberia, 1 Air France and 1 KLM. By contrast, there are two cargo flights a week on Ecuatoriana to Miami and New York, and Eastern flies combo L-1011 planes into Miami and New York during the peak winter season.

The Ecuatoriana planes have a problem though, in that their current engines do not meet the noise abatement regulations at U.S. airports, so that they must transship their cargo through Panama, changing to other aircraft at this point. Consequently, transit times can be anywhere from two days to the U.S. to 18 hours to London with a lay-over in the Dominican Republic.

Air freight costs, Quito to New York, have been averaging US\$0.70/kilo or US\$0.32/lb. (US\$ 3.20 per 10 lb. box) to US\$1.20/kilo to London or US\$0.55/lb. (US\$5.45 per 10 lb. box).

By comparison, the 40 foot refrigerated containers placed at the processing plant and then hauled back to the port of Guayaquil after loading for shipment cost US\$5,000 to New York. This averages out at US\$0.12 per pound, assuming a 40,000 lb. load average per container.

Transit times by sea average ten (10) days to New York but may be longer if delays are experienced in transiting the canal.

From the growing area of El Quinche, where most of the strawberries are being produced, it is approximately a 1 hour drive to the Quito airport and about a 12 hour drive to the port of Guayaquil.

#### Pricing Structure

Local market prices vary from sucres S/18 per pound being paid by the frozen fruit processor for fruit delivered to the processing plant to sucres S/30-35 per pound sold fresh to the retail outlets, hotels, etc. At a conversion rate of S/160 per US dollar, this converts to a spread of US\$0.11 to US\$0.22 per pound.

The frozen product processor is receiving the culls and fruit that does not sell on the local market. He is used by the growers as a "market of last resort" as many feel that his price is far too low.

Fresh shipments are being made by selling F.O.B. Quito airport to exporters at a price of US\$7.50 per 10 lb. box. The exporter handles all freight, insurance, handling and brokerage fees.

Frozen product on the other hand is sold on a C&F basis, Port of New York. There have been four price increases since the processor/shipper began shipments some six months ago. The average price he is currently receiving is US\$0.46 per pound.

#### Marketing Thrust

To date, this sub-sector has concentrated on the export market, whether fresh or processed. (There does not appear to be any local frozen food market at all for any products.)

The local market is insensitive to quality and is strictly price inelastic. It does, however, provide for an outlet of the poorer fruit not meeting the export quality standards, just as the processing plant acts as an additional outlet for culls and excesses.

Both the fresh and processed producers feel that they can expand their strawberry business but also want to get involved in the growing and processing of other berries such as raspberries, blueberries, blackberries, etc. This would expand their product lines and provide them with better market penetration opportunities.

These other berries are still in the experimental stage and with the exception of blackberries (Mora), nothing is really being done in this area at all. (It does hold good promise for the future, however, as it appears that all of these will grow well in Ecuador).

## 2. Market Potential

Unlike U.S. strawberry growing areas, which have seasonal limitations, strawberries can be produced twelve months out of the year in Ecuador. This provides for ready access to the windows of opportunity when other producing areas are out. What is required, however, are strong market linkages between the Ecuadorean producers and importers in the U.S., Canada and Europe.

Sufficient land is available, given the access to capital and the availability of dependable transportation, to expand Ecuadorean production to meet any volume which might be contracted for.

On the other hand, the frozen strawberry plant has orders for and capacity to produce product double the current operations throughput. Since the processor only grows approximately 40% of his raw material requirement, he is heavily dependent on other growers to deliver raw material to him. This volume has not materialized due to the high export demand and the low price that the plant is offering. Consequently, this plant is only processing 250-300,000 pounds per month, with a rated capacity of 500,000 pounds per month and with commitments from brokers to take one hundred percent of its production potential.

Although the plant wants to expand its controlled acreage so as to provide for a minimum of 60% of its requirements, it is currently strapped for working capital and is unable to do so.

If the operation is able to source the needed raw material, it appears that the total production capacity of this plant is a given. With the addition of industrial quick freezing IQF equipment, this plant's market could be expanded to other users of the product, who would prefer to receive it bagged in a box format rather than in the current pail/drum alternative. This would dramatically reduce the current cost of packaging as the pails and the drums are expensive alternatives.

### Location/Land Costs

The strawberry industry is concentrated in the area of El Quinche in Pichincha Province, approximately 25-30 kilometers north of Quito. It is reached via an excellent main road system, but the feeder roads are poor into the farming areas.

Land is in high demand in this area as it is also a preferred location for the growing of cut flowers and selected winter vegetables. For years it has also been the favorite weekend retreat area for Quito businessmen, who have small recreation/hobby farms and homes in the area.

Prices range from annual lease rates of S/25,000 per hectare (US\$62.50 per acre) to purchase prices in the S/700,000 to S/1,000,000 range per hectare (US\$1,750 to US\$2,500 per acre).

Leasing appears to be easy to do and perhaps the better way to go unless a very capital intensive operation is planned.

Ownership of land is in small parcels and this makes assembling a large block difficult and/or of even obtaining parcels that are relatively closely positioned.

Elevations are generally in the 7,000 to 8,000 feet above sea level range.

### 3. Financial Requirements

Reported costs to develop one hectare of strawberries, net of the cost of the land, including the importation of the planting material, plastic mulch, fumigants, sprinkler irrigation equipment, etc. were S/1.21 million per hectare or US\$3025/acre.

This is broken down as follows:

<u>Item</u>	<u>S/ per Ha.</u>	<u>US\$/acre</u>
Fumigation	300,000	750
Plastic Mulch	350,000	875
Planting Material	320,000	800
Fertilizer	60,000	150
Insecticides	60,000	150
Labor	60,000	150
Irrigation	<u>60,000</u>	<u>150</u>
TOTAL	S/1,210,000	\$3,025

Many of the growers feel that they may be able to eliminate the need for fumigation and plastic mulch - if not every replant cycle, then at least every other one or two. If planting material can be properly developed locally, they also feel that this cost can be reduced by half. If this were true, then approximately S/800,000 per hectare or US\$2,000 per acre could be reduced from the current development/production costs.

Growers are currently paying S/4.00 each for the planting material they are importing. This equates to US\$0.025 each. (This is a potential side-line business to develop and sell strawberry plants to growers).

#### Yields/Costs

Reported yields are quite variable ranging from 40 tons per hectare to 100 tons per hectare, or from 16 to 40 tons per acre.

Using the low side for the volume yield and the stated costs to produce a hectare of strawberries, 40 tons at S/1.21 million, equates to US\$0.095 per pound. At 100 tons/ha. this cost drops to US\$0.038 per pound.

It is no wonder then that the processing plant is having difficulty in sourcing raw materials, as at S/18 per pound it is barely offering the producers enough to cover their costs and is not providing them with enough of a profit incentive to deliver their product to the plant.

#### 4. Potential Joint Venture Opportunities

Investors who can bring market outlets, cost controlled agronomic practices matched to the local growing conditions, properly selected varieties, and capital can find Ecuadorean strawberry producers interested in entering a joint venture with them.

A list of potential contacts follow as part of this sub-sector profile:

##### a. Local Investor/Producer

Sr. Rafael Davila Cajas  
Owner/Manager  
El Batan 271  
Quito, Ecuador  
tel: 459-169  
455-316

Mr. Davila is a strawberry producer with 3.5 hectares currently planted and under production. He will be expanding this to 4.0 hectares (10 acres).

This is a very sophisticated, high density planting system using galvanized metal cylinders spaced at one meter intervals on a square pattern. Each cylinder has 32 holes punched into its surface from which strawberry plants are growing. The density is 320,000 plants per hectare or 128,000 per acre.

The cylinders are filled with an inert rock material which is quarried nearby. Each cylinder is serviced by two drippers from an overhead drip irrigation system through which the plants receive all of their nutrients. Each cylinder is irrigated daily with 1 gal. of water into which the proper fertilizer dosage has been formulated.

All pest and insecticides are sprayed on by hand on a demand basis but report to be very infrequent.

