

PN AAT-188

40809

**The Export
Market Potential
for 15 Ecuadorian
Fruits and
Vegetables**

Prepared under contract to the Asociación Nacional
de Empresarios under the terms of their grant no.
518-0019-G-00-4119-00 from U.S. Agency for International
Development/Ecuador

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May 1985



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SUMMARY OF FINDINGS AND RECOMMENDATIONS

Although there are specific export opportunities that might be exploited by Ecuadorian producers, these opportunities must be cautiously developed.

Based on the information collected regarding the 15 commodities included in the research, the study team broke them down into three groups, according to their potential to be successfully developed as export crops. Specific recommendations are offered regarding the development of the commodities in the first two groups.

The items with the greatest export potential include dehydrated bananas, which already are a well-known import into the United States from Ecuador; blueberries and blackberries, where high-value off-season markets for fresh fruit exist in the United States and Western Europe; and the two tropical vegetables, yams and pigeon peas, which can be sold in the Latin American and Caribbean population centers in the United States and the United Kingdom.

The second group of commodities is made up of the exotic tropical fruits -- guanabana, guava, naranjilla, passion fruit, and tamarind. Although none of these offers a particularly attractive market on its own, they might be developed together as a group for export.

The third group of commodities, temperate climate vegetables, does not offer hopeful prospects for development in Ecuador and should not be the focus of any export development program. Findings concerning the three groups are summarized in Table 1.

Among the factors that enhance the chances for developing a successful Ecuadorian export program are the increasing demand for imported produce in the United States and, to a certain extent, the other major market areas; the generally good reputation of Ecuadorian produce in the market; and the inclusion of Ecuador on the list of countries benefiting from the Generalized System of Preferences.

There are also several factors that work against the success of such a program. Among them are the limitations on the items that can be shipped into the United States from Ecuador in fresh form, the disadvantage of Ecuadorian producers with regard to transport costs and transit times when compared with competing countries, and the increasing levels of competition from countries in the Caribbean Basin.

The general recommendations that are offered regarding the design and thrust of an export promotion program for Ecuador include the following:

- Emphasis should be placed on high-value commodities that enter the United States during the off-season.
- Efforts to enter the West European and Far Eastern markets should be made cautiously and systematically.
- Emphasis should be placed on commodity groups rather than single products.
- Attention should be given to development of Ecuador's agroprocessing capacity.
- Consideration should be given to the development of a central marketing agency.
- There is a need for continuing U.S. marketing representation during the early stages of an export development program.
- Several other products could be developed for export from Ecuador, including asparagus, artichokes, garlic, melons, and okra.

TABLE 1

SUMMARY OF RECOMMENDATIONS

Commodity	Priority Group	Best Markets	Best Seasons	Comments
Dehydrated bananas	A	Eastern U.S.	Year-round	Build on present market strength
Pigeon peas (fresh, frozen)	A	Miami New York U.K.	Oct.-June	Ethnic Cuban and Puerto Rican markets
Blueberries (fresh)	A	W. Europe	Sept.-May	Try to have U.S. ban on fresh blueberries lifted
Blackberries (fresh)	A	U.S. and W. Europe	Oct.-May	Develop, along with freezing capacity for excess and second-grade fruit
Yams	A	Miami New York Chicago U.K.	Year-round; winter months best	Monitor development of frozen yam market
Guava (pulp)	B	East Coast via Miami, Europe	Year-round	Part of general group of tropical fruit exports; might ship fresh to W. Europe
Tamarind (fresh, pulp)	B	Major East Coast ethnic markets via Miami	Year-round	Might develop exports to U.K.
Naranjilla (fresh, pulp)	B	Miami for distribution	Year-round	Very minor unless part of tropical fruit group
Passion fruit (fresh, pulp, juice)	B	Juice and pulp to U.S., fresh to W. Europe	Year-round	Part of tropical fruit group

TABLE 1 -- Continued

Commodity	Priority Group	Best Markets	Best Seasons	Comments
Guanabana (pulp)	B	U.S. ethnic markets	Year-round	Very minor unless part of general tropical fruit group
Cauliflower	C	Little potential		
Celery	C	Little potential		
Cucumbers	C	Little potential		
Lettuce	C	Little potential		
Squash	C	Little potential		

CHAPTER ONE

INTRODUCTION

BACKGROUND

This paper is the result of a request from Ecuador's Asociacion Nacional de Empresarios (ANDE) and the United States Agency for International Development (USAID) office in Quito. Development Alternatives, Inc. (DAI) was requested to carry out market research on 15 fruits and vegetables identified by ANDE and USAID as potential targets for intensified production for export markets. The object of the research was to study U.S. and other overseas markets for each commodity, reduce the list of possible commodities to about five of the most promising, and suggest strategies for initiating or expanding Ecuadorian exports of those commodities.

The following 15 commodities are included in this study:

FRUITS

Blackberries (mora spp.)
 Blueberries
 Guanabana
 Guava
 Passion fruit
 Naranjilla
 Tamarind

VEGETABLES

Dehydrated bananas
 Cauliflower
 Celery (apio)
 Cucumbers (pepinillo)
 Lettuce
 Pigeon peas (gandul)
 Squash (calabacin)
 Yams (ñame)

METHODOLOGY

The methodology used in carrying out this research was to survey quickly easily accessible data sources, both human and institutional. On the basis of these data and other, less quantifiable information provided by industry contacts, the study

team divided the group of 15 commodities, which were broken down into many more categories once seasonal markets were considered, into three groups.

Group A includes those commodities that show the greatest promise for Ecuadorian producers entering the market. Group B includes those commodities that are less promising than those included in Group A, but nonetheless justify further consideration. Often the data on Group B commodities are less clear with regard to these markets or major questions are outstanding that cannot be immediately resolved, thus increasing the risk significantly of entering this market. Group C commodities are those for which indications are clearly negative and that do not merit further consideration unless very specific conditions should justify it.

Once the commodities were divided into the three groups, the team concentrated most of its research on those commodities included in Group A and, to a more limited extent, Group B. This research included a thorough analysis of available trade data and more intensive contact with major buyers of the commodities concerned. During this stage of the research, team members telephoned produce buyers, both brokers and buyers for major processors, throughout the United States and information sources in other major overseas markets. The team investigated U.S. government regulations and import duties regarding the importation of these commodities and, where possible, identified standards regarding the required quality and treatment of imported produce.

To understand thoroughly the market possibilities for these products, the team made a detailed reconnaissance of the produce markets in those areas that are the major U.S. entry points for goods from Latin America and that serve those markets that include high concentrations of people from Latin America. These areas included Chicago, Los Angeles, Miami, New York, and San

Francisco. In each city, team members visited several companies in the wholesale fruit and produce market, import and export brokers, supermarkets specializing in the Latin trade, and small neighborhood grocery stores.

In addition to these visits, the team held interviews with companies involved in the processing and packing of these commodities. Team members also interviewed transport companies, state and federal government regulatory agencies, and marketing and manufacturers associations.

It was not possible to investigate as thoroughly the West European and Far Eastern markets as a result of time and financial limitations. In these cases, the team relied on information obtained from overseas marketing contacts via mail, telephone, and telex. These data, coupled with team members' own knowledge of the commodities, traditional trade patterns, and transport constraints, made it possible to draw a more limited set of conclusions about the potential for Ecuadorian producers to enter the West European and Far Eastern markets.

On the basis of this research, recommendations were developed regarding positive steps that should be taken by Ecuadorian producers seeking to penetrate these competitive markets.

ANDE and USAID indicated that this should be a demand-oriented market study, carried out without production or cost information from the Ecuadorian side. The conclusions presented here are therefore largely unrelated to the situation in Ecuador, although when team members had specific knowledge of it, the information was considered in the analysis. The team had no information about how much of the various commodities is now in the ground, or about production costs, yields, varieties, locations, processing and packaging capability, and quality. The study reports on international market prices, but cannot predict how they might relate to the prices Ecuadorian producers might

receive. The study does not consider Ecuadorian government policy regarding export promotion or incentives, nor does it discuss the air and sea shipping services available from Ecuador. All of these factors will have to be added into the analysis by ANDE and USAID, based on their knowledge of the local situation.

NATURE OF THE BUSINESS

It is necessary to understand some of the basic characteristics of the produce trading business to assess accurately the risks involved with any proposed course of action. Export opportunities in these commodities may be identified in several ways:

- When the exporting and importing countries are located on opposite sides of the equator, there may be an opportunity for them to take advantage of the opposition of their seasons -- for example, New Zealand sends fresh blueberries into the United States during the northern winter months.
- There are special opportunities in which an exporting country, because of its climatic conditions, can export commodities that the importing countries cannot produce of equal quality or at all -- tropical fruits into North America, for example.
- There are other products for which an exporter may enjoy an advantage in production costs as a result of lower labor rates -- Mexican production of cucumbers, for example.
- There are cases in which new markets develop that cannot be satisfied from domestic production in the consuming countries because of lack of local production capacity.

The international market for fresh fruits and vegetables is a highly volatile and fragmented one. Prices fluctuate widely throughout the year, and so many small-scale producers and traders participate in the market that there is little any one of them can do to influence prices.

Price fluctuations depend to a large extent on seasonal variations in supply, which can be predicted. Prices also may be affected, however, by unexpected events -- climatic, economic, or political -- in either the producing or the consuming countries. This price volatility implies a high degree of risk for those who choose to participate in the market.

Those most at risk in this trade are, of course, the small-scale producers and exporters who are farthest from the end users of their products and are not able to influence the overall market or even individual buyers. Small-scale producers in non-traditional exporting areas, such as Ecuador for most commodities, are at particular risk when they supply only a portion of a total market. This means, of course, that traders will first look to their traditional, close to home, sources for the supplies they need, and only after those supplies are exhausted will they look farther afield to fill in the margin.

Concerning the U.S. market, these risks are greatest with crops that put overseas producers in direct competition with U.S. producers -- broccoli, cucumbers, and lettuce, for example. During a good U.S. production year, there may be little or no demand for imported produce, leaving overseas producers to dispose of their produce any way they can. If the U.S. crop fails, however, the large demand in the U.S. market will push the prices very high for limited supplies, and the foreign producer will be able to select from among competing offers for his crop.

The risk to Ecuadorian producers is also increased by their remoteness from the market and the resultant difficulty of obtaining up-to-date market information. They do not have well-established marketing channels through reputable high-volume importers. The shipments of the producers may be rejected because they do not fully understand the quality and packaging standards that apply to their product, or the importance of

complying fully with those standards. The carrier may fail to keep to the published schedule, causing the shipment to spoil before it arrives. Or the producer may have become involved with, and dependent on, an unscrupulous trader.

The data demonstrate that after domestic supply has been exhausted U.S. traders look first to contiguous external sources, Mexico and Canada, where the transport and communications costs are lowest. Thus, the Ecuadorian, or Chilean or Panamanian, producers must stand in line behind not only the U.S. producers who dominate the market, but also the Mexican and Canadian producers, before they are likely to get a chance to export these high volume fruit and vegetable crops to the U.S. market. The only exception is when they have a clear edge in terms of quality of product, price, or seasonality. This situation is even more true in the West European and Far Eastern markets, which are even farther removed from the Ecuadorian suppliers and which have their own traditional supply channels.

The presence of high risk often indicates the possibility of high gain, however. One should be aware of the risks involved and avoid encouraging small-scale Ecuadorian farmers to enter high risk markets they cannot afford. However, with careful planning, a reliable information system, and appropriate policy incentives from local government, Ecuador can substantially increase its exports of fruits and vegetables to the profit of its small-scale producers and workers.

In the following chapters, general conclusions are drawn about the possibility of increasing Ecuadorian exports. Detailed findings about each commodity studied are presented, and suggestions are offered concerning several commodities for which the prospects for successfully entering the international market seem to be particularly good. Finally, recommendations are made concerning specific steps that should be taken to develop certain export markets.

It is a truism in business that any deal is as good as the profit it generates and that profits can be found in seemingly unlikely places. Similarly, it is true that internal failings or uncontrollable outside events can turn even sure deals into failures. Thus, a positive recommendation regarding a certain product should not be considered as a guarantee that it will succeed. Nor should a negative finding be considered the kiss of death for a commodity. This study merely points out some directions for Ecuadorian producers to follow in seeking export opportunities and others that are less likely to lead to profitable business.

CHAPTER TWO

GENERAL FINDINGS AND CONCLUSIONS

General findings that arose from the research are presented in this section. They explain the situation that Ecuadorian producers and exporters face and serve as a backdrop for the individual export opportunities that are discussed in Chapter Four.

INCREASING U.S. DEMAND FOR IMPORTED PRODUCE

Examination of the trade data and interviews with produce traders indicate a steady increase in the overall demand for imported fruits and vegetables in the U.S. market. Although this situation is not true for all commodities, it holds for numerous fruits and vegetables, including several of those included in this study. Some traditional high volume commodities such as cauliflower, cucumbers, and lettuce, and some exotic fruits such as passion fruit and pigeon peas are just now finding a place in the U.S. market.

There are several reasons for this generally increasing demand:

- Increasing affluence among U.S. consumers is resulting in year-round demand for items that were previously consumed only during peak local production seasons or on special occasions (fresh berries, for example).
- Rising production costs in the United States and increasing experience on the part of overseas producers and exporters are making imported produce more competitive in the U.S. market (such as fresh temperate climate vegetables).
- Expanding and more affluent ethnic populations are increasing the U.S. demand for commodities not previously imported, among them exotic fruits and vegetables.
- There is a broadening in U.S. consumer tastes as the general public is exposed to new products through ethnic populations and increased foreign travel.

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U.S. census data for 1980 clarify the extent of the Latin market in the United States. These data are derived from the responses of individuals who identified themselves as being of Mexican, Puerto Rican, Cuban, or other Spanish or Hispanic origin. Data from the five major consolidated metropolitan statistical areas (CMSAs) are included in Table 2.

TABLE 2

LATIN AMERICAN POPULATION CENTERS

CMSA	"Spanish" Population	% of Total Population
Los Angeles/Anaheim/Riverside	2,755,914	27.6
New York/North Jersey/Long Island	2,050,999	11.7
San Francisco/Oakland/San Jose	660,190	12.3
Chicago	632,443	8.0
Miami/Ft. Lauderdale	621,309	23.5

Besides these areas of major concentration, 15 other metropolitan areas in the United States, mostly in the southwest, containing Spanish origin (primarily Mexican) populations of over 100,000 each.