Harvesting is done five days a week and the strawberries are packed at the site. They are trucked to Quito for sale on the local fresh market and/or sold to exporters on an F.O.B. basis at the Quito Airport. Local sales are handled direct with no middlemen involved.

Reported volumes during the peak season are 120 ten pound boxes per day on a five day a week basis from the 3.5 hectares. The growing season is all year long, but Mr. Davila likes to change the sterile material in the cylinders and upgrade his plants each year or so. In fact, he is only producing from 8 to 10 months.

On this basis, his volume could fluctuate between 21,000 and 26,000 boxes per year. At his reported sales price average of US\$7.50 per box, he has a gross sales volume of US\$157,500 to US\$195,000 per year.

This producer would like to tie in with a US grower/importer to receive technical assistance, assured marketing contracts, and expansion capital.

b. Local Investor/Producer

Agromod S.A.  
Av. 10 de Agosto 3013 y Las Casas  
P.O. Box 8866 Suc. 7  
Quito, Ecuador  
tels: 550-496  
550-180  
telex: 2305 FORAM ED

Sr. EC. Diego Irigorri A.  
General Manager

AGROMOD S.A. is a 100% Ecuadorean Company involved in the growing, purchasing and processing of frozen strawberry products, primarily for export to the United States.

It is a tightly held company with stock distributed between 12 Ecuadorean investors. One of these who holds 19% of the stock, Sr. Diego Irigorri, is the Managing Director of the company.

In addition to growing its own strawberries, which currently account for 40% of the throughput volume, AGROMOD also purchases strawberries from other growers close to its plant. These purchases are not under any formal contractual arrangement, however, and result in large swings in the availability of raw material to the plant. Normally, the availability depends on how successful the individual growers have been in marketing their product to exporters and/or on the local market as fresh fruit. The excess beyond the local markets demand and that fruit not meeting the export quality standards is then sold to AGROMOD.

AGROMOD management wants to expand its controlled acreage to assure that it has at least 60% of the plant's capacity grown on its own farms and to restructure the arrangements with the growers to supply the remaining 40% but under some form of formal contract of supply.

AGROMOD has built a plant, that it is currently operating, that has far more freezing capacity and cold storage holding capacity than its one line can fill. There is sufficient space in the processing room to accommodate one to two more lines comfortably.

Due to lack of raw material, the plant, which is rated at 500,000 lbs. per month, is only able to operate at a rate of 250,000 to 300,000 lbs. per month. The plant is all U.S. manufactured, with the refrigeration system from RECO SYSTEMS, San Antonio, TX and includes a 600 ton cold storage plant in addition to the fresh and processed lines. The processing line is ROBINS and the cold rooms are from ELLIOT WILLIAMS.

With the exception of the plant site, which is 6 hectares, the company does not own land but prefers to lease the land on which it farms its strawberries. These lands are immediately to the side and in front of the plant.

The land leases are for periods of five years with renewable clauses and contain lease escalation rates that are tied to the sucre/US dollar exchange rate. The current rate is S/25,000 per hectare per year or US\$62.50/acre per year.

Although the company has leased 40 hectares, it is only farming on 12 hectares due to a shortage of working capital. This further exacerbates their problem as they cannot solve their shortfall problem without additional capital infusion. Should it be possible to expand in the future, additional land, beyond the current 40 hectares being leased, would be available at similar terms.

#### Product Mix

In addition to being able to pack for the fresh market, local and/or export, the company prepares frozen strawberry products, depending on market demand, such as whole, sliced, with or without sugar added.

The current export packaging form is either in 40 pound plastic pails (5 gallons) or in 450 pound plastic bag lined drums of 55 gals. each.

#### Shipment

Frozen product is shipped once a week from the plant to Guayaquil in 40 foot refrigerated containers to be put on container vessels destined for New York. The time in transit is normally 10 days but may be longer if problems are encountered at the Panama Canal.

Refrigerated containers are brought to the plant from Guayaquil and hauled back to the ship as part of the "all in" cost for the container. It now runs US\$5,000 per container to New York.

Capacity, by type of packaging medium, varies from 40,800 pounds for the pails to 42,000 pounds for the drums. This is the equivalent of US\$0.12/pound. All shipments are made on a C&F basis.

Fresh product has been a problem due to the limited air cargo space that has been available and the company has chosen not to enter into this competition but prefers to concentrate on the export market for frozen product.

### Field Operation

The growing area and the plant are located in El Quinche, 25 kilometers to the northeast of Quito.

Field plantings are being done at densities of 80,000 per hectare (32000 per acre) using varieties imported from the United States. The fields are now planted with Tufts which was introduced to them by Prof. Brinkhurst of Cal Davis. Orders have been placed for seven new varieties which they wish to test out. These include Earlibelle, Guardian, Surecrop, Allstar, Red Coat, Brighton, and Ozark Beauty.

Importation of varieties is costly and the management wants to develop its own propagating capability once it has found the most appropriate variety for its growing conditions.

Irrigation is being provided by sprinklers but no fertilizing mixing equipment is in use. It is all applied as side dressing by hand.

Costs to develop a hectare of strawberries, net of the value of the land, is approximately S/1.2 million. The largest components of the costs are for plastic mulch, fumigation and planting material. Mulch alone is estimated at S/350,000 per hectare.

This is where AGROMOD needs a great deal of help in establishing proper agricultural practices. They are fumigating and using plastic mulch and do not even know if they should be doing it all.

With the current varieties and their agricultural practices, AGROMOD claims to be obtaining yields of 40 tons per hectare. This would only amount to a total of 960,000 lbs. on the 12 hectares that they have planted which is just about two months supply at the plant's rated capacity. At this level, even if they did have the entire 40 hectares that they have leased planted, they would still only be producing 3.2 million pounds or 6 months of raw material. Serious attention has to be paid to the low yield being achieved.

Capitalization

The twelve stockholders have paid in capital amounting to S/60,000,000, which at today's exchange is US\$375,000 but amounted to approximately US\$632,000 when the exchange was S/95 to the US dollar. (The stockholders would want to revalue their stock accordingly.) They have borrowed another S/117 million from three Ecuadorean entities - COFIEC which is a finance company that has given them a S/57 million loan for five years at 16% interest and two years of grace which have run out. There are three years remaining on this loan. The other is for S/50 million with the Banco del Pichincha at the same interest rate, but is a straight three year term loan. They have also taken out an additional S/10 million loan with FINIBER, a finance company, for two years at 18% interest.

Unfortunately for AGROMOD, they were seriously delayed in the construction and start-up of their processing plant, so that the grace period on their loan ran out prior to their generating any real cash flow. Consequently, they have already fallen in arrears on the repayment of the two major loans. As of now, they wish to capitalize the remaining loan balance with the Banco de Pichincha by selling more equity in the company, and have plans to renegotiate the terms of the COFIEC loan so as to stretch it out over a longer period. The exact terms of this negotiation are not known.

If they do not enter into a joint venture, then the current stockholders, of record, intend to infuse an additional S/60,000,000 as paid in equity capital and use this money to retire the loan with the Banco de Pichincha. If they are able to secure an interested party in taking a 50% interest in their company, they would consider restructuring their company so as to dilute their current holdings to 50% and have the new partner take 50% for the infusion of approximately US\$500,000 which at today's rate would equate to S/80,000,000 of additional equity.

The utilization of these funds would be as follows:

Debt repayment	S/ 42,000,000
New Planting of 28 hectares @ S/1,000,000/ha.	28,000,000

Finish offices & other Plant	10,000,000
Total	S/ 80,000,000

Operating History/Potential

AGROMOD S.A. is currently operating at very reduced levels, so that it is only selling S/10 million (US\$62,500) per month. Its operating expenses are averaging S/8 million per month or US\$50,000 on a F.O.B. basis. The net before tax, debt amortization and freight is S/2 million or US\$12,500 per month. Depreciation add back is approximately S/800,000 per month. Their current debt service is S/2.7 million per month so that they continue to lose money every day.

Merely restructuring their debt and eliminating the payments to the Banco de Pichincha will reduce their monthly debt service to S/1.9 million which for all practical purposes would only bring them close to a break even position if throughput to the plant was not increased.

Planting of the additional 28 hectares of leased lands would increase their controlled production volume to 3,200,000 lbs. or approximately 50% of plant capacity, with no increase in the yields now being achieved. This volume, at US\$0.46 per pound would generate gross sales US\$1,470,000 or S/235,520,000. Again, this is at approximately 50% operating efficiency of the plant.

If the entire 500,000 lbs. per month could be obtained through additional plantings and or by paying a better price to the other growers, then the economics of the operation dramatically improve.

Plant Potential

With full throughput volume at the rated capacity of 500,000 lbs. per month and the restructuring of the debt so as to pull it down to an annual debt service of S/23 million, the new AGROMOD S.A. theoretical potential is as follows:

500,000 lbs./mo. x 12 months = 6,000,000 lbs./year  
6,000,000 lbs./year x US\$0.46/lb. = US\$2,760,000 gross sales

Estimated profit before interest and taxes = US\$ 0.08/lb.  
Gross Operating Profit = 6,000,000 x 0.08 = US\$ 480,000  
Debt Service at reduced level = US\$ 143,750

Profit Before Tax US\$ 336,250

Assuming a 30% retention and a 70% split of profit to stockholders, the profit distribution would be \$235,375

At 50% equity of a foreign investor, this would be US\$117,688  
Return on an Investment of US\$500,000, before tax is 24%

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AGROMOD S.A. is looking for the following in a potential investor:

1. Equity investment of at least US\$500,000 for approximately 50% of the company.
2. Technical assistance on the plant operating side, especially in the area of refrigeration and equipment maintenance.
3. Agronomic practices assistance in the areas of variety selection, farm operating practices, nursery development, etc.
4. Marketing entry and product distribution to North America and Europe.
5. Quality control standards.
6. Modern management techniques.

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AGROMOD S.A. offers an investor an opportunity to really restructure the entire company. The figures shown above are not all that attractive, but the plant's throughput of 500,000 lbs. per month is far too low for the freezing and cold room storage capacity that it has. If another line were introduced and the product lines increased to take on the processing of other fruits and even vegetables, the economic viability of this company would be dramatically improved. The major sunk costs are already made. What is required now is to fine tune it and come up with a sound business plan that fully utilizes the assets in place.

c. Other Joint Venture Partners

The Ecuadorean Federation of Exporters FEDEXPOR includes among its members other strawberry producers such as Mr. Jose Calixto, and would most willingly supply information on these growers to an interested U.S. investor. The Federation's address is:

FEDEXPOR  
Avdas. Republica y Amazonas  
Edificio Las Camaras - 4to Piso  
P.O. Box 187-B  
Quito, Ecuador  
tels: 452-769  
452-770  
telex: 2957 FEDEX-ED  
ATTN: Luis Salazar Jaramillo  
Executive Director

F. INVESTMENT OPPORTUNITY FOR INTEGRATED MARINE SHRIMP PRODUCTION

1. Brief Description of Project and Its Rationale

The shrimp industry in Ecuador is relatively new but has grown exponentially due to the fact that Ecuadorean waters are rich in natural larvae, of commercially acceptable varieties, which has resulted in low production costs and the need for minimal technology.

Prior to 1983, when "El Nino" (severe and prolonged torrential rains and flooding) caused the disappearance of the natural larvae, the industry had been a success in spite of the efforts of man. There had been little if any attention paid to the preservation of the ecology and, except for a few producers, no attempt was made to integrate seed production into their commercial grow-out operations.

Even after "El Nino", harvesting of the coastal waters continued to provide sufficient larvae to provide the seed stocking requirements for 49,100 hectares of ponds. However, in late 1984 and early 1985, there was only sufficient larvae to provide for one stocking and harvest cycle. After that, the availability became scarce again and constructed ponds went begging for production seed stock.

This condition persists today, in spite of the Government of Ecuador's (GOE) efforts to stabilize the industry. The GOE has restructured the Ministry of Industry and Fisheries to increase staff directly involved in this sector, has taken steps to stop the destruction of coastal mangrove swamps, which are the natural breeding areas, has prohibited commercial shrimping during the periods of reproduction cycles of the shrimp varieties used in ponds and has established limitations for new pond construction. In fact, today there is a moratorium on any new ponds being built unless they include an integrated laboratory and hatchery.

According to GOE press releases, these measures have dramatically improved conditions in the industry. It is expected that they would, but physical evidence points in the other direction.

HECTARES OF PONDS AUTHORIZED BY GOE  
(1000 Hectares)

	<u>Each Year</u>	<u>Accumulated</u>
Prior Years	14.7	
1981	20.7	35.4
1982	13.7	49.1
1983	13.9	63.0
1984	24.6	87.6
1985	16.0	103.6
Area revoked		<u>(9.3)</u>
TOTAL NET		94.3

During this same period, the export volumes and dollar values were as follows:

EXPORT STATISTICS

<u>Year</u>	<u>Export prices</u> <u>US \$/lb.</u>	<u>Total Exports</u> <u>Metric Tons</u>	<u>Total Exports</u> <u>Millions \$</u>
1981	3.14	12,133	83.89
1982	3.47	16,966	130.09
1983	3.58	23,524	184.65
1984	3.49	20,039	154.15
1985	3.57	19,799	155.75

At present, it is estimated that 65,000 hectares out of the 94,000 hectares of ponds, now authorized, have been constructed or are in some stage of construction/operation. Of this constructed area, only about one half have water in them and are stocked with larvae for the first grow-out cycle of 1986. After this cycle is harvested, it is expected that the area under production will drop to one fourth or approximately 16-17,000 hectares. This is the estimated total area that can be sustained with the limited supply of larvae now available.

On the other hand, if larvae were available, it is possible to do an average of 2.2 grow out cycles per year under Ecuadorean conditions. Some production operations report as high as 2.4-2.5 cycles under optimum conditions.

Each pond requires 55,000 juveniles per hectare per cycle. For the 65,000 hectares that exist, this translates into a need for  $65,000 \times 2.2 \times 55,000 = 7.9$  billion juveniles per year. For the full authorized 94,000 hectares there would be an annual requirement of 11.3 billion juveniles.

The only way to stabilize the industry and assure an adequate supply of larvae is to create commercial laboratory/hatcheries capable of supplementing the short fall from the naturally produced and captured supply. This means that as many as possible of the production grow-out facilities must become self sufficient in producing their own seed stock requirements via an integrated project.

To date, the GOE has approved 51 hatcheries with the projected potential capacity to produce 4.7 billion larvae a year at their optimum rated capacity. However, to date, only two of these hatcheries (CRIDEC and SAMACUA) are reported to be able to produce larvae for sale on a regular basis. In December of 1985, at the beginning of the stocking cycle, a high of 62 million larvae were produced in 8 operating hatcheries. This was 1/12th of the required volume. It appears that the 1986 production will fairly well match that of 1985 as most of the hatcheries are still in a start up/experimental stage.

Consequently, shrimp farms are closing down, going into bankruptcy and/or are up for sale as the industry struggles with this problem. The GOE has ordered that there be no more permits issued for shrimp farm construction unless the project is a fully integrated facility.

The larger, well capitalized shrimp producers, who can afford the infrastructure and technical expertise, are integrating backwards to develop their own in-house hatchery production of larvae. Several are scaling their facilities to a size that would permit them to meet their requirements and perhaps have volumes in excess for outside sales. The smaller operators cannot afford this luxury as the scale of their production ponds cannot justify the added capital requirements.

Perhaps the most serious problem is not the shortage of capital but instead the shortage of professional experience in this sector of the industry. Even though there have been permits issued to 51 prospective hatcheries, there are less than a hand full of technically competent personnel, who have successfully mounted and operated a commercially sized laboratory/hatchery.