It would be a serious mistake to consider these as homogeneous populations with a common set of tastes and consumer preferences. They include, in fact, highly diversified populations with distinct sets of market preferences within them. These data, however, together with more detailed information about the particular background of the people within each area, will make it possible to target certain ethnic products, which may not have general consumer appeal (yams or pigeon peas, for example), into the appropriate markets.

GOOD REPUTATION OF ECUADORIAN PRODUCE

Although Ecuador is not a major exporter of fruits and vegetables to the U.S. market, it has gained a high degree of respect from U.S. importers for the quality of its produce and the care with which it is handled and packaged prior to arrival in the United States. This good reputation will make it easier to find U.S. traders and buyers who will accept trial shipments of commodities that are not traditionally exported from Ecuador.

ACCESS TO THE U.S. MARKET

Ecuador is on the list of those countries allowed to import goods into the United States without import duty based on the Generalized System of Preferences (GSP). This gives Ecuadorian producers a marketing advantage, at least in those products that otherwise require the payment of import duties. In fact, however, this advantage is a real factor in only a few of the commodities considered in this study because the other major producing countries also benefit from GSP import terms.

A serious limitation on the potential for increasing Ecuadorian exports of fresh fruits and vegetables to the United States is the "List of Admissible Fruits and Vegetables from Ecuador" (January 1985), published by the United States Department of Agriculture (USDA) (see Annex A). Of all of the commodities included in this study only a few (berries, lettuce, naranjilla, pigeon peas, tamarind bean pod, and yam) are allowed to enter the United States as fresh produce. All may enter the United States in their processed forms (frozen, paste and pulp, juice, or dried), however, as long as established conditions are satisfied.

It is not easy to have new items added to the list of commodities admissible from Ecuador. According to USDA sources, although there is a formal process for amending this list, no

applications are being accepted or considered at present. It is possible to modify these lists, however, although the process can be time consuming and expensive. These actions should be initiated judiciously, based on solid research and a strong potential market.

The USDA list notes that freezing is an acceptable treatment for most fruits and vegetables as long as initial quick freezing at sub-zero temperatures is followed by storage and handling at not more than 20 degrees Fahrenheit. Although no firm standards exist for the importation of dried fruits and vegetables, a USDA source notes that dried products will generally be admitted to the United States if they are sanitary and dry enough to be brittle. Paste and pulp and juice products must be processed and packed to comply with phytosanitary standards established by the United States Food and Drug Administration (FDA).

All imported products regulated by the FDA are subject to inspection at the time of entry through U.S. Customs. Shipments found not to comply with the laws and regulations are subject to detention. They must be brought into compliance, destroyed, or re-exported.

Annex B comprises sections of a booklet entitled Requirements of Laws and Regulations Enforced by the U.S. Food and Drug Administration. These sections deal with sanitation requirements and tolerances for filth and pesticide residues on raw agricultural commodities. These and other sections of the regulations should be considered carefully by anyone planning to ship fresh or processed foodstuffs into the United States.

MARKET LIMITATIONS

Although the market for imported fruits and vegetables into the United States is generally growing, the total size of the market for most commodities covered by this research, especially

those that appear to be most promising for Ecuadorian producers, is limited. Only blueberries, cucumbers, lettuce, and yams had total import markets of over \$5 million in 1984. In addition, cauliflower, guavas, dehydrated bananas, and pigeon peas, had total imports of between \$1 million and \$5 million for the period. All of the others had total imports of less than \$1 million, and some were very small indeed. Although obtaining a large share of a small market can bring as great a return as winning only a small share of a larger market, the size of the market has serious implications for how it works and, at times, the interest of buyers in developing new supply sources.

The commodities imported in greatest volume tend to be those that have the lowest unit value and are thus most likely to be sensitive to transport costs. Nearby producers, notably in Mexico and Canada, thus tend to dominate these import markets during the seasons when the commodities are in production. The ability of these nearby producers to ship produce directly to all parts of the United States by truck makes it difficult for less readily accessible producers to compete in these markets.

INCREASING COMPETITION

Ecuadorian producers should be aware of the fact that several other countries in the region are also working to increase their exports of fresh fruits and vegetables. Much of this effort is in response to the U.S. government's Caribbean Basin Initiative. Among the countries that are active in this area are Dominican Republic, Guatemala, Honduras, Jamaica, and Panama.

Each of these countries has set, or is in the process of setting, its own priorities in terms of specific commodities. There is some overlap in these lists, however. The success of some of the countries, notably the Dominican Republic and Guatemala, is noticeable in the trade data.

These efforts will almost certainly lead to intensified intra-regional competition in the market, thus affecting Ecuadorian exports.

TRANSPORT COSTS

The cost of transport to the major U.S. ports is a major factor in determining the competitive position of the suppliers of various commodities to the United States and other foreign markets. In many cases, the shipping costs may be equal to or greater than the value of the produce at source. The quality and reliability of shipping services are also important factors in these markets.

Most of the 15 commodities of this study will find their major markets in the eastern part of the United States, although some will enter through Los Angeles or San Francisco for sale in the West. Ecuadorian producers are somewhat handicapped in reaching this eastern market. Their major competitors for most of the commodities studied here come from Brazil, Canada, the Dominican Republic, and Mexico. All of these countries are closer to eastern U.S. ports than is Ecuador, and none has to send its produce through the Panama Canal, which increases both the cost and the transit time involved in the shipping of Ecuadorian produce. Information from Transnave, the national shipping line of Ecuador, indicates estimated shipping times of 8 days to Miami and 14 days to New York, much longer than from countries such as the Dominican Republic or Guatemala. The necessary passage through the Panama Canal also makes it impossible to guarantee transit times, although the company cites a high on-time arrival rate.

PRODUCT GROUPS

Most traders in these commodities work with more than one kind of produce. They thus look for suppliers who can meet several of their needs at once. Although they may not go to much trouble to develop a new source of passion fruit juice or any other low volume commodity, they will be more interested if they know that the supplier will become a reliable source of other commodities they regularly need. Thus, complementarity in marketing exists among the products. The success of the overall Ecuadorian export promotion effort will be enhanced by the development of commodity groups for export, as opposed to single products.

Closely related to the question of shipping cost is that of shipping availability. The availability of containerized shipping services that are appropriate and regularly scheduled by air and by sea should be clarified and documented before any export development program is launched. Several airline and ocean freight companies provide service to Ecuador. Ecuatoriana Airlines reports several flights per week serving Los Angeles, Miami, and New York, and other airlines, both passenger and cargo, offer similar services. Similarly, several sea freight companies are reported to service Ecuador, including Transnave, CCT, and Navicana. The quality and comparative costs of their services can best be determined in Ecuador.

SHIPPING QUANTITIES

Two considerations should be kept in mind when determining the necessary minimum quantities to justify export promotion. The shipper requires a sufficient quantity to justify the direct and indirect costs of transporting the produce to its intended overseas market. The trader in the receiving country has the same objective but also wants to be certain that more shipments

will follow at predictable intervals. Most traders or buyers will not be interested in receiving single shipments from a new supplier, except under extraordinary circumstances.

Minimum shipment sizes will vary, depending on the commodity and the trader involved. In general, however, the minimum feasible shipment by sea (dehydrated bananas, fresh yams, and all frozen products) will be one 20-foot container (about 20,000 pounds). In some cases, traders will prefer to receive 40-foot containers. By air, it is possible to ship any quantity, but to achieve economies and ensure maximum protection for the product, which will usually be highly perishable (fresh berries or tropical fruit), the shipper should consider a minimum shipment to be an air cargo container (about 5,000 pounds).

In either case, it may be difficult to make up a shipment out of only one commodity. This is one reason for the suggestion that groups of commodities be developed rather than single products. This approach will enable mixed commodity shipments to be made when necessary, to fill up a container or reach an economical total shipment size. With tropical fruits and vegetables, this approach will also attract traders who deal in several commodities in limited quantities.

It will also be necessary to make trial shipments of the products prior to contracting for commercial lots. Again, the size of these shipments will vary, but, in general, they will be less than 100 pounds. The purpose of these shipments is to test their conformity to standards in the importing market and their ability to pass the standards and regulations that govern the importation of these goods.

Both the shipper and the receiver should also be certain that the long-term supply pattern is developed enough to ensure regular shipments over a specified period. The shipper must be certain that total shipments will be sufficient to recover the

cost of developing the market and the purchasing, packing, and shipping network. The buyer or broker must balance the sources of product with projected demand throughout the year. Again, there is no best level to be attained, but each trader will make judgments based on his or her own needs and experience.

FIRST STAGE PROCESSING

The opportunities for Ecuadorian producers to enter the U.S. market can be significantly increased, as can the total returns to the Ecuadorian economy resulting from these opportunities, by expanding the country's capacity to provide at least first stage processing of its fruits and vegetables. In this way, Ecuadorian producers can escape the current U.S. ban on imports of most fresh (unprocessed) produce from Ecuador. This processing capacity will increase the capacity of local producers and exporters to hold their produce until they can sell at prices that will provide them with maximum return. It will also, at least in some cases, decrease the products' sensitivity to delays in shipping as well as the ratio of shipping cost to product value. This capacity would also favorably influence the country's ability to export successfully to more distant markets in Western Europe or the Far East.

Ecuador already exports dehydrated bananas. In fact, it is the largest supplier of dehydrated bananas to the U.S. market via one processor (Trobona), which ships its produce to its U.S.-based parent company. Another local company has recently initiated similar operations aimed at expanding dehydrated banana exports. There may be other applications for drying processes as well, but they do not appear to concern the products reported on here.

There is substantial opportunity to establish relatively low-cost plants to supply the pulp, paste, and juice of exotic fruits (guanabana, guava, naranjilla, and passion fruit) to over-

seas markets. This fast-growing market for tropical fruit products currently suffers from supply-side shortages, which are likely to become more serious in the future.

Other opportunities exist for the export of some fruits and vegetables in frozen form. Of particular interest to Ecuador are blackberries, blueberries, and pigeon peas, but opportunities may also exist for other products, including the frozen pulp of some tropical fruits. These installations are more expensive to construct and operate, however, so care should be taken to ensure that an adequate amount of produce is available, and that the finished product can be sold, before new plants are initiated. One freezing plant could perhaps service several fruit pulp processors.

If these processing facilities now have any excess capacity and if a significant amount of export-quality produce is available to be processed, it would be relatively simple to arrange for a test shipment of produce into the U.S. market.

NEED FOR MORE DETAILED STUDY

The information in this report is intended to be useful in helping ANDE direct its efforts toward those products that enjoy the most favorable export prospects as it carries out research in Ecuador regarding the current production and future potential for increasing export production. The data generated in this process should then be directed back into a final and detailed market analysis prior to making any purchase commitments or developing a program for increasing production.

This analysis should include establishing contact with appropriate buyers, carrying out trial shipments, and working out detailed understandings of the quantities and specifications of commodities to be shipped. This analysis is necessary because the market is in a constant state of change and because

successful export marketing must be based on a constant and reliable two-way flow of information between the buyers and the sellers. Although forward contracting is unusual in the produce trade and most produce is sold on a commission basis, it is essential that channels of communication be open and candid.

CHAPTER THREE

POTENTIAL FOR EXPORTS TO NON-U.S. MARKETS

This survey of principal foreign markets was carried out through contacts with companies and individuals involved with international trade in various parts of the world. On the basis of the information obtained and experience in the international food trade, the study team arrived at conclusions about each market. Collecting statistical data in foreign countries is more difficult than in the United States, especially in the absence of funds and travel time. The conclusions reached here are thus based more on the knowledge and experience of informants than on rigorous statistical analysis.

LATIN AMERICA

In planning to sell food products on the world market, one should not let the affluent markets of the West, or the Far East, detract from the potentially lucrative markets closer to home. Belize, Haiti, and Jamaica, for example, regularly import food products. These markets might offer profitable outlets for Ecuadorian products such as pigeon peas or yams. Prices are generally low in these markets, but they may offer an opportunity to sell second-grade produce that cannot be sold in the U.S. or other markets.

Brazil and Venezuela import large amounts of food from all over the world. These countries might be developed as outlets for highland products such as yams or pigeon peas that they cannot produce enough of to satisfy internal demand. Ecuador, as a member of the Latin American Free Trade Association, would have an advantage over nonmember states in exporting its produce to these markets.

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Ecuadorian producers do not have particularly easy access to these markets. They could presumably ship their produce into Venezuela overland via Colombia, but this might not be any less expensive in the end, given the time required and the risk involved in these shipments, than shipping by sea via the Panama Canal, which is the surface route that they would have to use to reach the Eastern U.S. or West European markets.

THE FAR EAST

For the last 20 years, increasing amounts of agricultural products used for food consumption have been sold to the Far East. The buying countries, by degree of importance, are Japan, South Korea, Hong Kong, Singapore, and, less frequently, Indonesia and the Philippines.

The principal suppliers for these markets have been Australia, New Zealand, and Taiwan. During the off season, or when there are world shortages of a given commodity, countries of North and South America have shipped significant quantities of agricultural products into these markets. The leading American exporter of agricultural products to the Far East has been the United States, followed by Mexico, Argentina, and Brazil.

West European agricultural countries, especially Holland and Spain, have occasionally shipped products to the Far East in competition with Americans. During the last five years, China has also become a major supplier to this market. To obtain hard currency, the Chinese government offers an enormous variety of food products for export at prices at which other suppliers cannot compete. Many countries in the area give special privileges to imports from China for political reasons.

As an aid in developing an export strategy for this region, more specific information about each of these major markets is provided below.

Japan

Agricultural products entering Japan for food or industry must be of the highest quality. Japanese buyers purchase these items under high and strict quality standards. Noncompliance with agreed standards will result in rejection of a given product, and the reputation of the supplier will be permanently damaged. Besides the quality standards imposed by buyers, the government of Japan has a strict and complex code concerning such factors as residue and pesticides, additives, containers, and product preparation. Not complying with these regulations could result in rejection of entire shipments at the expense of the seller.

The exportation of any products to Japan is affected by special treaties. Ecuador has good commercial relations with Japan and already exports small amounts of agricultural products and seafood items.

Most of the import and export trade with Japan is carried out through the giant trading companies. Specialty food products are handled by a limited number of companies specializing in those particular items. Very seldom will a company enter a new field. Knowing the company that handles a given product is an important part of this marketing effort.

Aggressive marketing is an accepted and expected part of any effort to export to Japan. Products are introduced at frequently held, well-attended trade shows. Buyers representing companies attend these shows, establishing contacts with future suppliers. Prospective buyers are then invited to the places of origin to inspect the product and the packaging and manufacturing facilities. Efforts to enter the Japanese market are long and arduous but worth the effort, because the buyers are serious, the quantities large, and the prices high.