At the same time, every hatchery operation has developed its own specialized technique, which is carefully guarded, regarding the construction criteria for the infrastructure, quality of the water, larvae food preparation, water temperature control, sunlight requirements, etc. It is impossible for the smaller operators to copy and "cookie cut" what the bigger operators are doing. A long and costly experimental stage must be gone through in order to adapt the technology that has been found to be successful in another part of the world to the micro-environmental conditions in Ecuador. All of this translates into cost and has kept all but the most aggressive and financially sound producers out of the race. It is felt that of the 51 permitted hatcheries, all but about 12 will fold as they fail to develop and/or access the needed technology.

The Ecuadorean shrimp business is stagnating and the time has never been better for the acceptance of well qualified, technically competent foreign investors who wish to enter this industry and fill this raw material larvae void.

This can be done strictly as a hatchery operation selling to grow-out producers and/or as integrated project with the hatchery facility tied to a production unit and with sufficient capacity to service the outside demand as well. Many of the growers will always prefer to grow shrimp only, so that the continued demand for outside sales is assured.

Opportunities exist to joint venture with existing medium to large scale production grow-out operators by bringing capital and technology to the business in developing an integrated larvae laboratory and post larvae juvenile hatchery.

## 2. Laboratory/Hatchery Project

As previously described, the bigger operators are already integrating backwards to develop their own seed stock supplies. The existing opportunities are in the medium sized farms which range in the area of 350 to 500 hectares under production.

Once in place and operating, outside contracts could be developed with smaller operators in the industry who would take off the excess production.

### a. Current Ecuadorean Laboratory/Hatchery Production Averages

Reported production levels of yield per hectare and associated costs and sales prices vary considerably, but the better producers tend to closely bracket the following data for a laboratory/hatchery facility capable of producing 8-12 million post-larvae juveniles per month:

- a. Required infrastructure under roof is approximately 30,000 square feet. This encompasses offices, laboratory, algae production, hatchery, post larvae tanks, breeding tanks, water treating plant and warehouse.
- b. Average number of breeding animals in production at any one time is 3,000. Ratio of females to males in the breeding tanks varies from 1:1 to 2:1 depending on the aggressiveness of the males.
- c. Each female produces approximately 100,000 eggs per ovulation. When maintained under excellent conditions and not stressed, they may ovulate every 28 days.
- d. Some hatcheries are reporting that they have had the same breeding animals in production for the past 18 months and they are still producing at the same high levels.
- e. Survival from the egg stage to post larvae-juvenile stage is running approximately 10-20%. This is due to ovulated eggs not

being properly fertilized, eaten by adults, stress factors, etc. At a 10% rate there will be 10,000 juveniles survive out of every 100,000 egg ovulation.

- f. All laboratories must maintain strict security, water quality control and sanitation. Sanitation is such a concern that on average the entire hatchery is shut down every 3 to 5 months to "dry out the system". This prevents the build up of disease. During this "dry out", the entire system is flushed out and disinfected. This can last from 3 days to a week.
- g. Integrated plants are producing their own algae and breeding stock animal feeds but depend on the importation of artemia as an ingredient in their larvae feeds.
- h. Highest operating costs are currently in the expatriate technicians' salaries and for the production of the algae, breeder feeds and post larvae feeds. Imported chemicals and materials must be maintained in inventory to assure that there is never a stock out situation.
- i. During normal conditions and when ample stocks of naturally produced and captured larvae are available, the price per 1000 juveniles can be as low as US\$6-8. Quality is normally poor though, as the captured larvae are not properly handled and survival rates are low. Under current conditions, with the drastic demand that exists, prices are in the US\$10-13 range per 1000. Some desperate growers have been reported to be paying as much as US\$18 per 1000.

A stable industry should be able to support a continued demand price range in the US\$10-12 per 1000.

- j. Feed to gained weight conversion is averaging 2.2 to 1. Starter feed and finishing formulas are available from local animal feed manufacturers and there appears to be an ample supply at today's

feed demand levels. None of the grow-out operations visited had their own feed mixing facilities on site.

b. Investment Requirements and Financial Analysis

A hatchery and the associated laboratory of a size to produce 8 to 12 million post larvae juveniles per month would require a capital investment of US\$750,000.

A joint venture partner with a production grow-out facility of around 500 hectares would be the preferred choice. A production unit of this size would require approximately one half of the hatcheries annual production allowing for the sale of all excess larvae to outside users. At the same time, this 50% excess capacity is an added cushion for the in-house demand, should larvae production itself run into any problems.

A 500 hectare production unit would require larvae as follows:

$$500 \text{ ha.} \times 2.2 \text{ cycles} \times 55,000 \text{ larvae} = 60,500,000$$

Production costs range in the area of \$3.00 per 1000, so that for a plant producing 10 million per month or 120 million per year, there will be an additional working capital requirement of approximately US\$350,000.

A 10 million post larvae per month plant would generate 120 million larvae per year. At a selling price of US 10.00 per 1000, this would result in a gross sales level of US\$1,200,000 per year. At a production cost of US\$3.00 per 1000, the net revenue before amortization of debt and taxes is US\$840,000 per year.

Should one half of the production be transferred to the in-house grow-out facilities at cost, then this would represent a savings of US\$420,000 for this part of the operation.

Even if prices declined to the pre "El Nino" level of US\$6.00 per 1000 larvae, the project is economically viable and sound.

The production of shrimp larvae is a viable business, whether it is entered into as a stand alone business and/or as an integrated part of a full production facility.

The investor has the option of creating, for all practical purposes, a 100% foreign company, should this be his wish. It would be far more judicious and practical, though, to think in terms of joining with an existing Ecuadorean company that has a permit for a hatchery but has not built one as yet, or with one that is experiencing difficulties for lack of proper expertise.

Due to the importance of this sector as an export dollar producing sector of the country's economy, it is a very high visibility sector and politically sensitive. Sound judgement should be exercised in selecting a partner who is capable of handling these local affairs properly.

The potential U.S. investor should specifically note that although sales prices have been stated in U.S. dollars, the actual sales of larvae are made in local Ecuadorean currency. This makes the production of shrimp larvae solely for the sale to others unattractive to the foreign investor who is trying to create dollars on his dollars and not sucres. However, an integrated project allows for passing on of the production costs in sucres and the recovery of the added margin, gained through the savings on the purchase of the larvae, in dollars when the shrimp are sold as an exported item.

### 3. Production - Grow-Out Facility

Whether as an integrated system, complete with hatchery, or as a grow-out facility only, there are numerous joint venture opportunities in Ecuador. Many are already fully developed but require additional working

capital and technology. Others still have room to expand and to install new systems and management controls.

The degree of involvement thus spreads over a wide range of alternatives. The primary need of all of the operations, however, is technology and state of the art knowledge on the proper production of seed stock and grow-out techniques.

Land costs vary considerably depending on their close proximity to sea water, transportation systems, topography, size of parcels, water lifting/handling requirements, and method by which acquired, i.e. concession from the GOE, outright purchase, long-term lease, etc. This spread can be from land costing US\$350/hectare to US\$3,000/hectare.

Depending on engineering design and the topography of the land, approximately 75% of the surface area may be developed into pond water surface. The other 25% going into roads, levees, dykes, etc.

Development costs again vary greatly depending on the size of the individual ponds, topography of the parcel, etc. Typical costs are in the range of US\$5,000 per hectare for pond construction, dykes, roads, pumping stations, flumes, gates, fixed harvesting devices, etc. Approximately another US\$500 to US1,000 per hectare are required for vehicles, trailers, tractors, harvesting equipment, etc. Again, this spread is dependent on the overall size of the project with the lower cost associated with the larger projects.

Grow-out producers all have their own concepts and criteria on the proper design, but almost all of them are set up so as to be able to drain harvest. This requires that each pond be designed and built so as to drain to one point. The shrimp are survivors and will continue to seek and follow the receding water until they are all collecting at the same point. The ponds are normally 80 centimeters deep at the upstream end and then gradually deepen to about 2 meters at the collecting end.

Predators are a constant problem, especially birds, so that ponds are built in such a way that the width of the ponds is set by comfortable shotgun range to the center. This is usually around 100 yards.

Pond sizes vary but may run from 2.5 hectares to 30 hectares of water surface.

Stocking with juveniles is usually at 55,000 per hectare of water surface with a grow-out period varying from 115 to 125 days. Sampling is taken daily to monitor the survival rate and growth patterns on each individual pond. Ponds are handled as individual production centers and are given individual attention.

Feed is provided twice a day when juveniles are first introduced into the pond and this is sustained for about 30 days. After that, the feed is changed from a starter formula to a finishing formula and the feeding reduced to once a day. Shrimp are a nocturnal animal, so during the finishing cycle the feeding is done just before nightfall or late afternoon. Most growers are feeding by broadcasting the feed from small boats with electric powered (battery) outboards. The shrimp will actually follow the boat around the pond and will jump into the boat when feeding on the surface. One grower is planning to go to blowers which will broadcast the feed into the ponds as it travels along the pond bank roads.

Feed costs vary from mixing plant to mixing plant, depending on the formulations being used. All of the plants are pelletizing the feed though, and some have different sizes so as to create an easier (smaller) pellet for the small shrimp to eat, and then a larger pellet for the finishing formulations when the shrimp are larger. Pellets are designed to be able to stand up against dissolving for up to 8 hours.

Starter feed with up to 35% protein is in the cost range of US\$600 per ton F.O.B. the feed mill. Finishing feed at 25% protein is in the US\$450 per ton range. Both are sold in 100 pound bags only. There are no bulk handling systems in place at this time.

The above prices are expected to increase by approximately 10% shortly.

Harvesting is averaging 2000 pounds of deheaded shrimp per hectare, per cycle, so that at 2.2 turns the total per year is 4400 pounds per hectare. With feed conversion of 2.5 to 1, the cost of feed per pound of shrimp produced at 68% recovery at the packing plant (headless) is running around US\$0.92 per pound.

After harvesting from the pond, the shrimp are transported to processing plants where the shrimp are deheaded, sized, and frozen. The plants are also able to peel and devein if this is desired by the shipper. Quality of processing plants vary, but for those with their own ice plants and freezing facilities, the grower will have to pay between US\$0.60 to US\$0.70 per pound to have his shrimp processed, packed and frozen. The plants take approximately a US\$0.20 per pound profit on this operation.

All of the packing plants are either owned by a grower or are contracted to growers to provide them with the service. The grower owned facilities normally have excess processing capacity beyond their own needs so that they do work for others as well.

Depending on the location of the processing plants, the shrimp is either transported by iced down trucks or by river boats that can haul directly to the plants located on the water.

Constant supervision is required in the plants to assure quality work. Most growers have someone in the plants during the run of their product to assure that the work is being done properly.

Not all plants have their own ice plant and must depend on purchasing their ice from the private ice companies. Due to a lack of proper sanitation, this ice is of dubious quality. The better plants not only produce their own ice but also have water treating facilities as well. The after pack out freezers are capable of freezing the shrimp within 8 hours.

Marketing is done through contractual arrangements wherein a grower might sell his production to a packer/shipper in Ecuador, or retain ownership of the product through the plant, exporting the product directly himself. Most of these sales are to offshore trading companies/brokers who in some cases are sister companies to the Ecuadorean company. These offshore companies then market and distribute the product in whatever market they are active in, such as the U.S., Canada, etc.

In some cases these receivers are further processors of the shrimp, who may devein, clean, cook and bread the shrimp in the U.S. and then repackage it for on-sale into the market place. If fact, with the low productivity of the Ecuadorean labor, much of this added value potential is preferably done offshore as the cost of doing it in Ecuador is not competitive and quality is better controlled.

Depending on the volume being moved, the normal brokerage fee is around 4% of the wholesale price.

Export selling prices are currently averaging US\$3.50 per pound F.O.B. Guayaquil, Ecuador. Shipments are made via refrigerated 40 foot containers from the port of Guayaquil to the East and West Coast of the United States. Freight rates are running between \$5,000 to \$6,000 per container depending on the carrier and the destination port. On a forty thousand pound basis per container, the freight cost per pound ranges between US\$0.125 to 0.15 for iced and frozen shrimp. Net weight rates are approximately 40% higher.

Investors interested in entering this industry will find ample opportunities to explore, however they should be careful to assure that the facility either has the potential of developing its own seed stock supply or that it can arrange to purchase what it needs from other sources.

The potential U.S. investor should note the fact that the fishing industry, including the growing of shrimp in ponds, is controlled by the Ministry of Industry and Fisheries. Since it does not come under the Ministry of Agriculture, development incentives such as low interest rates on borrowing, and tax concessions are not available to shrimp growers.

4. Potential Joint Venture Opportunities

a. ECUADMINSA S.A.

Av. C.J. Arosemena - Km 2½  
P.O. Box 9982  
Guayaquil, Ecuador  
tel: 386-088  
telex: (308)3432 FRESMA ED  
President: Mr. Blair D. Smith  
General Manager: Mr. Raul A. Estrada U.

ECUAMINSA S.A. is a management company which controls the activities of 22 different sister companies, all of which are directly and/or indirectly involved in the marine shrimp industry. Each of the 22 separate companies is a corporation in its own right although there are interlocking directorships and managers. The reason for the separation into completely autonomous corporations is for labor management control and for greater access to financing.

This organization is fully integrated and has within its subsidiary companies: a laboratory/hatchery, eleven different production/grow-out companies, a feed mill, an equipment company, a shrimp processing plant, a coastal fishing company, a marketing company, etc.

It is extremely well managed and perhaps one of the most aggressive factors in the Ecuadorean shrimp industry.

Major equity is held by U.S. nationals who have sizeable operations within the continental United States.

ECUADMINSA S.A. has large holdings of land which have only been partially developed. They currently have approximately 2,800 acres under ponds out of approximately 5,000 acres that they own outright.

They will entertain joint ventures on the entire corporate structure which is valued at US\$30 million and/or will entertain the selling off of portions of their holding which are not logistically well positioned to their main effort. An example of one of these is:

BALAO GRANDE - A five farm complex totalling 1,033 hectares of which only 169 hectares has been developed into ponds and is currently under production. The remaining area needs full development as well as the construction of storm runoff control facilities. The entire area has been approved for shrimp production and is properly licensed by the GOE. These licenses also authorize the companies to borrow from the local banks at attractive rates up to the maximum allowed under the current laws. The asking price for these companies is US\$1.2 million.

b. PREXAMAR, C.A.

PREXAMAR, C.A. is a stock company established in 1973 as an agricultural enterprise located in the El Oro Province of southern Ecuador. The farm has 262 hectares (655 acres) of land, 200 hectares (500 acres) of which have been developed into nine shrimp farming ponds.

The farm has been in production for twelve years under the extensive culture method with low stocking densities and no artificial feeding. On average, the farm produces 300,000 pounds of whole shrimp per year, at a ponds side price of US\$2.00 per pound of whole shrimp. Overhead and operating costs are kept very low.

Due to a scarcity of wild larvae stock for seeding the ponds a second or even a third time during the year, PREXAMAR organized a related company ECUALARVA, S.A. in which the parent company holds a 30% share. The new company owns a larvae hatchery, designed to produce 25 million larvae per year, enough to stock PREXAMAR's grow-out ponds, with any surplus to be sold to other growers. The hatchery, as of May, 1986, was nearly completed and ready for start-up.

In meetings with the team, Mr. Felipe Orellana, the General Manager of both companies, expressed an interest in selling up to fifty percent of the companies' shares to a U.S. investor who would be interested in participating in the management of the operation. He prices the total value of the firms at US\$900,000. Mr. Orellana suggested that more efficient management, higher stocking densities, and artificial feeding would increase annual earnings which he indicated were very attractive.

Mr. Orellana himself was a founder and first president of the Ecuadorean Shrimp Growers Association.

PREXAMAR and ECUALARVA have operations financed through the Banco La Previsora banking institution of Guayaquil, where Mr. Orellana states the companies have an excellent credit rating.