The products covered by this study generated practically no interest from the Japanese market, although several types of tropical fruits and vegetables already enter Japan with special preparations in accordance with Japanese preferences and eating habits. An effort to learn them and make adaptations for this market would be a long-range project.

Common vegetables such as cauliflower, celery, and lettuce are consumed in Japan in large quantities, with most imports coming from the United States. Competition with this source will be almost impossible as a result of price, distance, and shipping facilities.

A new marketing effort should begin with products that have a high unit price and can gain quick acceptance in the Japanese market. The following items should be explored more fully if Ecuadorian production can be developed sufficiently to generate export quantities:

- Strawberries and all other berries shipped by air;
- Citrus fruits and related products;
- Fresh, frozen, canned, or dehydrated sweet corn, which is a staple of the Japanese diet and is often in short supply;
- Essential aromatic oils for industrial uses such as lemon oil and passion fruit oil; and
- Mushrooms.

South Korea

South Korea is a high-volume importer of food items. Its buying habits are diametrically different from those of Japan. Korea buys large quantities of food items, often with great urgency, because existing stocks of the product have been depleted. The South Koreans are not as particular about quality as the Japanese. Price and delivery times tend to be more

important. Most transactions are handled by a small number of companies exporting and importing many items, from food to steel and industrial goods to clothing. The Koreans will often include unrealistic terms in their purchase contracts that must be modified or revoked later because suppliers cannot meet them.

Some agricultural items that the Koreans frequently need are garlic, meats, oils, onions, poultry, and red peppers. These items are not likely to be part of an Ecuadorian export promotion drive. It is advisable to establish contacts in the South Korean market by visiting the country to develop trading relationships.

Hong Kong, Singapore

Hundreds of trading companies import a full range of food products into Hong Kong and Singapore, including fresh, processed, and canned foods. Most traders are Chinese, know the rules of the game, are honest, and eager to conduct business.

It is advisable to have a personal contact in either place before initiating a marketing trip. A proper introduction will help a person gain access to the trading network and lead to other useful contacts.

WESTERN EUROPE

The principal West European centers for the sale of food products are England, France, and Germany. Some common factors affect the ability of Ecuadorian producers to penetrate these West European markets with fresh or semi-processed food products.

First, these countries are all members of the European Economic Community (EEC). Through this economic alliance, they have developed a common and highly protective set of agricultural and trade policies designed to protect their farmers from damaging international competition. Second, the EEC countries give trade preferences to former colonies of the member states.

This means that Africans, along with some Asian competitors, not only have the advantage over Ecuadorian producers by virtue of their location and relatively easy physical access to West European markets, but they also have long-established trading patterns (and supporting institutions) and receive preferential treatment.

In some cases, Ecuadorian producers must compete with other producers in member countries of the EEC to supply tropical or sub-tropical produce into the region, including Greece, Portugal, and Spain. These countries will clearly have an advantage in introducing their products into the other West European markets.

A third factor is that the EEC market is, in fact, a group of 10 highly differentiated markets, each with its own market preferences, trading mechanisms and relationships, and regulatory environments. This greatly complicates efforts to do market research for the EEC as a whole and can confuse the importing process.

France

The food market in France is at least as discriminating as that in Japan. Contrary to the worldwide trend toward the distribution and sale of food items through supermarkets, the French public is still served by individual speciality stores that buy their supplies from importers and wholesale houses. These houses, depending on the commodity they handle, are located in Paris, Marseille, or another commercial center. Buyers and their representatives travel throughout the world in search of top quality produce, making direct arrangements with the producers. A very small percentage of food products are sold to France through brokers. Speciality food products sold to France are often distributed to many neighboring countries, such as Belgium, Holland, Switzerland, and, on occasion, England, Italy, and West Germany.

Fruits from tropical regions are seldom sold in France in large quantities, and most of these come from former French colonies in Africa. The only exception is the mango, which is always in demand.

Blueberries and other types of berries are also sold successfully to France. Canada exports sizable quantities to France and the Netherlands. Various berries in frozen and semi-processed form can also be sold to the old and well-established industries that manufacture jam, jelly, and preserves.

All berries enter France only during the months that French farms are not in production. The French government has strict laws protecting the French farmer from competition from foreign imports. It also has strict regulations regarding food additives that must be adhered to by the trader wishing to do business in France.

Other products that might be successfully exported from Ecuador to France during the nonproducing season in Western Europe are fresh and canned asparagus (especially white), garlic, and spices.

Gaining acceptance for agricultural products in the French market requires hard work and the ability to deliver consistently high-quality products. To introduce new products, one should participate in the annual food fair in Paris (CIAL). This fair is held biannually, with the next fair scheduled for June 1986. This fair, considered one of the best in the world for food items, is visited by thousands of prospective buyers, not only from France but also from practically every West European and many East European countries.

Information on this and other European trade shows is included with this report. It should be of interest to those looking to enter the European produce market.

West Germany

West Germany is a good market for specialty products and restricts trade less than any other West European country. The German public, with its large foreign population, is rapidly changing its eating habits. New vegetables, besides the traditional cabbage and cauliflower, are now available at the supermarkets. One market manager reports that zucchini from Africa, sold in the supermarkets today, was totally unknown only a few years ago.

Of the tropical fruits, bananas are the most important in the West German market, followed by fresh or canned pineapple. Mangoes are also sold at a good price when available. The tropical fruits included in the study are not sold today in West Germany.

Tropical fruits prepared in beverage form (especially natural juices) are widely available in West Germany. Blueberries, strawberries, and other types of berries are appreciated and sold at high prices when available. Other products with good possibilities are essential oils from citrus and flowers; many types of teas, such as lemon, chamomile, and linden; and tropical spices. Asparagus is also popular in West Germany in fresh and processed form.

Products for the West German market are distributed and sold by the buying offices of supermarkets and through contact with industrial firms and trading companies. Transactions are usually proper and businesslike. The prestigious fair, Anuga, which is held biannually in Cologne, is a good place to market. This fair is divided into a food section and a food machinery and restaurant supply section. The next fair will be held October 12-17, 1985. (A brochure for the fair is enclosed with this report.)

United Kingdom

The rapid influx of persons of various racial, ethnic, and geographic origins during the 1970s has drastically changed the food consumption habits of the British market. Unfortunately, economic conditions today are not good in the United Kingdom. If they were, the opportunity for the export of Ecuadorian tropical food products could be of far greater proportions. Normally, England will grant trade preferences to Commonwealth nations, but on many occasions tropical food products enter the country from other sources to cover seasonal shortages. Among the commodities studied, the following are most likely to find a market in the United Kingdom:

- Blueberries and other berries are produced locally and imported from Canada;
- Guava is largely unknown in the United Kingdom but small amounts are imported from Kenya and Brazil;
- Passion fruit is imported in various forms from West Indies;
- Tamarind is imported both fresh and in pulp, principally from Mexico;
- Yams, and other products from the same family, are imported in large quantities from Jamaica and Africa; and
- Large quantities of pigeon peas are imported to satisfy the demands of the Asian and black populations.

Concerning government regulation, trade with England is relatively easy and is conducted either by trading companies or by supermarket representatives. The trade of tropical products is dominated almost entirely by persons of Indian or Pakistani origin.

At one time an attempt was made to introduce ginger from Ecuador to England. The effort failed, however, because of the quality of the product. If improvements are made, there is an opportunity to sell large quantities.

CHAPTER FOUR
ANALYSIS OF INDIVIDUAL COMMODITIES

INTRODUCTION

This section reports the study's findings regarding each of the commodities. They are organized into three groups according to the likelihood that they can be successfully developed as export commodities.

Group A includes those commodities that offer the greatest potential to Ecuadorian producers. These commodities are discussed in the greatest detail, and specific recommendations are made to develop export promotion programs for them. Group B includes those products that, although interesting and worthy of further consideration, do not offer as much potential as those in Group A. Problems with this group of commodities are identified, and the factors that might be altered to increase the attractiveness of their development as export crops are discussed. The remaining commodities on the list, included as in Group C, are those that the study team considers to be unlikely candidates for development as export crops in Ecuador.

This breakdown into priority groups also coincides with a division of the commodities by type. Group A comprises berries, dehydrated bananas, and tropical vegetables. Group B, includes exotic tropical fruits that, although not having particularly strong marketing potential individually, might be exploited as a group if the appropriate packing, processing, and shipping arrangements could be made. Group C comprises temperate climate vegetables that do not have much of a chance of successfully penetrating the U.S. or other foreign markets.

A list of buyers for the commodities in Groups A and B is also included. This list was made up on the basis of the past activity of these firms in the market and the expectation that

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they could usefully serve as a starting point for an intensive marketing effort. The inclusion of a particular firm on these lists does not imply an endorsement of that firm. Such an endorsement would require a more detailed check on the history and financial status of the firm as well as detailed discussions with the firm regarding specific trading opportunities. Many firms are active in this trading area. Finding the most appropriate buyer for a particular product at a given time is largely a matter of experience and the development of a network of contacts who can help in identifying the best opportunities.

Table 3 summarizes the data regarding imports of the 15 commodities into the United States. Most of these data are derived from U.S. Department of Commerce sources. Wherever possible, they have been verified and augmented by other data sources and discussions with U.S. traders. In cases in which official data do not break out individual commodities in identifiable form, the team relied on other sources for the information.

Although a rigorous computer analysis of the data collected was not done, the team did apply a set of common general criteria to arrive at a priority ranking of the commodities. In general, those commodities were most highly ranked that had total 1984 imports valued at more than \$500,000 and an average price of at least \$0.25 per lb. It was also considered positive if the trends in terms of both the quantity of U.S. imports and the average prices realized were either stable or rising and that the major competitors were not Canada or Mexico. It is, of course, not likely that any commodity will satisfy all of these criteria or that they can be applied strictly in all cases. The criteria do, however, offer a general framework within which to consider the various alternatives.

TABLE 3

U. S. MARKET DATA SUMMARY TABLE

Commodity	USTS Code	1984 Total Imports	1984 Avg. Price	Quantity Trend	Price Trend	Major Exporters	Group A, B, C
blueberries							
fresh or in brine	146.500	\$3,489,369	\$.39/lb.	mixed	down	Canada	A
frozen	146.680	\$6,129,781	\$.57/lb.	up	down	Canada	B
dried Bananas	146.420	\$1,584,907	\$.98/lb.	up fast	up	Ecuador Philippines	A
guavas							
fresh, dried, pickled, in brine	147.800	\$18,988	\$.35/lb.	n.a.	n.a.	Jamaica	C
prep, pres, NSPF	147.850	\$510,875	\$.38/lb.	n.a.	n.a.	Brazil Mexico	C
paste and pulp	152.540	\$1,844,273	\$.23/lb.	steady	steady	Brazil Dominican Rep.	B
amarind							
fresh, prep, pres.	149.400	\$575,436	\$.28/lb.	mixed	down	Mexico Colombia Dominican Rep.	B
pigeon Peas							
fresh, chilled 7/1 - 9/30	136.940	\$19,579	\$.44/lb.	down fast	down	Dominican Rep.	C
rest of year	137.022	\$741,022	\$.50/lb.	up	steady	Dominican Rep. Guatemala	A
frozen 7/1 - 9/30	136.960	\$194,738	\$.35/lb.	up fast	down fast	Dominican Rep. New Zealand Mexico	B
rest of year	137.024	\$1,175,703	\$.77/lb.	up	up	Dominican Rep.	A
cauliflower (fresh, chilled, frozen)							
6/5 - 10/15	135.500	\$1,609,000	\$.18/lb.	steady	steady	Canada Mexico	C
other times	135.510	\$782,000	\$.17/lb.	up	steady	Mexico Canada	C
celery (fresh, chilled, frozen)							
4/15 - 7/31	135.600	\$101,871	\$.19/lb.	mixed	steady	Canada	C
other times	135.610	\$746,933	\$.11/lb.	down	steady	Canada	C
cucumbers (fresh, chilled, frozen)							
12/1 - 2/28	135.900	\$30,804,736	\$.12/lb.	up	down	Mexico	C
3/1 - 4/30	135.950	\$8,872,082	\$.09/lb.	up	down fast	Mexico	C
5/1 - 6/30 and 9/1 - 11/30	135.970	\$5,920,840	\$.17/lb.	up	steady	Mexico	C
7/1 - 8/31	135.990	\$580,567	\$.26/lb.	mixed	mixed	Canada Mexico	C
lettuce (fresh, chilled, frozen)							
6/1 - 10/30	136.600	\$2,366,966	\$.14/lb.	up fast	steady	Canada	C
11/1 - 5/31	136.610	\$3,441,322	\$.22/lb.	up	down	Mexico	C
squash (fresh, chilled, frozen)							
	137.500	\$24,130,206	\$.18/lb.	up	down	Mexico	C
beans							
fresh	137.880	\$5,363,995	\$.25/lb.	up	steady	Mexico Jamaica Brazil	A
frozen	137.891	\$112,723	\$.25/lb.	up fast	steady	Dominican Rep.	A

SOURCE: U. S. Department of Commerce Trade Statistics. No data were found for passion fruit (B),
 watermelon (A), cantaloupe (B), or guava (B).

It must be remembered that trading, and especially fresh produce trading, is an entrepreneurial activity. Deals are made as opportunities arise. Over-reliance on a mechanized selection process for produce to be exported or on institutional sources of trade information and trading opportunities will put undue constraints on the trading process and dampen the entrepreneurial flare required to participate in the trade successfully. U.S. buyers are not interested in studies or formal information-sharing channels. They want to make deals and do business. Much of the information the team received from dealers was provided because they are interested in exploring new supply sources and assumed that the team represented new trading opportunities.

GROUP A COMMODITIES

Dehydrated Bananas

Ecuador is already a major exporter of dehydrated bananas (United States Tariff Schedule [USTS]) code no. 146.42) to the United States, having realized a total of more than \$1 million from these exports in 1984. The U.S. market for imported dehydrated bananas jumped significantly between 1982 and 1983, increasing from only 87 tons to more than 523 tons. In 1984, imports increased again to about 720 tons. The average price of these imports fell from \$0.86 per lb. in 1982 to \$0.74 per lb. in 1983 but recovered again to \$0.98 per lb. in 1984.