An interested investor may contact Mr. Orellana directly at the following address:

Mr. Felipe Orellana Alban  
Casilla (P.O. Box) 6005  
Ciudadela Kennedy  
Calle 8 va. Oeste No. 120  
Guayaquil, Ecuador  
tel: 393-789, office  
391-400, home

The National Fisheries Board, located in Guayaquil, would willingly provide a potential U.S. investor a list of the shrimp grow-out and hatchery operations upon written request. The Board may be contacted at the following address:

Direccion Nacional de Pesca  
V.M. Rendon 1010  
Guayaquil, Ecuador  
tels: 308-222  
308-360  
ATTN: Mr. Jaime Roldos Garces  
Executive Director

## V. DESCRIPTION OF OTHER PROJECT OPPORTUNITIES

### A. COMMERCIAL FEED PRODUCTION

#### 1. Project Investment Summary

The formula feed industry in Ecuador has developed around the poultry and shrimp industries. Feeding dairy or beef cattle milled rations has not been a widely accepted practice. However a specialized dairy feed mill has been built in Mulalo approximately 70 kilometers south of Quito. The plant was not properly designed for volume production. Additional equipment needs to be purchased for bulk batching, storage, and delivery.

The plant is a stock company, owned by the several dairy farmers in the area. Most of the production is currently being purchased by the stockholders. The feeding of the concentrate ration by the stockholders has significantly increased milk production in their herds. As a result, their neighbors and other producers are starting to purchase milled feed. The plant is currently producing 5,000 bags (50 kg.) per month. Sales should continued to increase.

There are numerous by-products plus corn, molasses and urea that can be obtained at reasonable prices to manufacture a complete dairy feed. A properly formulated dairy ration would give a significant increase in milk production thereby increasing volume sales.

The necessary investment to bring the mill up to potential is approximately \$150,000. The feed will carry a 35% markup over ingredient cost. A financial statement for 1985 is available from the company, Fabrica de Alimentos Balanceados.

The Ecuadorean Government would welcome any effort by the private sector to help increase milk production.

## 2. Brief Description of the Project and Its Rationale

The formula feed business in Ecuador caters primarily to the poultry and shrimp industries. The volume and profit margins are high for both. Feed produced for the dairy industry usually was low in energy, low in cost and low in volume. A group of progressive dairy men interested in obtaining a quality feed purchased a feed mill in Mulalo, a small village approximately 70 kilometers south of Quito. The mill was designed and equipped by a U.S. firm.

The interest in supplemental feeding of dairy cows is growing. In the past, attempts made at feeding were a disappointment since the feed was of low quality and improperly formulated. The trend now is to feed a higher energy feed that will supplement the lower energy pastures. As a result, milk production has increased significantly as has the profit potential.

The dairies that are feeding their cows are feeding eight to ten pounds per head per day. Feeding is discontinued or reduced after the first three months of production. Genetically the cows have the potential to milk much more than their present average. Production is being limited through inadequate nutrient intake levels. Improving the formulation of the feed would increase production and increase the sales volume of the mill.

The mill was designed with a mix mill as the production center. The mill frequently breaks down and replacement parts are difficult to obtain. A more simplified, higher volume batch mixer and roll mill should be installed. There is a shortage of bulk storage bins and an inconvenient system for receiving bulk deliveries.

The feed mill is currently producing three lines of feed: a low quality milking ration, a high quality milking ration, and a dairy calf grower feed. The product line could be expanded and the current formulas improved. Custom blending for the larger customers should also be considered.

### 3. Market Consideration

The mill is currently producing 5000 bags (50 kg) per month and could be expected to experience a high growth rate for several years. Production capacity will be limited by the plant design.

The feed industry in Ecuador is a bagged feed business. Significant savings in milling and handling could be realized by converting the larger customers to a bulk handling system for their high use items. Specialty items such as milk replacer or calf starter and grower rations will probably need to be bagged.

The market potential for dairy feed in the area is in excess of 10,000 tons per month. The actual realizable market would be significantly less. Since this is the only mill in the area specializing in dairy feed, good growth without competition would be expected.

The pricing policy of the mill is to take a 35% markup over ingredient cost. This price would be F.O.B. mill. An improvement in formulation procedures, ingredient handling, and storage and inventory control could be helpful in increasing the profit margins.

### 4. Technical Considerations

There are many by-products available that can be used in manufacturing dairy feeds, i.e., rice mill feed, wheat bran, cocoa meal, distillers grains, palm oil meal, soybean meal, molasses, cottonseed meal and castor bean meal. In addition, corn, barley and urea are available. The nutritional technology to optimize the utilization of these products is lacking but can be obtained from the U.S.

The plant is located on a convenient site near the dairy production centers. The design of the plant is inadequate to sustain the projected growth in feed tonnage.

The technology related to feeding dairy cows supplemental feed during lactation is new for most of the Ecuadorean dairy farmers. For this reason, it might be necessary to employ one or two technically trained individuals to act as specialists for direct sales and service to the industry.

#### 5. Project Profitability

The feed company is in a developing business. At the present time, there is little or no competition from other feed mills. The project potential for feed sales to the local dairy industry far exceeds the milling ability of the mills presently in production. The dairy industry will have to be sold on the merits of feeding before large tonnage figures develop.

The current pricing policy is to markup the feed 35 percent over the ingredient cost. The rations sold today carry a gross margin of \$35.00 to \$60.00 per ton. An improvement in plant design to increase output and reduce handling would add to the profit potential.

The feed mill is owned by a stock holding company. The stock in the holding company is owned by local dairy farmers. A financial statement for the year 1985 is available. For more information regarding the mill, contact:

Mr. Damian Miranda P.  
Casilla 8570, Suc. 8  
Quito, Ecuador  
tel: 553-755  
telex: 22140 or 22240 IETEL ED

B. GRAIN FARM AND CATTLE FEEDLOT

A finance company has a 610 hectare farm that could be obtained at a reasonable price. The farm is fully equipped with tractors, combines and all necessary farming equipment. In addition there are two Lindsey center pivots and two Lindsey lateral systems, 65 head of cattle and several grain storage tanks and silos.

The farm is located approximately 70 kilometers north of Guayaquil near the town of Baba. This area is a rice growing area but could be converted to other crops such as corn for silage or soybeans.

The beef industry in Ecuador is a grass fattening industry that takes three years to get an animal to slaughter weight. It should be possible to place a calf on a corn silage feeding program and have him market ready in less than two years time. Shortening the time required to reach 1000 pounds would result in a savings in bank interest and allow for an expansion in the cow herd numbers.

Corn grown for grain will produce approximately 65 bu per acre. Corn grown for silage will produce approximately 25 tons of silage per acre. It should be possible to raise two crops per year considering weather factors, thus producing a total of 130 bu of corn or 50 tons of silage per acre. Harvesting the crop as silage and feeding to cattle should produce a minimum of 50 pounds of body weight gain for each ton of silage feed. Currently, the price of beef is US\$0.32/lb. while corn is selling for \$10.00/hundred. Harvesting a portion of the crop as grain, and feeding with the silage would increase the rate of gain and the total gain per acre. Harvesting cost of the silage vs. the drying cost of the corn grain would need to be considered. The farm is located in the rice and banana growing area. These crops should be considered as well as soybeans and corn.

There are Ecuadorean investors available that would form a joint venture and manage the operation on an equal equity basis. For further details contact:

Diego Gandara P.  
Casilla 96A  
Quito, Ecuador

A listing of the farm inventory of machinery and livestock is available by writing the ASACI office.

C. BANANA PRODUCTION AND EXPORT

Ecuador is the world's leading banana producer with about 50,000 has. in production registered with the National Banana Program, and perhaps another 12,000 unregistered hectares. In 1984, approximately 1 million metric tons were exported with a value of US\$127.6 million. Production was recovering from the El Nino flooding in that year. Traditionally, export values of about US\$220 million per year can be expected.

The Ecuadorean banana industry has not yet been affected by "Black Sigatoka", a leaf spot disease that can cause dramatic loss in yield, and whose control is both costly and difficult. Control of "Yellow Sigatoka", which is present, is carried out using Dithane M-45 flowable fungicide and oil, and is applied with fixed wing aircraft. The small "Micronaire" or the "Accumist" (Unimizer Co.) sprayers are used. Sigatoka control is administered by the National Banana Program (PNB), who charge each registered grower a fixed fee of \$0.025 per box. To date, there are insufficient spray aircraft in the country, and obtaining permission for their importation can take as long as two years. There seems to be no serious planning for the advent of Black Sigatoka, and if it does enter Ecuador, could set the industry back markedly until proper measures are brought to bear.

Because bananas are an important source of hard currency to the country, the industry is relatively free of adverse effects of changes in central government politics. Investment in this sector is subject to the same uncertainties of any agricultural venture, but has a long history in Ecuador of profitability.

Appendix I gives a breakdown of production costs projected for 1986 for a 700 hectare farm in El Oro Province. Total grower's operating costs per hectare are (US\$1.00 = S/160.00) US\$1443, and harvesting and packing, US\$387, for a total of US\$2031. This is based on an estimated yield of 2228 boxes/ha (43 lb. gross, 40 lb net). The exporter purchases the fruit, packed in his boxes, at the official price of US\$1.35/box plus US\$0.12 to US\$0.63/box bonus, depending on market conditions, for a range of US\$1.47

to US\$1.97/box. The cost of boxes and other packaging materials is US\$1673/ha or about \$0.75/box. Based on the foregoing, each hectare of bananas should yield US\$3275 to US\$4389 per year. Operating costs to the grower are US\$1830 for an income before taxes of US\$1244 to US\$2358/ha. Banana land sells for between US\$1250 to US\$1875 per ha. and requires an investment of US\$6250 to develop infrastructure and to plant. Yields per hectare at 9 to 12 months after planting at a density of 1700 plants/ha should be 2000 to 2600 boxes/ha. A farm producing under 2000 boxes would be a poor investment. Payback would be in about 3 to 6 years, depending on price and yields.

Sr. Andres Argudo, the owner of Fitosan, (see Section C), is seeking equity investment for the purchase of either undeveloped or developed banana land. The total investment for the proposed 200 to 500 hectares would be \$1.5 million to \$4 million. He would give up to 49% equity share. He would bring to the joint venture the technical expertise of his technical sales force, and the ability to purchase agri-chemicals at cost, saving perhaps \$25 to \$45/ha. Interested investors may contact:

Sr. Andres Argudo  
Fitosan S.A.  
Casilla 8745  
Guayaquil, Ecuador  
tel: 393-462  
telex: (04) 3832

TABLE 1: OPERATIONAL BUDGET FOR TYPICAL BANANA FARM - WESTERN ECUADOR  
(2228 boxes/ha, 700 has farm area)

	<u>Per Box</u>	<u>Per Hectare</u>
Hand Labor	0.19	419.63
Social Law Compliance	0.04	83.15
<u>Materials</u>		
Fruit Bagging	0.04	90.67
Pruning	0.00	0.54
Herbicide Cleaning	0.00	10.96
Drainage - Principal	0.00	2.47
- Secondary	0.00	0.16
- Pump	0.00	10.70
Irrigation - Fixed	0.03	72.83
- Movable	0.05	112.86
Leaf Disease (Yellow Sigatoka) Control	0.04	96.98
Nematode Control	0.06	124.63
Control of Other Diseases	0.00	11.01
Fertilizer - Urea	0.06	141.40
- Potassium	0.06	139.10
Tractors	0.01	20.36
Cableway Maintenance	0.01	20.45
Cleaning	0.00	1.27
Plant Proping	0.02	54.96
Reseeding	0.00	2.44
Seeding	0.00	3.56
Drainage of Waterways	0.00	0.04
Road Maintenance	0.00	7.20
Railway Maintenance	<u>0.01</u>	<u>15.56</u>
Total - Plantation Maintenance	0.62	1,442.93
Harvesting	0.17	387.21
Packing - General*	<u>0.75</u>	<u>1,672.58</u>
Total	1.54	3,502.72

\* Note: Approximately \$0.69 of this is paid by the exporter, and \$0.09 by the grower. The grower receives \$14.7 to \$1.97/box, for a net profit of \$0.59 to \$1.09/box.

D. DEVELOPMENT OPPORTUNITIES IN THE TRANSPORTATION SECTOR

Lack of reliable transportation of goods to market is a major disincentive to fomenting interest in agricultural projects in Ecuador. Growers in the highlands (Sierra) region of the country, where small farms and limited or seasonal production is the rule, cannot be certain of obtaining container trucks when and where they are most needed to haul produce and maintain high quality. Use of air transport to export fresh fruits and vegetables is, with the possible exception of certain very high value produce, unlikely to be cost effective. Flowers are being regularly exported by air, but facilities to do this are only just attaining an adequate status for present production.

As for sea transport, exporters of major traditional products such as bananas suffer no lack of maritime transport facilities, which are concentrated in the Guayaquil/Puerto Bolivar ports. Banana producers of Esmeraldas province in the north of the country, however, have not had a shipping available until May, 1986, when service of one vessel per week began.

Container shipment, both regular and refrigerated, is generally available, although not always on an as needed basis. Cargo pricing policy is a disincentive. Higher value cargo pays higher rates and has a higher priority since the shipper makes more.

Payment of flat rates based on weight or cubic volume would allow producers of lower value produce equal access to shipping and markets. For example, a refrigerated 40 foot container of frozen strawberries destined to the East Coast of the United States costs about US\$5000, while one for snow peas is US\$3000 to US\$4000. A similar unit originating in Central America costs only US\$1500. Present information indicates that the average costs of shipment of produce to the East Coast run about US\$0.10 to US\$0.15/kilo.

Regarding air transportation, there is a shortage of dedicated air transport to cover the immediate potential for agricultural exports.

Producers of flowers such as roses or carnations are perhaps the best served, with two Ecuatoriana Airlines flights available each week. These aircraft cannot land in Miami for lack of proper noise abatement equipment, so the flowers have to be transboarded in Panama. This means delays in total transport time for a very perishable product. At times the plane and cargo sit several hours on a ramp in Panama exposed to the hot sun. Ecuatoriana has promised to replace the engines by July, 1986, when direct flights to Miami will be possible.

Flowers and other produce can be sent to Europe and the United States aboard commercial passenger aircraft, but because their main business is hauling passengers, residence time on the ground is short. Both loading time windows and space available to the shipper are limited. Flights to Europe tend to spend more time on the ground than do those to the USA, and thereby offer more flexibility. At present KLM, Air France, Iberia and Luftansa offer freight service at about US\$1.10/kilo for flowers.

In general, air freight costs are approximately \$1.20/kilo to Europe, \$0.61/kilo to New York, and \$0.48/kilo to Miami. More favorable pricing can apparently be negotiated depending on size and frequency of shipments and the skill of the negotiator. Of local dedicated air cargo services, AICA has two aircraft, a DC-8 55F of 92,000 lb. capacity with palletization, and a Canadair CL-44J of 60,000 capacity. Andes Aerolineas Nacionales del Ecuador also has two planes, a palletized DC-8 of 95,000 capacity and a Canadair CL-44 of 60,000 lb. capacity. (NOTE: Capacity of an aircraft in terms of thousands of pounds is misleading. The cubic volume of the available space is nearly always filled before the weight capacity is reached.) Ecuatoriana, which is run by the military, operates the aforementioned two airplanes that are not able to fly to Miami until July 1986.

In order to stimulate interest on the part of investors and producers, the disincentives overshadowing the transportation sector will have to be addressed vigorously and corrected in the near term. Concerted efforts by groups of interested growers, the Federation of Exporters (FEDEXPOR), and other affected parties are vital in order to change government thinking.