In 1984, Ecuador surpassed the Philippines to become the largest supplier of this product to the U.S. market, accounting for 54 percent of the total, in contrast to 40 percent for the Philippines. This occurred at a time when Philippine exports to the United States were also increasing, although not as rapidly as Ecuadorian. The average price of Ecuadorian product increased steadily through the period as well, from \$1.02 per lb. in 1982 to \$1.29 per lb. in 1984. Philippine producers received an average of only \$0.59 per lb. for their product in 1984. Both countries send their dehydrated bananas into the United States duty free under GSP terms.

Industry sources indicate that the so-called dried banana chips from the Philippines are actually fried in palm kernel oil rather than air dried, and truly dehydrated, as is the product from Ecuador. The two products compete in the same market, however, with Philippine banana chips imported to the U.S. by West Coast importers and the Ecuadorian product sent primarily on the East Coast. It is likely, although difficult to verify, that Department of Commerce data incorporate both of these products.

Four factors appear to account for the price differential between the Ecuadorian and the Philippine product. First, some of it results from the fact that the Philippine product contains oil and honey and is thus more dense than the Ecuadorian product without increasing its consumer value significantly on a volume basis (bulk index factor). Second, the absence of foreign material in the Ecuadorian product considerably increases its shelf-life. Third, the pure banana product provided by Ecuador is valued by the health food industry over the fried and sweetened product from the Philippines. Fourth, importers are generally not happy with the Philippine product and the service they receive from exporters in that country. Ecuadorian exporters are highly regarded for their quality control procedures and reliability.

According to U.S. buyers, the demand for dehydrated, or fried, banana chips is likely to continue expanding rapidly in the foreseeable future. They are now marketed in bulk in many health food stores and supermarkets and are an important ingredient in several prepared cereals and other food products. Some supermarket chains now import the product directly to reduce costs. Total imports are presently limited by supply. Harmony Foods of Santa Cruz, California, is the most important importer and packager of dehydrated bananas in the United States at this time.

The director of the Ecuadorian Commercial Office in New York City reports that Ecuador has one major company (Trobona) processing bananas for export to the United States and that the company ships all of its production to its U.S. parent company. A new company in Ecuador also plans to enter this trade. If this company enters as an independent supplier, it should be careful to ensure that it maintains the good reputation of Ecuadorian exporters and continues to benefit from the very attractive price advantage Ecuadorians enjoy over their Philippine competitors. The company should at least realize that other producers paid lower prices for competitive products and that receiving these prices itself could seriously jeopardize its viability.

Subject to the provisions of Paragraph 319.56-2 (b) of the USDA's Fruits and Vegetables Quarantine Regulations (Title 7) (see Annex C), dehydrated bananas and other dried, cured, or processed fruits and vegetables may be imported into the United States without permit as long as the USDA does not determine that the method of processing used is inadequate. There are specific industry requirements for the preparation of fried banana chips, which must be:

- Fried in palm kernel oil;
- Coated with honey -- not turbinado sugar;
- Crisp with good natural banana flavor;
- A creamy color -- not brown; and
- Packed in 14-lb. cases in container lots.

There also appears to be a reasonably bright future for this product in the West European markets. Although dehydrated bananas are not yet generally well known, the popularity of the types of products that use them in the United States is increasing in Western Europe and a growing demand for the product can be expected. Mechanisms for developing and exploring this

market are suggested in the chapter dealing with these markets. Market opportunities in the Far East are not hopeful, however, as demand in that region is likely to be met by local suppliers.

CONCLUSIONS: The United States is a good place for Ecuador to expand its already considerable exports. It has experienced growers, processors, and exporters already in the trade and commands a large share of the total market. Demand in the United States is rising steadily, along with a general trend toward increasing prices. Both of these trends are expected to continue in the foreseeable future as is increased consumption of this type of commodity in Western Europe. U.S. buyers already hold Ecuadorian suppliers in high regard and would be happy to see an increase in Ecuadorian product in the market.

RECOMMENDATIONS: The team recommends that Ecuador make the expansion of dehydrated banana exports a high priority. This can be accomplished by broadening the range of U.S. buyers who import the product and by carefully introducing it into the West European market following the general recommendations offered earlier. A marketing plan should be developed to expand production and exports as rapidly as possible while avoiding compromising the quality of the Ecuadorian product or driving the market prices down to uneconomic levels.

The buyers listed below are known to be major dealers in dehydrated bananas. Others may be found in the 1985 Directory of International Trade.

- Harmony House Foods
P. O. Box 1191
Santa Cruz, CA
(408) 426-5021

- Hershey Import Co.
700 E. Lincoln Ave.
Rahway, N.J. 07065
(201) 388-9000

- Midwest Nut & Seed Co.
525 Broadway
New York, New York 10007
(212) 233-0412
- Xenia Foods
12233 W. Olympic Blvd.
Suite 224
W. Los Angeles, CA 90064
(213) 826-7133

Pigeon Peas (Cajanus Cajun/Cajanus Indicus)

Pigeon peas, known in Spanish as gandul, are the product of an open bush from 3 to 12 feet in height with a woody stem and yellow flowers. Although native to Africa, they have now been distributed throughout the tropical areas of the world and have become an important crop in many semi-arid regions, where they are known as the crop that will always yield something. Pigeon peas have become particularly important in Africa, the Caribbean, and India.

Pigeon peas are popular with many Latin Americans, particularly Cubans and Puerto Ricans, and are usually consumed with rice. Sometimes the dry seeds are sprouted and used as a fresh vegetable and the tender leaves may be used as a salad green. In the Caribbean and Central America, pigeon peas are often eaten fresh, like snow peas. Pigeon peas are a traditional Christmas dish in Puerto Rico.

Pigeon peas are available in the U.S. market mostly in frozen form. They are also marketed fresh, however, as well as dried, split, and canned. The frozen produce is shipped in 22-lb. cartons containing 24 individual packages worth approximately \$1.00 each at wholesale. Cases containing 24 cans of pigeon peas sell for \$24.00-\$26.00 in the wholesale market. Fresh pigeon peas are delicate to handle, but they are shipped, both with and without pods, in 10-kg. (22-lb.) waxed cardboard flats.

Data related to the importation of pigeon peas in the United States, both fresh and chilled and frozen, are broken down according to season, with summer (July-September) treated separately from the rest of the year.

The importation of fresh or chilled pigeon peas during the summer months (USTS code no. 136.9400) has declined to a low level over the past three years, totaling only about 10 tons worth less than \$20,000 in 1984. This reflects increasing domestic production of the product.

Other months of the year have seen a steady increase in the importation of this product (USTS code no. 137.0220). The volume of these imports increased by 41 percent between 1982 and 1984, while average prices held steady at around \$0.50 per lb.

The Dominican Republic dominates the sales of pigeon peas in the U.S. market, supplying 69 percent of the total in 1984; this was a significant decrease from its 81 percent market share in 1983. Guatemala increased its sales more than 20-fold to capture 27 percent of the 1984 market, and Peru, although still a small force, entered the market with more than 50,000 pounds of product in 1984.

Fresh and chilled pigeon peas are allowed to enter the U.S. market free of import duties during the summer months but attract a duty of \$0.08 per lb. during the rest of the year. Pigeon peas are a GSP product, however, so all major suppliers remain duty free throughout the year. Fresh pigeon peas are among the products admissible to the United States from Ecuador through North Atlantic ports only. Frozen pigeon peas are freely importable to the United States as long as processing and transport specifications are satisfied.

Imports of frozen pigeon peas (USTS code no. 136.9600) are also of only minor importance during the summer, although they have increased more than 10-fold since 1982. Total imports during summer 1984 reached 250 tons, worth nearly \$200,000. The average price of these imports fell rapidly at the same time, however, from \$0.81 per lb. in 1982 to only \$0.35 per lb. in 1984.

During the rest of the year, the imports of frozen pigeon peas (USTS code no. 137.0240) have increased about 50 percent from 1982 to 1984, while average prices rose from \$0.66 per lb. in 1982 to \$0.77 per lb. in 1984. In 1984, imports totaled over 1.5 million lbs. worth \$1,175,703, about 86 percent of which came from the Dominican Republic. Guatemala was the next largest supplier of the U.S. market, with total exports having risen rapidly to over 173,000 lbs. in 1984.

CONCLUSIONS: The shipment of both fresh and frozen pigeon peas into the U.S. market during the non-summer period offers a good opportunity to Ecuadorian producers. Steady increases in total U.S. imports along with steady or increasing prices provide an opportunity to win a share of a growing market.

RECOMMENDATIONS: The possibility of exporting both fresh and frozen pigeon peas to the U.S. market should be evaluated further, taking into consideration Ecuadorian production factors and the potential for processing frozen product economically. Increasing competition for the Dominican Republic from Guatemala should be carefully evaluated before undertaking any large new investments in Ecuador. The development of a freezing plant to support this trade should be based on a comprehensive feasibility study. West European markets for this product are likely to be small, focusing on Great Britain with its large Indian and Caribbean populations. The penetration of this market should be undertaken in ways consistent with the general principles mentioned earlier.

The following dealers are well known in the pigeon pea trade. They also deal in yams and other commodities as do many other traders in the major market centers:

- El Morro Food Distributors, Inc.
795 N.W. 21 St., Ter.
Miami, FL 33140
(305) 324-0760
- Ettleson Tropical Produce Inc.
28 Bronx Terminal Market
Bronx, New York 10451
(212) 292-4343
- Garcia Julio Tropical Foods
25 Bronx Terminal Market
Bronx, New York 10451
(212) 669-4663
- Leo Strom, Inc.
2140 N.W. 13th Ave.
Miami, FL 33142
(305) 325-0101

Blueberries (Vaccinium)

There are several varieties of blueberries, ranging from low-growing, almost prostrate, plants to vigorous shrubs reaching a height of 12-15 feet. Although there are blueberry species on other continents, all cultivated varieties in the United States and Canada are American in origin. Most are of the high bush variety, reaching 6-8 feet in height, and are propagated by cuttings. They do best in well-drained acid soil with a good water supply. Special dry-land varieties have been developed and brought into production in Florida and Georgia. Low-bush varieties of blueberries grow wild over large areas of dry hillsides in several areas of the United States where they are harvested commercially.

Total North American production has been increasing steadily and rapidly over the past five years. This production is concentrated in the months of June (24 percent), July (47 percent), and

August (26 percent); however, there are no North American supplies of fresh blueberries on the market for approximately nine months of the year.

This means that a substantial market still exists for both fresh and frozen imported blueberries in the United States. In 1984, the total imports of fresh (or in brine) blueberries (USTS code no. 146.50) of 4,084 tons were roughly the same as the amount imported during the previous two years (3,816 tons and 4,203 tons respectively for 1983 and 1982). Almost all of this total (96 percent in 1984) was imported from Canada, with most of the balance brought in from New Zealand.

Although total imports of fresh blueberries have not grown rapidly in the past three years, the amount brought in from New Zealand increased by nearly seven times between 1982 and 1984, to a total of 135 tons worth \$769,363. Add to this the smaller amounts imported in 1984 from other Southern Hemisphere producers including Australia, Brazil, and Chile, which had not previously participated in the market, and one sees a substantial growth in the market for fresh blueberries during the season when North American supplies are not available.

Blueberries are very sensitive to bruising, and extreme care should be taken in their harvesting, packing, and transport. Like other berries, they are packed in one-pint boxes, 12 in a flat carton. Each box is carefully wrapped with plastic. The USDA has adopted standard grades for blueberries that define acceptable products and grades in terms of both size and quality. A copy of these standards is attached as Annex D.

The average price of all fresh blueberries imported in 1984 was \$0.39 per lb., down from \$0.53 per lb. the previous year, probably as a result of the bumper crop for North American producers. The New Zealand fruit, however, brought an average price of \$2.58 per lb. It is likely that this higher-priced fruit was

imported during the North American winter, when local supplies are not available. Wholesale prices in the U.S. market last year ranged from \$9.72 to \$11.00 per 12-pint flat. All of the fruit is brought into the United States duty free.

The demand for fresh blueberries in the U.S. market is highly sensitive to price. One of the largest wholesalers of the product in the New York contends that he could sell 20,000 boxes at a price of \$0.60 per pint but that when the price increased to \$0.70 per pint he could sell only 10,000. At a price of \$1.00 per pint, he estimates that his market would drop to only 1,000 boxes.

Although it might be possible for Ecuador to compete effectively with New Zealand for the U.S. import market for fresh blueberries, it is not possible for Ecuadorian producers to enter this market now because fresh blueberries are not on the list of Admissible Fruits and Vegetables from Ecuador. There do, however, appear to be good prospects for marketing in Western Europe if the prices and timing are right, and appropriate air connections can be identified.

Canada already exports substantial quantities of fresh blueberries to Western Europe (France, Netherlands, and West Germany) and to Japan. It exports frozen blueberries to a larger group of European countries. There is little likelihood that the U.S. ban will be lifted any time soon, but a successful history of exports to other areas would be helpful in seeking such a relaxation of the restrictions when the appropriate time comes.

FDA regulations (see Annex B) note that "blueberries and huckleberries sometimes contain small larvae which render them unfit for food. Fruit from infested areas should be avoided." It is not clear whether the U.S. ban on imports from Ecuador is an indication that Ecuador is an infested area, but this should be determined before any export program is initiated.

Approximately 10.7 million lbs. of frozen blueberries (USTS code no. 146.68) were imported by the United States in 1984. This represented a 10-percent increase over the previous year and more than double the record of 1982. All of these imports were received from Canada in 1982 and 1983, but New Zealand entered the market in a very small way (almost 5,000 lbs.) in 1984.

While the total volume of imports of frozen blueberries was increasing rapidly, the average price was falling, dropping from an average of \$0.80 per lb. in 1982 to only \$0.57 per lb. in 1984. Current reports from the market indicate that prices for frozen blueberries are depressed by the large supplies of frozen fruit remaining from last year's record crop in the United States.

Almost all companies handling fruits in the principal U.S. terminal markets will handle fresh blueberries, and other berries. A list of principal buyers and processors of blueberries and other berries in the United States follows at the end of this section.

CONCLUSIONS: The above data suggest that there is a good potential for new Latin American producers of blueberries to enter the U.S. market with their fresh fruit. Brazil and Chile have already made a modest start in this trade, but there appears to be ample opportunity to exploit shipping cost differentials, assuming production costs are comparable, and gradually displace New Zealand producers in the market. Ecuador is precluded from participating in this trade as it is not at present allowed to export to the United States. There may be a potential for exports to Europe, however, leading to an eventual lifting of the U.S. ban.

Frozen blueberries would be a much more difficult market for Ecuadorian producers to penetrate as they would lose much of the advantage of having a better location than New Zealand and would

have to compete with Canada, presumably on the basis of price and quality. In addition, frozen blueberries obtain a less attractive price than do off-season fresh fruit. U.S. prices for frozen blueberries depend to a large extent on the size of the crop in the United States each year and thus are subject to radical shifts that could severely damage those outside producers who exist on the margins of the market.

RECOMMENDATIONS: It is recommended that further research be done in the area of blueberry exporting to determine more precisely the possibility of exporting fresh blueberries to Western Europe, and possibly the Far East, and the possibility of having the ban lifted on entry of Ecuadorian blueberries into the United States. The research should focus on the reasons for the U.S. ban, the possibility of eliminating it, and the marketability (size, grade, quality, and seasonality) of the Ecuadorian crop in the U.S. and other markets. This should be undertaken, however, only if sufficient supplies of blueberries are already in production to justify it. Sources at the USDA report that it will be some time before that agency will even consider altering the list of permitted imports.

The frozen blueberry market does not look like one that will be profitable for Ecuadorian producers. The cost of entry, unless excess processing capacity already exists, is high, as is the risk of price fluctuations in the major markets. U.S. and Canadian producers freeze that part of their peak season crop that cannot be sold fresh, as buffer stock for the non-production season. They are also able to use their sub-standard fruit in the production of other products, including cake mixes, cereals, juices, ice cream toppings, and syrups. Initially anyway, Ecuadorian producers would have to depend on the frozen food markets for their livelihood.

The buyers listed below are known to be major buyers of both blueberries and blackberries. There are also many others who are listed in the Directory of International Trade.

- Grant J. Hunt Co.
200 Webster St.
Oakland, CA 94607
(415) 834-6040
- Michigan Fruit Cannery
P. O. Box 68
Benton Harbor, MI 49022
(616) 927-4411
- Simplot Foods
(formerly Dalgety Foods)
P. O. Box 2059
Salinas, CA 93902
(408) 424-1671
- Sun World Internat., Inc.
83-203 Indo Blvd. #2
Indo, CA 92201
(619) 346-6087

Blackberries (Rubus Spp.)

Various species of the genus *Rubus* are grown throughout the United States and Canada. The plants are upright or trailing shrubs. Horticulturally, all plants that are cultivated are derived from species either native to, or introduced to, the United States and are classified either as upright trailing blackberries or black fruited and red fruited dewberries, the latter closely related to the raspberry. There are also hybrids derived from crossing these two species.

Commercial production of blackberries is carried out in several parts of the United States with the upright varieties grown primarily in the northern states and the more tender trailing varieties and dewberries grown in the southern states and along the Pacific Coast. In 1984, production totaled over \$6 million.

The fruit is sold fresh as well as in canned and frozen form, with the processed fruit used primarily for the manufacture of jams and jellies. Fresh fruit is packaged in the same way as

blueberries and is in constant demand, although it is available in the United States only during the June-August production season. Prices in the U.S. wholesale market have ranged from \$11.00 to \$20.00 per 12-pint flat in 1984, and on occasion a 1-pint box of blackberries sold for as much as \$7.00.

U.S. Department of Commerce data do not treat blackberries as a separate commodity, and there is no separate U.S. Tariff Schedule Code for either fresh or processed blackberries. Import data obtained from the Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) indicate the magnitude of imports from most source countries.

The imports of both fresh and frozen blackberries were erratic from 1979 to 1983 according to USDA/APHIS data. These data do not include imports from Canada, which is the major U.S. supplier. Thus, the data does not indicate the degree to which the others (primarily New Zealand) either filled market shortfalls or seasonal gaps.

The highest level of fresh blackberry imports from recorded sources other than Canada was 119 tons in 1982. This amount fell by nearly 50 percent in 1983 and was a nearly 10-fold increase over 1981. Projections are thus difficult to make. Nearly the same is true for frozen blackberry imports, which reached their highest level (1,292 tons) in 1979 and had declined by 50 percent by 1983.

The study team also looked at some related products that might indicate something about the blackberry market. Imports of raspberries and loganberries (fresh or in brine -- USTS code no. 146.54) totaled nearly 6,800 tons worth \$9.759 million in 1984. What is interesting is that 96.5 percent of these imports arrived during the peak season of July and August at an average price of \$0.59 per lb. The balance came in the rest of the year at an average price of \$2.59 per lb. Ninety seven percent, presumably the summer season production, arrived from Canada. The balance

came from Brazil, Chile, New Zealand, Thailand, and other minor shippers. These berries were brought in duty free during the peak season and at a duty of \$.003 per lb. during the rest of the year.

Frozen boysenberries (USTS code no. 146.70) totaling 655 tons worth \$406,901 (average price \$0.36 per lb.) were shipped in from New Zealand in 1984. Import duties are 14 percent ad valorem.

Other frozen berries (USTS code no. 146.78) totaling 671 tons worth \$472,259 were shipped in from New Zealand (4 percent), South Africa (54 percent), and Yugoslavia (38 percent) in 1984. These are duty-free imports to GSP countries and otherwise attract a duty of 14 percent ad valorem (35 percent for communist countries).

CONCLUSIONS: There is a substantial market in the United States for fresh and frozen berries of the rubus species. There appears to be a demand for fresh berries outside of the normal North American production seasons that can be highly lucrative for Ecuadorian producers if they can satisfy the market in terms of delivery, packaging, and quality.

RECOMMENDATIONS: The recommendation regarding blackberries depends on whether or not, and how many, blackberries are currently produced in Ecuador. If substantial quantities are available during the appropriate seasons (September through April), it would be worthwhile confirming that the varieties are appropriate to the U.S. and European markets and arranging to make small test shipments of fresh fruit by air. There may be substantial profits to be earned by Ecuadorian producers in this market as they are allowed to ship fresh blackberries into Atlantic ports on the basis of a USDA import permit issued to a U.S. buyer prior to shipment.

U.S. buyers are eager to have greater year-round supplies of blackberries, but the development of this commodity should be undertaken cautiously as the historical data are not clear and Ecuadorian producers are not likely to have, initially anyway, the buffer of a frozen food or canning industry to absorb the product that cannot be exported fresh at attractive prices. A list of some major blackberry and blueberry buyers is included at the end of the discussion of blueberries.

Yams (Dioscorea Alata)

Yams, known in Latin America as "ñame", are a herbaceous climber whose underground stems thicken to produce one or more tubers varying in size and shape. They are normally harvested from 6-8 months after planting and again 8-10 months later. They may yield from 8-50 tons per acre. Total world production of yams is estimated at 18 million tons with West Africa accounting for the greatest concentration of production.

Yams are most commonly prepared by boiling, although they can also be baked or fried. They serve as a major source of carbohydrates in many areas, much like cassava, taro, and cocoyam.

Many Latin Americans in the United States, except Mexicans, use yams as a staple in their cooking, along with beans and rice. One common way Cubans and Puerto Ricans use them is mixed with other tubers such as malanga, yucca, sweet potatoes, and Irish potatoes, and cooked as a stew with corn, pumpkin, and pork.

Yams are marketed primarily in fresh form although they can also be frozen, used in the manufacture of textile starch and livestock feeds, or dehydrated and sold in the form of flakes or powder.

There is a substantial and growing demand for imported fresh yams in the U.S. market. Total imports reached over 9,800 tons in 1984, an increase of 32 percent over 1982 figures. At the same time, average prices increased by 14 percent, from \$0.22 per lb. to \$0.25 per lb. Colombia (41 percent), Jamaica (31 percent), and Brazil (25 percent) dominate this market. Jamaica and Brazil received average prices of \$0.29 and \$0.27 per lb. in 1984, while Colombian producers received only \$0.17 per lb.

Yam imports are theoretically subject to 10 percent ad valorem duties upon entry into the United States. This duty does not apply to those producer countries included on the GSP list. Since all major producer countries are on that list, in fact, the duty has no impact on the market.

Yams from Ecuador are admissible into the United States as long as a USDA import permit is issued in advance of shipment to an importer or broker residing in the United States. U.S. Fruit and Vegetable Regulations (see Annex C) specify that all fresh yam imported into the United States must be fumigated upon entry with methyl bromide; thus, the entrance of yams can be made only through U.S. ports with appropriate fumigation facilities. This is not a major problem, however, as all major East Coast ports have these facilities available.

Yam is normally shipped in sacks weighing approximately 50 lbs. and containing about 20 tubers each. Wholesale prices in the markets range from about \$11.00-\$13.00 per bag. The quality of the packaging varies with the store and the country of origin, from poorly packed loose bags to good quality cartons. The better packaged yams attract the highest prices.

There is also a small, but rapidly growing, market for frozen yams in the United States. Total imports more than quadrupled between 1982 and 1984 (from 50 tons to 208 tons) while prices increased by 14 percent (\$0.22 to \$0.25 per lb.). The

Dominican Republic was responsible for 96 percent of 1984 imports of frozen yams. Brazil supplied 29 percent of the total market in 1983 but dropped out entirely in 1984. Brazil supplied only about 30 tons, however, so it is possible that this amount was simply absorbed in the Brazilian market that year and thus not available for export.

Other producers of frozen yams will presumably have a significant advantage in competing with Dominican Republic suppliers, once the market develops enough to become competitive, in that Dominican producers are not exempt from the 10-percent ad valorem duties that other GSP countries need not pay.

CONCLUSION: The fresh yam market in the United States offers an attractive opportunity to Ecuadorian producers if they are able to compete effectively with established suppliers in terms of quality and price. The attractiveness of the crop for Ecuadorian farmers will depend to a large extent on whether they receive the prices paid to Jamaica and Brazil or the much lower ones paid to their neighbor, Colombia. The frozen yam market is still too small to deal with unless there is an surplus of yam production and a local freezing plant with excess capacity at the right time.

RECOMMENDATIONS: Ecuadorian producers should explore this market more thoroughly, especially in the United States and the United Kingdom, considering the production factors and costs. Small test shipments into the Miami and New York markets could be organized easily, but should not be done until an assessment can be made of the quantities that might be shipped over time and the regularity of container size shipments.

Several prominent yam and pigeon pea dealers were listed earliler. The following two are also noted for the participation in the yam trade:

- Harry Kline Produce Corp.
205 NYC Terminal Mkt.
Bronx, NYC 10474
(212) 991-5212
- S&M Produce
42 S. Water Market
Chicago, ILL 60608
(312) 829-0155

GROUP B COMMODITIES

Guava (Psidium Guavaja)

Guava is grown in tropical America for its aromatic yellow fruit, which is used mostly in the production of jellies, preserves, and juices. Small amounts of guava are also produced in the United States (Florida and California) for commercial purposes and as an ornamental. The plant is native to tropical America but has now been distributed to nearly all the tropical and subtropical areas of the world. It grows and produces fruit under a wide range of conditions, often unfavorable for other produce and, in some places, has become a pest.

The guava fruit is very rich in vitamin C, containing up to five times the concentration of an orange, and is popular especially with people of Latin American origin. It is also gaining in popularity with other people, in both its fresh and processed forms, and the future market prospects, both in the United States and other foreign markets, are bright.

The only fresh guava sold in the U.S. market is grown in Florida and Puerto Rico. Imports of the fresh fruit from other producing countries are banned as a result of the presence of a certain fungi frequently found in fruit of foreign origin. It is possible that this ban could be lifted if it can be proved that Ecuadorian fruit is free of this fungus. It is not, however, likely that this will be accomplished any time soon.

Small amounts of processed guava (dried, pickled, or in brine -- USTS code no. 147.80) are imported to the United States. These imports totaled only 25 tons worth \$19,000 in 1984, mostly from Jamaica and New Zealand.

Imports of Guava (prepared or preserved NSPF -- USTS code no. 147.85) were somewhat larger, totaling over 607 tons worth over \$500,000 in 1984, with Brazil and Mexico the largest suppliers. This apparently includes a mixture of products (jellies and juices) that include guava as their primary ingredient.

By far the majority of guava imports to the United States, in terms of both quantity and value, is in the form of paste and pulp (USTS code no. 152.54). Imports of this product have held relatively steady at between 3,300 and 3,800 tons over the last three years. Prices have also held relatively steady at \$0.23-\$0.25 per lb. In 1984, imports totaled 3,625 tons valued at over \$1,844,273 (\$0.23 per lb.).

Brazil was the largest supplier of this product (47 percent) in 1984 followed by the Dominican Republic (30 percent) and Mexico (11 percent). Ecuador supplied about 19 tons to the market in 1982, but has not been active in the market since then. Several other countries have played in this market in the past, but none has been able to break the hold of the three major producers. Colombia and Venezuela have both increased their exports considerably, but they are both still at low levels.

There is considerable price variation between the exporting countries. Brazilian exporters received an average of \$0.26 per lb. in 1984, while those in the Dominican Republic averaged only \$0.17 per lb. According to U.S. traders, this is the result of quality difference between the two products. The Brazilian product is processed in large modern plants, whereas the Dominican production comes from smaller-scale units using generally more primitive means.

U.S. buyers note that the future U.S. market for guava in the form of paste and pulp is very bright. Limits at present are on the supply side, with existing suppliers not able to satisfy current demand. Today, frozen guava pulp sells in various U.S. markets for prices ranging from \$1.00-\$1.30 per lb. Also available are canned guava, which has a thicker consistency than the frozen pulp and is used for pastries and cooking purposes; guava paste, which is eaten as a dessert; and guava jam, which is considered a gourmet item in the U.S. and European markets. Guava is also used as a flavoring for drinks, ice cream, and cake toppings.

Ecuador, the Dominican Republic, and Mexico are all allowed to export guava paste and pulp to the United States duty free under GSP provisions. Brazil must pay an ad valorem duty of 3.1 percent on all of its exports.

CONCLUSIONS: Guava is a fruit with good export potential for Ecuadorian producers. It has a strong appeal for the Latin American ethnic market in the United States and is developing an appeal to persons of non-Latin origins as well. It offers an opportunity that might be exploited, or at least tested, very quickly if there is currently an excess supply and processing capacity. This should be approached carefully, however, as the market has been relatively steady with well-established supplies coming from nearby Brazil and the Dominican Republic. Ecuadorian producers might have an advantage over those from Brazil, if the Ecuadorians can produce the same product and lower its price on the basis of not paying import duties.