By nature Ecuadoreans do not band together readily for common causes, so such concerted effort will not be easy to organize. Freight rates should be standardized to a per weight or per cube cost. Government pressure ought to be brought to bear so that present projects with irregular or limited transportation requirements would be afforded ample opportunity to get their products to market while building business and augmenting their production.

The present situation offers potential opportunities for entrepreneurs to set up and run perishable food product handling facilities at exit ports. These facilities could offer services such as palletizing, pre-transit treatments, cooling and freezing, arranging transportation both from the farm to the port and from the port to the market destination, short term storage and handling, obtaining documents and licenses, and even brokering the products. The growers could then concentrate on production and be assured of steady markets for their products.

An interested U.S. investor wanting to explore project opportunities in this sector should contact the Ecuadorean Federation of Exporters FEDEXPOR at the following address:

FEDEXPOR  
Avdas. Republica y Amazonas  
Edificio Las Camaras, 4to Piso  
P.O. Box 187-B  
Quito, Ecuador  
tels: 452-769  
452-770  
telex: 2957 FEDEX-ED  
ATTN: Luis Salazar J.  
Executive Director

E. DIVESTITURE OF PARASTATAL COMPANIES

Previous Ecuadorean governments set up a number of parastatal organizations for providing goods and services and to foment development in the agricultural sector. Over the years these organizations, being under no obligation to be profitable, have developed an entrenched bureaucracy with an understandable reluctance to become part of the private sector. The administrators of certain of the organizations rewarded themselves with an enviable array of perquisites while their companies predictably lost money. Financial statements are missing for consecutive years in some companies, and those that are available for scrutiny cannot be taken seriously.

The present government, recognizing the ineffectual nature of the parastatals, is undertaking a transfer of the organizations to the private sector. In order to accomplish this most efficiently, it has put out a contract to prepare a profile of each company. In most instances a thorough audit by a recognized international firm will be needed before any investor interest can be expected.

The firms to be divested by the government are:

1. Emsemillas - It produces seeds, especially grain seeds, and owns several agricultural seed processing plants.
2. Fertisa - A blender/bagger operation, it supplies traditional agri-chemical fertilizer materials such as urea. It is the only money maker of the group, and has a line of credit from Citibank.
3. Abonos del Estado - This company supplies a line of organic fertilizers.
4. The Leocem Milk Plant - Powdered milk only.
5. The Prolacem Milk Plant - Fresh and powdered milk.
6. The Comprolacs Milk Plant - Fresh and powdered milk.
7. Endes - It supplies semen for artificial insemination of cattle.
8. Te Zulay - It grows and processes tea for local consumption. Tea for export is profitable, and a British firm is investigating this company for possible purchase.

9. Daca - It is a distillery that also makes tomato products and other concentrates.
10. Enac - It is a bonded warehouse operation that also owns and runs grain storage facilities.
11. Forestry project.
12. Forestry project.

The Corporacion Ecuatoriana de Valores y Finanzas, S.A. (Ceval - Arturo J. Vinueza, Business Director) is being awarded the contract to oversee the divestiture of the parastatals. CEVAL will prepare profiles on each organization, bring in accounting firms such as Price Waterhouse to put the financial information in order, and will finally prepare a prospectus on every company. The divestitures will be accomplished through the sale of shares of stock, and not through the sale of assets. The entire process will take approximately one year, although it can be done in 30 days for any single company if there is sufficient investor interest.

At this time (May 1986) it would be premature to carry out further investigations of these companies in order to seek investment by American interests. Further investigation would be warranted after the prospectuses are issued.

Contact: Sr. Arturo J. Vinueza  
Corporacion Ecuatoriana de Valores y Finanzas (CEVAL)  
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P.O. Box Casilla 11387 CCNU  
Quito, Ecuador  
tel: 247-168  
telex: 21090

A P P E N D I C E S

APPENDIX I: Members of the Project Profile Team

Walter W. Minger

An agricultural finance counsellor and consultant since February, 1984, Mr. Minger draws upon 38 years of experience as a commercial agribusiness lending officer in a large private bank. He specializes in the review and critique of foreign agricultural projects as also in the analysis of agricultural credit delivery systems.

Among his other executive duties, Mr. Minger currently serves as President of the Agricultural Banking Institute, President also of the U.S. Agricultural Development Corporation, and Director of the Tri-Valley Growers Association, San Francisco.

Mr. Minger served in 1984 as a member of the U.S. Presidential Agricultural Mission to Ecuador, and was chosen by ASAC International to act as Team Chairman for the Reconnaissance Survey and Project Profile Teams to Ecuador.

Dr. Jack E. Martin

Dr. Martin is President of Sterling Nutritional Services, Inc. which he established in 1971 in Sterling, Colorado. The company specializes in ruminant nutrition and management services.

Prior to 1971, Dr. Martin was employed as Product Supervisor in the Agriculture Division of Monsanto Company; as Beef Cattle Research Consultant with Ralston Purina Company; and as Nutritionist and General Manager of the Feed Division, Ceres Land Company.

Dr. Martin received his B.S. and M.S. Degrees in Agriculture from the University of Missouri, and his Ph.D. in Animal Science from the University of Florida. He is a member of the American Society of Animal Science, the National Cattlemen's Association and other numerous industry organizations and service clubs. Dr. Martin is a long time Certified Member of the American Society of Agricultural Consultants, and is currently serving as its President-Elect.

Dr. George L. Greene

Dr. Greene obtained his Ph.D. from the University of Michigan in 1960 in Plant Sciences and Microbial Physiology. While in graduate school he worked on pesticide control of apple and cherry diseases at the Peninsula Experiment Station in Door County, Wisconsin.

On graduation, he accepted a position with the United Fruit Company research division in Honduras, there studying postharvest diseases of bananas and pineapples. Moving to the Interamerican Institute of Agricultural Sciences at Turrialba, Costa Rica, he did research on the effects of radiation on tropical crops under a U.S. Atomic Energy

Commission grant, then went back to the States where he owned and ran a floral greenhouse operation for two years. He then took a short assignment at the Panamerican Agricultural School at El Zamorano, Honduras before returning to Costa Rica as fungicides Technical Service Representative, Latin America, for Merck Sharp & Dohme International doing pesticide related field work throughout the Caribbean basin region and northern South America.

He became an associate member of the American Society of Agricultural Consultants (ASAC) in 1976 and that same year joined Crystal Chemical Interamerica as Vice President for Product Development and Marketing. In 1979 he took a position at Dynamac Corporation in Rockville, Maryland as Program Manager for several EPA pesticides contracts, and became a certified ASAC member in 1983. He is a charter member of ASAC International.

#### James R. Rinella

Mr. Rinella, of Fort Myers, Florida brings more than twenty years of international agribusiness development experience to his current position as President and Chief Executive Officer of James Rinella & Associates, Inc. During this period, he held senior executive positions with two of the premier international food companies in the United States as Vice President of Production for Castle & Cooke Foods and as President of Tropical Operations for United Brands, where he managed 25 companies in 14 different foreign countries from South America to the Far East.

Most recently, Mr. Rinella was responsible for developing a program of agricultural redevelopment for Jamaica under the auspices of the U.S. Agency for International Development and for managing this program as Executive Director for two years. The project involved the strategic and tactical repositioning of Jamaica's traditional export crops and the development of new non-traditional export agribusiness opportunities targeted to the U.S., Canadian, and European markets.

Mr. Rinella is a graduate Civil Engineer from Washington State University, having received his Bachelor in Science degree in 1960. Prior to this, he had attended the University of Illinois School of Engineering for two and one half years prior to entering the U.S. Army Combat Construction Engineers. He attended the Stanford University Executive Program at the Stanford Business School in 1973.

#### Michael W. Hurley

Mr. Hurley is the ASACI Director of International Agribusiness Teams, working under the 1985 and 1986 grant agreements with the U.S. Trade and Development Program. His previous experience includes nine years of work in Latin America as sales and marketing manager for an agricultural development company, and as project director for the design and installation of grain storage, handling, and processing facilities.

APPENDIX II: POLITICAL MAP OF ECUADOR