RECOMMENDATIONS: The exportation of guavas, especially in the form of frozen pulp, should be given a high priority in the program to increase the export of Ecuadorian fruits and vegetables. Shipments of fresh guava are not allowed to enter the United States, but it would also be worthwhile to explore the

possibility of exporting fresh guava to the West European markets. It is likely that Far Eastern markets will be satisfied by producers within the region. Some factors should be kept in mind in the development of a guava export promotion program, including the need to:

- Concentrate production on varieties that are most popular in the world market;
- Develop quality control standards for fresh fruit that will ensure the shipment of fruit of the optimal size, grade, and quality;
- Develop post-harvest handling, processing, packaging, and shipping practices that will ensure the delivery of high quality produce;
- Match processing cycles with those of other fruits to ensure efficient utilization of processing facilities; and
- Determine the extent of the fungus, if any, that now bars the entry of fresh guava to the United States and find the means to eradicate it.

Tamarind (Tamarindus Indica)

Tamarind pods are produced by a medium to large size tree (25 ft. or more in height). The tree is native to tropical Africa and is cultivated in Latin America and other parts of the world, including southern Florida and Puerto Rico.

The fruit, which is a cinnamon-brown colored pod 3-8 in. in length, contains several compressed seeds surrounded by a brown pulp with an acidic sugary taste. It is very popular with Latin Americans in its fresh form as well as in candies and beverages, sherbets, juices, chutneys, and curries.

Consumers of the tamarind fruit attribute many medicinal properties to it. Although it is a good source of niacin and thiamine, its only known pharmacological effect is as a mild laxative.

Tamarind is grown and consumed in the greatest quantities in India, which also exports large quantities of it to the rest of the world, as fresh fruit and in the form of frozen pulp. Considerable amounts of the fresh fruit are available in U.S. market centers. It is packed in cloth or plastic bags and kept in common storage. It often has a messy appearance because of the presence of the honey escaping from broken pods in the bags.

Substantial amounts of tamarind are produced in Puerto Rico to supply the U.S. market. These supplies are supplemented by imports from several nearby countries and India. Imports of fresh, prepared, or preserved tamarind (USTS code no. 149.40) increased to a total of 933 tons worth \$575,436 (\$0.28 per lb.) in 1984. There has been a steady growth in the imports of this product since 1979 with the major suppliers being Mexico (37 percent), the Dominican Republic (21 percent), and Colombia (21 percent and growing rapidly). There is a substantial variation in price in this market with Indian exporters (10 percent in 1984) receiving an average of \$0.59 per lb. while Colombians received only \$0.12 per lb. and Dominican Republic producers received \$0.15 per lb.

The Commerce Department also reports imports of tamarind paste or pulp (USTS code no. 152.60) totaling 195 tons worth \$131,714 (\$0.31 per lb.) in 1984. Mexico (44 percent) and the Dominican Republic (38 percent) were the major suppliers of this product, followed by India (16 percent) and Guatemala and Thailand, which supplied very small amounts.

Fresh tamarind is imported to the United States duty free, whereas the tamarind paste or pulp attracts a normal duty rate of 15 percent ad valorem for non-GSP countries. Fresh tamarind pod from Ecuador is admissible into the entire United States without a USDA import permit.

CONCLUSIONS: Tamarind can offer a good opportunity to Ecuadorian producers if their product can be received as an equal to the Indian or Mexican (\$0.28 per lb.) produce. If it is accepted only on the same level as the Colombian or Dominican produce, the chances are that it will not be competitive with those producers who have shorter shipping lines to East Coast U.S. ports. If plans call for developing new tamarind areas for export purposes, it should be possible to select and produce those varieties that attract the highest prices. Better preparation and packing of the fruit to make a good impression in the market will also improve its acceptance and increase the prices that can be expected.

Total imports are not very large, but they are increasing steadily. It is possible to target very closely those markets that are most likely to generate sufficient demand for the product to justify its importation and concentrate marketing efforts on only a handful of buyers who really know the market. If this market continues to develop, there will be a good potential for Ecuador to enter the market for paste and pulp as well as fresh fruit.

RECOMMENDATIONS: Tamarind exports can be undertaken as part of a general program to increase the exports of tropical fruits, including guava, naranjilla, and passion fruit. In this case, as with naranjilla, there is the advantage that imports of the fruit in its fresh form into the United States are allowed. Export efforts should be targeted carefully and test shipments can be arranged in a short period, if sufficient supplies exist to interest the buyers. It may also be possible to export to Western Europe, where it is likely to find a demand from the East and West Indian communities.

Naranjilla (Solanum Quitoense)

Naranjilla is a short life perennial, slightly woody herb with large velvety purple tinged leaves that grows at the mid-elevations of the Andes. It is native to Colombia and Ecuador. It produces fruits somewhat larger than an egg that grow in clusters and are covered with a wiry fuzz that rubs off easily. The fruit has an orange skin with a green highly aromatic flesh and can be kept fresh for several weeks without refrigeration.

The fruit is popular in some segments of the Latin community as a dessert fruit and is used to flavor sherbets, jams, jellies, and other preserves. The fruit has been introduced into Costa Rica, Guatemala, and Panama, where frozen juice concentrates are produced.

There is a small market for naranjilla pulp in the United States in response to demand from certain Latin American ethnic groups, especially Cubans. Attempts to process the fruit has generally resulted in a significant loss of its delicate flavor. The only form of naranjilla in the market is frozen pulp, which sells for \$1.00-\$1.20 per 1-lb. bag, and cans, which sell for \$18.00 per case of 24.

Although little demand for the fresh produce has been identified, Naranjilla is on the USDA's List of Admissible Fruits and Vegetables from Ecuador in fresh form through North Atlantic ports with a USDA import permit.

No data are available regarding the quantity of naranjilla imports, and the neither USTS nor APHIS has separate classifications for it.

CONCLUSIONS: The naranjilla is a tropical fruit of minor importance in the U.S. market. Trade in the product is limited to some segments of the Latin community. The fruit is largely unknown to the general public and, at this point, to most fruit dealers.

RECOMMENDATIONS: An effort to develop a market for this product alone is not likely to be successful, but in combination with other tropical fruits (guavas and passion fruit, for example) in fresh and processed form, it might be possible to make limited shipments into carefully identified U.S. markets. The study team assumes that current production would be sufficient to expand export shipments considerably.

Passion Fruit (Passiflora Edulis)

The passifloras are known in temperate zones as flowering ornamental plants. In tropical areas, they are grown primarily for their edible fruit. There are two principal types of passion fruit, the purple granadilla, which is common in tropical markets and is eaten as a fresh fruit or juice, and the yellow granadilla, which is too acidic to be eaten as a fresh fruit but makes a pleasantly flavored juice that is blended with other juices to make tropical punches.

The plant is a strong, woody climber native to Brazil, which is still a major exporter of the product. It is now grown in many parts of the world for local consumption and processing. The fruit is not generally available in the U.S. market although traders report a high level of demand for it in any form and, at this point, imports are limited only by supply. The only product the study team saw in the course of its research was in frozen form, which sold for \$1.00-\$1.20 per lb. wholesale.

As with naranjilla, passion fruit imports are not considered as a separate category in the U.S. Department of Commerce trade statistics. APHIS data indicate that the imports of fresh passion fruit are increasing rapidly, having quadrupled to about 66 tons between 1982 and 1983. Major suppliers were New Zealand (57 percent), Colombia (37 percent), and the Dominican Republic (6 percent). Fresh passion fruit is not included on the List of Admissible Fruits and Vegetables from Ecuador.

The first imports of frozen passion fruit (50 tons) were recorded in 1983, dominated by Colombia (64 percent) and Panama (36 percent). Data for 1984 are not yet available from APHIS. Ecuadorian producers would have to concentrate on the production of pulp or juice for export into this market. This might be profitable trade for them, but it would be more effective if they could begin with the export of fresh fruit to establish a place in the market and build their production before undertaking the necessary investment in a processing plant. It is possible that this problem can be overcome by shipping fresh fruit into the West European market, where demand is also growing. More needs to be known about the level of present production and the varieties of passion fruit produced before further meaningful steps can be taken in this direction.

CONCLUSIONS: Passion fruit is enjoying increasing popularity in the U.S. market, and the prospects for increasing imports are good. The potential for Ecuadorian suppliers to enter this market is limited, however, by the ban on fresh passion fruit imports from Ecuador.

RECOMMENDATIONS: It is not advisable for Ecuador to seek to enter this market unless it is able to have the U.S. import ban lifted or to introduce it successfully to West European or Far Eastern markets. The fruit could be included with a group of tropical fruits to be developed for processing (pulping and freezing or juicing) if the combination of products would be sufficient to make efficient use of a small processing facility.

Guanabana (Annona Muricata)

Guanabana (sometimes known as soursop) is a large, up to 5 lbs. each, fruit produced on a slender tree about 20 ft. high. The fruit is ovoid, oblong, heart-shaped, or conical in form and deep green in color with numerous fleshy spines. The flesh is somewhat cottony in texture, juicy and highly aromatic with numerous brown seeds embedded in it.

The tree requires tropical growing conditions and is found in many tropical areas. It is not cultivated commercially because of its low productivity. However, demand for the fruit, especially within Latin America, is growing. The pulp is a good source of riboflavin, niacin, and carbohydrates and a fair source of vitamin C.

The fresh fruit cannot be imported into the United States for two reasons: first, it carries a fungus that is controlled in the United States; second, the spines frequently carry residues from the insecticides used for spraying the growing fruit.

The U.S. Department of Commerce does not carry separate import data for the guanabana fruit. They are aggregated in one of the other fruit categories and thus not identifiable in the data. The fruit is not included in the list of fresh fruits or vegetables that can be imported to the United States from Ecuador, but market contacts indicate that it is imported mostly in the form of pulp to use in making sherbets and juices. It does have a small place in the ethnic Latin markets for these purposes, but the quantities imported are small. Frozen guanabana sells for between \$0.60-\$0.80 per lb. wholesale. The fruit is related to the cheremoya (soursop), which has a more prominent, and growing, importance in the market.

The cheremoya fruit, which is a cousin to the guanabana, is similar to it in size and taste and is in great demand in Latin American markets in the United States. It is sold in flats containing six to eight fruits weighing 10 lbs. net at a wholesale price of \$12.00-\$13.00 per flat.

CONCLUSION: Guanabana is a tropical fruit of minor importance in the U.S. market. There is, however, a small market for the frozen pulp of the fruit that might be capitalized upon by Ecuadorian producers if the production factors are right.

RECOMMENDATIONS: Ecuadorian producers should not concentrate their efforts on the production of guanabana for export to the United States. If there is excess production of guanabana in Ecuador, and if the appropriate equipment is available for processing the fruit into pulp form, it would be possible to make arrangements for a test shipment. This could lead to the establishment of a small, but profitable business for a small exporter. There is, however, little chance that this market will develop enough to justify a major expansion of production. Guanabana will have the best chance of becoming a productive Ecuadorian export if it is included in a multi-product line of tropical fruits.

Many U.S. importers listed in the 1985 Directory of International Trade deal in various tropical fruits. The three who are listed below are particularly well known for their activity in this area. Marc Olesky is noted for the assistance he provides to foreign producer-suppliers.

- La Preferida
91 S. Water Market
Chicago, IL
(312) 666-5868
- Marc J. Olesky
1331 99th Street
Bay Harbor Islands, FL 33514
(305) 886-5648
- Sun World International
82-203 Indio Blvd. #2
Indio, CA 92201
(619) 347-6087

GROUP C COMMODITIES

Cauliflower

Cauliflower is a cool season crucifer of Mediterranean origin that is grown for its white head, a tight mass of flower stalks terminating the main stem. It thrives best in a cool moist climate and is tolerant of acid soils although it has high requirements of boron and molybdenum. Harvest begins three to four months after planting.

The U.S. import market for fresh, chilled, or frozen cauliflower is divided into two seasonal markets: June 5 through October 15 (USTS code no. 135.50) and the rest of the year (USTS code no. 135.51). Both of these markets are dominated almost exclusively by imports from Canada and Mexico. Summer season imports have held relatively steady in terms of both quantity and average price over the past three years. In 1984, imports totaled 4,068 tons valued at over \$1.6 million (average \$0.18 per lb.). Of these import, 94 percent were supplied by Canada whose exporters must pay a 5.5 percent ad valorem duty whereas Mexican producers are exempt from duty under GSP terms.

Off-season imports of cauliflower are only about one-half as large as during the summer season, although they have increased by about 40 percent since 1982 with average prices remaining relatively constant. Off-season imports totaled some 2,068 tons worth \$782,000 in 1984. Mexican producers supplied 54 percent of the market while Canadian producers captured about 43 percent of it.

One interesting note in this market is that the average price of cauliflower imported from Mexico in 1984 was \$0.22 per lb. while Canadian produce attracted only about \$0.11 per lb. This price differential was somewhat less in earlier years, averaging \$0.06 per lb. in 1983 and \$0.05 per lb. in 1982. This

might reflect the fact that different products are exported by the two countries during this season. Mexico probably ships fresh cauliflower during this period, while Canada sends frozen product, which was processed during its peak production season.

Although exports from Mexico to the United States increased by 42 percent between 1982 and 1984, its share of the total import market decreased from 68 percent to 54 percent. Exports from Canada more than doubled during the same period, while its market share increased from 32 percent to 45 percent.

Both Canada and Mexico must pay ad valorem duties of 12.5 percent during this season while other GSP countries can ship their produce into the U.S. duty free. Several other countries have tried to enter this market though none has been notably successful so far. For relatively low-value perishable commodities such as cauliflower, it is simply not possible to compete effectively with Canadian and Mexican producers, who can ship their produce directly into the United States overland, even if the benefits of duty free entry are considered.

Total imports of cauliflower into the United States represent only a small fraction of total U.S. production. In fact, U.S. exports of cauliflower exceed imports by a margin of about 3 to 1. Fresh cauliflower may not be imported into the United States from Ecuador. It is allowed in frozen form, however, but this should not be attempted unless the production is contracted to buyers before production is begun.

CONCLUSIONS: The cauliflower market does not appear to be a likely place to focus Ecuadorian production efforts at this time. Ecuador is not allowed to ship fresh cauliflower into the United States, and the value of the product is too low to justify shipping it to more distant markets. The frozen market could offer some opportunity, but it should not be considered unless the entire output can be contracted to an overseas buyer before the necessary investments in increasing production and processing capacity are undertaken.

Celery (Apium Graveolens)

This type of celery is a plant of Mediterranean origin that is grown for its leafstalks. It constitutes nearly all of the celery consumed in the United States. It requires a long growing season, cool weather, and high soil moisture. Harvesting begins when the plants are fully grown but before the leafstalks begin to turn pithy, three to four months after planting.

Celeriac, or knob celery, is grown for its enlarged, rootlike stem. It is commonly consumed as a cooked vegetable in Europe and certain parts of South America but is almost unknown in the United States.

The United States is both an importer and an exporter of celery. Exports dominate, however, with some 69,000 tons exported in 1984 compared with imports of about 3,000 tons primarily from Canada, France, and Mexico. Major U.S. growing areas are distributed across the country and include California, Colorado, Florida, Michigan, New Jersey, New York, Ohio, Texas, Washington, and Wisconsin. Imports are primarily directed toward filling short-term seasonal gaps in those producing areas.

The U.S. import market for fresh, chilled, or frozen celery is divided into two seasons: April 15 - July 31 (USTS code no. 135.60) and the rest of the year (USTS code no. 135.61). Non-GSP countries must pay import duties of \$0.0025 per lb. during the summer season, and all importers must pay \$0.01 per lb. during the rest of the year. Canadian producers dominate the market overwhelmingly during both seasons.

Imports are limited during both seasons and rather erratic, probably depending on U.S. production levels. Total imports during summer 1984 were about 246 tons valued at just over \$100,000 (average \$0.19 per lb). This was a substantial increase

over the 131 tons imported the previous year, but still less than 1982 imports of 270 tons. Average prices have been stable throughout the period.

Greater quantities are imported during the rest of the year, although the 3,049 tons imported in 1984 marked a decline of 34 percent from 1983 figures. Prices in 1983 were also markedly higher than in 1984 (\$0.15 per lb. versus \$0.11 per lb.). Total 1983 imports were slightly higher than 1982 although the average price was again substantially higher (again \$0.15 per lb. versus \$0.11 per lb.). It is likely that 1983 was a bad year for U.S. celery growers and that Canadian producers responded to the higher prices. A rebound in U.S. production in 1984 lowered the price and demand for imports.

For the first time, both Mexico and Guatemala made significant efforts to enter the off-season market in 1984. Together they accounted for 5 percent of total imports. If they were responding to the higher prices of 1983, the fall in 1984 has probably driven them from the market again. Celery is not on the list of fresh fruits and vegetables permitted to be imported from Ecuador.

CONCLUSIONS: This market is not a good one for Ecuador to try to enter. The low value of the product and the instability of the market suggest that the risk is too high to justify a significant marketing effort. The ban on imports of fresh celery from Ecuador effectively bars the country from the market anyway because most of the trade in celery is in the form of fresh produce.

If celeriac is, or can be, produced in Ecuador, it would be worthwhile to explore the market potential for the product in Western Europe, along with other products.

Cucumbers (Cucumis Sativus)

Cucumbers are a warm season annual crop native to India. They are grown for their immature, fleshy fruit, which is used fresh in salads or for pickling. Total annual production of cucumbers in the United States is about \$50 million with the major production areas being Florida and North Carolina for the fresh market and Wisconsin and Michigan for pickling fruit.

There is a significant U.S. market for imported fresh, chilled, or frozen cucumbers. For data collection and import duty assessment purposes, the market is broken down into several seasons. Mexican producers generally dominate this market overwhelmingly although several other countries also send significant quantities of product into the market.

The winter season (December 1-February 28, USTS code no. 135.90) sees the largest quantity of cucumber imports into the United States. The volume of these imports has grown steadily, increasing from 8,526 tons in 1982 to 11,543 tons in 1984. During the same period, the average prices paid for these imports decreased from \$0.19 per lb. to \$0.12 per lb.

Mexico accounted for 93 percent of 1984 imports. The next largest supplier was the Bahamas, which accounted for 5 percent although, according to the trade data, it received an average of only \$0.04 per lb. for the produce shipped. The Dominican Republic, Guatemala, and Honduras have all increased their cucumber shipments significantly. As GSP countries, they have an advantage compared with the Mexican producers, who must pay a duty of \$0.022 per lb. on their shipments (equivalent to an 18 percent ad valorem duty at \$0.12 per lb. landed price).

Substantial amounts of cucumbers are also imported into the United States during the spring season (March 1-April 30, USTS code no. 135.95) although the totals have been erratic and the

prices have fallen rapidly over the past three years. In 1982, imports totaled 20,280 tons averaging \$0.29 per lb. The total increased to more than 46,700 tons in 1983, but the average price declined to \$0.17 per lb. The amount declined slightly again in 1984, to about 44,300 tons, but the average price fell off even further to \$0.09 per lb.

Mexico has dominated this market throughout the period, supplying at least 95 percent of total imports. The only other countries supplying more than 1 percent of the market are the Bahamas, which has had an erratic supply pattern, and Honduras, which has steadily increased its share of the market although the total value of its exports to this market in 1984 was worth only some \$65,625. Guatemala entered the market in a small way (127 tons) in 1984, and both Jamaica and the Dominican Republic have participated erratically throughout the period.

The GSP countries have a significant advantage in competing with Mexico, which is specifically excluded from GSP relief, for this market. Mexico and other non-GSP countries must pay a duty of \$0.03 per lb. on their exports. This represents an effective ad valorem rate of 33 percent when prices are averaging only \$0.09 per lb.

There is another market during the early summer (May 1-June 30) and early fall (September 1-November 30) seasons (USTS code no. 135.970). Total imports during this split market season totaled 15,709 tons in 1984 worth more than \$5.9 million. This was an 8 percent decrease from 1983 levels but a 44 percent increase of 1982 imports. Average prices were again highly variable falling from \$0.18 per lb. to \$0.12 per lb. between 1982 and 1983 but increasing again to \$0.17 per lb. in 1984.

Mexico is again the dominant player in this market accounting for at least 94 percent of total sales. Canada also plays a significant and increasing role, however, having supplied 4 percent of the market in 1984. It is interesting to note that

the average price of Canadian exports in 1984 was more than twice as high (\$0.37 per lb.) as the Mexican (\$0.16 per lb.). This difference might result from the fact that Canadians sell pickling cucumbers, which are more difficult to grow and harvest, whereas the Mexican producers sell fruit for the fresh market. The Canadian price has been relatively stable over the period, while the Mexican price has varied widely.

All suppliers are charged a duty of \$0.03 per lb. during this market season, thus eliminating the advantage smaller non-traditional suppliers might enjoy over the established producers at other times.

During the summer months of July and August (USTS code no. 135.99), there are small, and again erratic, shipments of cucumbers into the U.S. market. Total imports increased from 566 tons in 1982 to over 2,800 tons in 1983 and decreased again to 1,019 tons in 1984. The average prices received were similarly erratic being \$0.24 per lb. in 1982, \$0.12 per lb. in 1983, and \$0.26 per lb. in 1984. As expected, the period of greatest supply in terms of volume saw the lowest average prices. In fact, Mexico, which supplied 85 percent of the total in 1983, received an average of only \$0.09 per lb. for its crop. Canada, however, which is normally the largest supplier during this time period, received \$0.34 per lb. All GSP countries, including Mexico, are exempt from the \$0.015 per lb. duty, which other suppliers, including Canada, have to pay during this period.

CONCLUSIONS: There is a substantial market for fresh, chilled, or frozen cucumbers in the United States throughout the year. The total imports during 1984 were 176,490 tons worth more than \$46 million, nearly equal to the U.S. crop. The very low (and falling) value of the product and seemingly erratic demand patterns make it an unlikely choice for development in Ecuador, however. The risk of market variations is extremely high, and the competitive disadvantage with Mexico with regard to transport costs make it unattractive for Ecuadorian producers.

Lettuce (Lactuca Sativa)

Lettuce is a cool season annual of Asian origin. It is a popular commodity in the United States where it is used as a primary fresh salad ingredient. Of the four major subspecies, Iceberg head lettuce is the most popular in the United States and is gaining quick acceptance in world markets.

Lettuce is the top-valued vegetable crop in the United States where 1984 production totaled over \$797 million. The largest U.S. production area is California, but lettuce is also produced in several other states across the country. Total exports of the product from the United States outweigh imports by more than 10 to 1.

Imports of lettuce into the United States during the summer season (June 1-October 31, USTS code no. 136.600) have increased steadily during the past three years while average prices have held relatively constant. In 1984, imports totaled 7,790 tons valued at more than \$2.3 million, more than doubling since 1982.

Canadian producers dominate this market, supplying 98 percent of the total in 1984. Mexican producers supplied most of the balance. While Canadian producers received an average of \$0.13 per lb. for their produce, their Mexican counterparts received \$0.23 per lb.

Non-GSP countries must pay duties of \$0.04 per lb. on their exports to the United States, but non-contiguous countries have not been able to make a dent in this market despite this competitive advantage.

The situation is reversed during the winter marketing season (November 1-May 31, USTS code no. 136.610) with Mexican producers supplying over 90 percent of total imports while Canadian

producers come in a very slow second in terms of market share while realizing substantially higher average prices (\$0.43 per lb. versus \$0.19 per lb. in 1984).

Winter season imports have also increased steadily, from 3,220 tons in 1982 to over 7,000 tons in 1984. Average prices fell by just over 50 percent (from \$0.41 per lb. to \$0.20 per lb.) between 1982 and 1983, however, then increased again by about 10 percent (to \$0.22 per lb.) in 1984. Thus, total revenue in 1984 was only about 19 percent higher than in 1982.

Import duties during this period are assessed at the rate of \$0.02 per lb. to all exporting countries. Thus, there is no advantage for those countries included on the GSP list, and, once again, non-contiguous countries have failed to make any significant inroads into the market.

CONCLUSIONS: Even though lettuce is included on the list of those commodities permitted to enter the United States on the basis of an import permit from the USDA, it does not appear to offer an attractive opportunity to Ecuadorian producers. The low and somewhat volatile prices for the product, together with the strong competition from contiguous producers, indicate only a slight chance that Ecuador would be able to enter this market in any major way.

Squash

Squash are warm season annual cucurbits native to America. Popular varieties of summer squash include the yellow straight-neck, cocozelle, scallop, and zucchini. Popular winter squash varieties include table queen, butternut, and blue hubbard. A number of hybrid varieties are also becoming popular.

Squash has become an increasingly important crop for U.S. truck farmers. California alone accounts for approximately 50,000 acres of the crop annually, and other states also produce significant amounts.

Total imports of squash into the United States have increased steadily in recent years to over 60,000 tons worth about \$24 million in 1984. The average value of the crop decreased from \$0.24 per lb. in 1983 to only \$0.18 per lb. in 1984, however, and total revenues from the crop were lower in 1984 than they were in 1982.

Historically, Mexico has accounted for nearly all of the squash imports to the United States. The Dominican Republic entered the market with about 2,000 tons of product (3 percent of total imports) in 1984. The average prices it received were slightly below the overall average at \$0.17 per pound, and Dominican activity in the 1985 market is not yet known.

Nearly all of the trading in squash appears to be in fresh form. The USDA ban on fresh squash from Ecuador thus effectively blocks it from the market, at least for now. Otherwise, Ecuador, along with the Dominican Republic, enjoys an advantage, as a GSP country, over Mexico, which must pay duties of \$0.011 per lb. for its exports to the United States.

CONCLUSIONS: A major effort to develop exports of squash to the United States at this time does not appear to be justified. The block on imports of fresh squash from Ecuador, together with the relatively low value of the product and therefore relatively high transport rates, appears to block Ecuador from large-scale participation in this market.

CHAPTER FIVE

GENERAL RECOMMENDATIONS

Specific recommendations regarding the commodities covered by this study were offered in Chapter Four of this report, and Chapter Two and Three discussed some general observations and conclusions arising from the research. This chapter offers general recommendations to help ANDE and the Ecuadorian producers formulate a realistic and effective export promotion program.

1. The initial thrust of this program should be placed on products that have a relatively high unit value and that can enter the U.S. market during the seasons when U.S. production, if any, is at a minimum. Building on market strength (the existing market for dehydrated bananas) and developing products with relatively large markets in the United States (yams, berries, and pigeon peas) will increase the likelihood of achieving initial successes in the marketing program and further developing Ecuador's credibility in the market place. This should be done before attempting to market the other commodities.

2. Ecuadorian producers should proceed slowly and cautiously in attempting to enter the West European and Far Eastern markets. The possibility of shipping yams and pigeon peas to the United Kingdom should be investigated further as a first step into the EEC market. This might be complemented with attempts to introduce Ecuadorian dehydrated bananas, which are already known to have a high quality, into the French markets, along with fresh blueberries and blackberries. Long-term efforts to enter this market should be based on well-planned and executed Ecuadorian participation in some important West European trade shows. This should, of course, not be done until Ecuador is in a position to deliver the goods to be sold at these shows. It will probably not be cost-effective to seek to enter the Far Eastern markets in a significant way unless Ecuadorian producers (or the government) are prepared to make the major investments that would be required to develop them properly.

3. Export promotion efforts should be built around the development of a group of export commodities. Most U.S. buyers deal in various types of produce and are generally not interested in taking the time and trouble to develop sources of single commodities, unless these are of such huge scale (fresh bananas, for example) that they can justify the investment on their own merit. The commodities proposed for export from Ecuador do not fall into that category. It is for this reason that this study proposes the development of three groups of commodities -- berries, tropical vegetables (yams and pigeon peas), and exotic tropical fruits -- along with the already important dehydrated bananas.

4. Ecuadorian producers, and the private and public sector agencies that are interested in assisting them, should carefully consider the possibility of developing the country's agroprocessing capacity. The study team does not have complete information on the processing capacity that currently exists, but trade data suggest that it is limited. The need for this capacity is a result of the U.S. ban on most commodities that might be imported from Ecuador fresh, and the value added that can be gained by processing operations. The agroprocessing capacity would also increase market security, which can be gained by selling produce in a processed form -- usually canned, pulped, or frozen.

The development of any new processing facilities should be undertaken only on the basis of thorough feasibility studies and complete analyses of the market prospects for the specific items to be produced. In many cases, there is probably not now a sufficient quantity of product available to justify the expenditure in a processing facility. Careful attention during the design of the facility and scheduling of production runs can make it possible to process several commodities in a single

facility, however, and thus make the entire installation viable. There are already many unused and rusting fruit and vegetable processing plants scattered around the developing world. It would be most disheartening to see this total grow because proper planning and analysis did not precede any new investment in plant and equipment in Ecuador.

5. More detailed, commodity specific market research should be conducted once more information is known about the agronomic and economic factors related to the commodity. Once it is determined how much of a product is available, of what quality, at what price and when, it will be relatively easy to determine whether there will be a buyer for the product when it is ready for shipment.

6. Serious attention should be given to the need for a central private sector marketing agency in Ecuador. The marketing agency should come from the private sector because government agencies generally have a poor record in conducting these activities. If it is privately owned, and the income of the people involved is determined by the amount and quality of business done, there is a greater likelihood that the marketing effort will be pursued aggressively, as it must be to succeed.

The need for this central marketing agency, or perhaps more than one, is greatest in those commodities that are produced by large numbers of very small growers who have no way of developing their own marketing relationships with importing country traders. The central agency can operate as an independent trader, buying and selling on its own account, although in this case there should be more than one to compete for the produce. Or it can be organized as a producers' central marketing cooperative, which can also own its own packing and processing facilities. It can also serve as a source of technical and market information for the producers as well as a central information source for foreign

buyers. What is most important is that it be a serious business operation staffed by respected and honest professionals whose livelihood depends on its success.

The participation of individual producers in this centralized system should be completely free. In some cases, they may be able to make better deals on their own, and this competition is generally healthy, but it should be open to all. The design of such a facility is a task well beyond the one reported on here, but the study team strongly encourages that it be done.

7. At least initially, there is a need for a continuing U.S. representation for the marketing program. This is necessary to identify and establish linkages with appropriate U.S. buyers as well as to coordinate test shipments and gather market information on behalf of the Ecuadorian producers. This representation might be carried out in conjunction with the Ecuadorian Commercial Office in New York or established by means of a retainer or consultancy relationship with an appropriate consultant in the United States.

8. Several other products might be developed for export from Ecuador:

Garlic: If proper varieties of garlic are properly cultivated, large quantities can be sold at good prices in various markets. Garlic imports from Ecuador are currently not allowed to enter the United States, but other markets offer good potential for Ecuadorian producers. These include Brazil, which imports approximately 200,000 boxes per month from Argentina, Chile, and Mexico. France imports garlic in the winter months, about 8,000 tons per year, from Argentina and Mexico. The United States imports about 17,000 tons per year from Mexico, South America, and Spain. Many

other countries are also active in this trade, and entering the market successfully as a producer is largely a matter of quality and price.

Asparagus: This is also a good commodity for Ecuadorian producers to consider, especially for Western Europe and the Far East during the winter months. The winter asparagus market in the United States is also good with approximately 6,000 tons valued at more than \$7 million imported last year from Argentina, Chile, Mexico, New Zealand, and South Africa. Asparagus from Ecuador is allowed to enter the U.S. market with a USDA import permit.

Artichokes: Artichokes are also popular on the North American market, and there is a good market window during the months of January through March when U.S. production is at its lowest. This commodity is admissible to the United States through North Atlantic ports. A West European market for artichokes could be developed if the production capacity were sufficiently developed.

Melons: The demand for melons is strong, and imports of various types of melons into the United States are rapidly increasing. Exports from Ecuador to the United States are currently not allowed, but, if the ban could be lifted, it should be possible to develop good business in this trade following the example of several other Central and South American and Caribbean countries.

Okra: There is also a market for imported okra in the United States, both fresh and in processed form for use in the soup industry. Nicaragua has traditionally been a major supplier of this commodity; this might leave an opening in the market if the current economic sanctions against that country by the United States are maintained.

In conclusion, there is good potential for Ecuador to increase the level of its agricultural exports substantially. There are ample examples of these programs being carried out to justify optimism that this can be done and work to the benefit of small-scale producers. It is not easy, however, and its success depends on the concurrence of a number of factors involving government policy in several areas (trade, agriculture, cooperatives, and banking) and the attitudes and capabilities of the private sector. But with care and diligence in its pursuit, it can be done.

ANNEX A

LIST OF ADMISSIBLE FRUITS AND
VEGETABLES FROM ECUADOR

LIST OF ADMISSIBLE FRUITS AND VEGETABLES FROM ECUADOR

- A. The following items are admissible from Ecuador into the entire United States (includes Continental United States, Guam, Alaska, Hawaii, Puerto Rico, and the Virgin Islands) without a USDA import permit.

Cannonball fruit
 Coconut (without husk or without "milk")
 Cyperus corm
 Lily bulb, edible
 Maguey
 Mushroom (fresh)
 Peanut (raw)
 St. Johnsbread
 Tamarind bean pod
 Truffle (fresh)
 Waterchestnut
 Waternut

In addition to the above items, other food materials including such items as dried beans and peas (except Vicia faba, Lens spp. and Lathyrus spp.), dried seeds, dried bamboo leaves, dried herbs, and similar commodities are admissible for food purposes and may be imported without permit from all sources into any port subject to inspection on arrival. Dried nuts without fleshy or leathery husk (except acorns, chestnuts, coconuts and macadamia nuts) are enterable for food purposes without permit at all ports, subject to inspection.

- B. The following items are admissible from Ecuador with a USDA import permit issued in advance of shipment. Permits are only issued to importers and brokers residing in the United States.

1. Admissible into the entire United States (includes Continental United States, Guam, Alaska, Hawaii, Puerto Rico, and the Virgin Islands):

Items listed in paragraph A and:

Allium	Lettuce
Asparagus	Lime
Banana (no permit required)	Mango (treatment required under USDA supervision in country of origin. See 319.56-2i)
Carrot (no tops)	Palm heart
Cassava	Pineapple (except Hawaii)
Chestnut (treatment required see 319.56-2b)	Radish (no tops)
Corn, green	Strawberry
Dasheen	Watercress
Durian	Yam (treatment required see 319.56-2m)
Ginger root	
Lemon	

continued

ECUADOR

2. Admissible into North Atlantic ports - (Atlantic ports north of and including Baltimore; ports on the Great Lakes and the St. Lawrence Seaway; Canadian border ports east of and including North Dakota; Washington, DC (including Dulles) for air shipments):

Items listed in paragraph A and B-1 and:

Apple (treatment required see 319.56-2d or 2r)	Naranjilla
Artichoke (Globe)	Okra
Beans, pod or shelled	Orange (treatment required see 319.56-2d)
Cabbage	Pepino
Cacao bean pod	Pigeon pea
Chickpea	Tangerine (treatment required see 319.56-2d)
Cucurbit (commercial shipments only)	Tomato (commercial shipments only)
Ethrog (treatment required see 319.56-2d, or 2r, or 2l)	<u>Rubus</u> spp.
Grapefruit (treatment required see 319.56-2d)	

3. Admissible into South Atlantic Gulf ports - (Atlantic ports south of Baltimore; Gulf ports; Puerto Rico, and the Virgin Islands)

Items listed in paragraph A & B-1 and:

Cacao bean pod
Okra (treatment required see 319.56-2t)
Rubus spp.

4. Admissible into North Pacific ports - (North Pacific ports do not include California).

Items listed in paragraph A & B-1 and:

Cacao bean pod
Mangosteen

5. Admissible into Puerto Rico and the U.S. Virgin Islands.

Items listed in paragraph A, B-1 & B-3 and:

Chickpeas

- C. Frozen fruits and vegetables: Freezing is an acceptable treatment for most fruits and vegetables. The treatments involves an initial quickfreezing at sub-zero temperatures with subsequent storage and handling at not higher than 20°F at the time of arrival.

ANNEX B

**REQUIREMENTS OF LAWS AND REGULATIONS ENFORCED BY
THE U.S. FOOD AND DRUG ADMINISTRATION**

Requirements
of Laws and Regulations
Enforced by the
U.S. Food and Drug
Administration



U.S. Department of Health and Human Services
Public Health Service
Food and Drug Administration

Dried Mushrooms

Only edible species of dried mushrooms may be offered for import. The most common bar to entry, however, is insect infestation, usually by flies or maggots. Dried wild mushrooms should be handled by people who know how to sort out insect-infested mushrooms and those not clearly identifiable as edible species. If insect infestation is so heavy in a particular growing area that it is impractical to sort out the insect-infested ones, then the mushrooms from that area should not be offered for entry. The mushrooms should be protected during drying and storage to prevent their contamination with insects, rodent and bird filth, or other objectionable material. Canned mushrooms should be essentially free of insect infestation. Since the canned product is prepared from domesticated varieties grown under enclosure, the careful producer can readily prevent access by insects.

Fresh Fruits

Apples and other fruits bearing excessive residues from insecticide sprays or dusts are adulterated under the Federal law. (See next section entitled "Pesticidal Residues on Raw Agricultural Products.")

Pineapples showing or likely to show the internal condition known as "brown heart," or "black heart," should not be offered for entry into the United States.

Blueberries and huckleberries sometimes contain small larvae which render them unfit for food. Fruit from infested areas should be avoided. Fresh blueberries should be held and transported under conditions which will prevent mold or other types of spoilage.

Pesticidal Residues on Raw Agricultural Commodities

"Raw agricultural commodity" means any food in its raw or natural state, including all unprocessed fruits, vegetables, nuts, and grains. Foods that have been washed, colored, waxed, or otherwise treated in their unpeeled natural form are considered to be unprocessed. Products of this kind containing pesticide residues are in violation of the Federal Food, Drug, and Cosmetic Act unless: (1) the pesticide chemical has been exempted from the requirement of a residue tolerance; or (2) a tolerance has been established for the particular pesticide on the specific food and the residue does not exceed the tolerance (408).

Processed foods that contain any residue of a pesticide which is not exempted or for which no tolerance has been established are adulterated under section 402(a)(2)(C) of the Act. If a tolerance has been established, a pesticide residue in the processed food does not adulterate the ready to eat food if the residue does not exceed the tolerance established for the raw agricultural commodity. The applicable regulations are in 21 CFR 180 and 193.

Tolerances for pesticidal residues on many raw agricultural commodities have been established under section 408 of the law. Tolerances are established, revoked or changed, as the facts warrant such action, by

absence of nutrition labeling. Quantitative standards and label terminology for sodium declarations are established as follows:

"Sodium free"—less than 5 mg. per serving.

"Very low sodium"—35 mg. or less per serving.

"Low Sodium"—140 mg. or less per serving.

"Reduced sodium"—processed to reduce the usual level of sodium by 75 percent.

"Unsalted"—processed without salt when the food normally is processed with salt.

Voluntary compliance began when the rules were published, to become mandatory July 1, 1985, for all affected products marketed after this date. Further information is obtainable from Food and Drug Administration (HFF-204) 200 C Street, SW., Washington, D.C. 20204.

Sanitation Requirements

One of the basic purposes of the Food, Drug, and Cosmetic Act is protection of the public from products that may be deleterious, that are unclean or decomposed, or have been exposed to insanitary conditions that may contaminate the product with filth or may render it injurious to health.

Sanitation provisions of the Food, Drug, and Cosmetic Act go further than to prohibit trade in products that are carriers of disease. The law also requires that foods be produced in sanitary facilities. It prohibits distribution of foods which may contain repulsive or offensive matter considered as filth regardless of whether such objectionable substances can be detected in the laboratory. Filth includes contaminants such as rat, mouse, and other animal hairs and excreta, whole insects, insect parts and excreta, parasitic worms, pollution from the excrement of man and animals, as well as other extraneous materials which, because of their repulsiveness, would not knowingly be eaten or used. The presence of such filth renders foods adulterated, whether or not harm to health can be shown.

The law thus requires that food be protected from contamination at all stages of production. Such protection includes extermination and exclusion of rodents, inspection and sorting of raw materials to eliminate the insect-infested and decomposed portions, quick handling and proper storage to prevent insect development or contamination, the use of clean equipment, control of possible sources of sewage pollution, and supervision of personnel who prepare foods so that acts of misconduct may not defile the products they handle.

Foods that are free from contamination when they are shipped sometimes become contaminated en route and must be detained or seized. This emphasizes the importance of insisting on proper storage conditions in vessels, railroad cars, or other conveyances. While the shipper may be blameless, the law requires action against illegal merchandise no matter where it may have become illegal. All shippers should pack their products so as to protect them against spoilage or contamination en route, and should urge carriers to protect the merchandise by main-

taining sanitary conditions and segregating food from other cargo which might contaminate it. For example, vessels transporting foods may also carry ore concentrates and poisonous insecticides. Improper cargo handling or disasters at sea have resulted in shipments becoming seriously contaminated, with detentions required.

Where import shipments become contaminated after Customs entry and landing (for example, in truck accidents, fires, barge sinkings, etc.), legal actions are not taken under the import provisions of the law, but by seizure proceedings in a Federal district court, as with domestic interstate shipments (304).

Fumigation of commodities already infested with insects will not result in a legal product since dead insects or evidence of past insect activity are objectionable. Fumigation may be employed where necessary, to *prevent* infestation, but care is required to prevent buildup of nonpermitted chemical residues from fumigation.

Current Good Manufacturing Practice Regulations

To explain what is needed to maintain sanitary conditions in food establishments, FDA has published a set of Current Good Manufacturing Practice Regulations. These tell what kinds of buildings, facilities, equipment, and maintenance are needed, and the errors to avoid, to insure sanitation. They also deal with such matters as building design and construction, lighting, ventilation, toilet and washing facilities, cleaning of equipment, materials handling, and vermin control. Food firms which do not have copies of these regulations are urged to request them by writing to the Food and Drug Administration. (See inside back cover.)

Many food materials are intended for further processing and manufacture into finished foods. Such processing in no way relieves the raw materials from the requirements of cleanliness and freedom from deleterious impurities.

Tolerances for Filth

~~Many inquiries are received by the Food and Drug Administration as to permitted variations from absolute cleanliness or soundness in foods. The Act does not explicitly provide for "tolerances" for filth or decomposition in foods. It states that a food is adulterated if it consists in whole or in part of a filthy, putrid, or decomposed substance.~~

This does not mean that a food must be condemned because of the presence of foreign matter in amounts below the irreducible minimum after all possible precautions have been taken. FDA recognizes that it is not possible to grow, harvest, and process crops that are totally free of natural defects. The alternative—to increase the use of chemicals to control insects, rodents, and other sources of contamination, is not acceptable because of the potential health hazards from chemical residues. To resolve the problem FDA has published a list of "defect action levels," stating the amounts of contamination which will subject the food to enforcement action. Copies may be obtained by request to the nearest FDA office.

ANNEX C

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

Fruits and Vegetables
Quarantine (7 CFR 319.56)

As revised through
March 30, 1982

Title 7—AGRICULTURE

**Chapter III—Animal and Plant Health
Inspection Service**

**PART 319—FOREIGN QUARANTINE
NOTICES**

Subpart—Fruits and Vegetables

QUARANTINE

19.56 Notice of quarantine.
19.56a Administrative instructions and interpretation relating to entry into Guam of fruits and vegetables under § 319.56

RULES AND REGULATIONS

- 19.56-1 Definitions
- 19.56-2 Restrictions on entry of fruits and vegetables
- 19.56-2a Permits required for entry of chestnuts and acorns and certain coconuts.
- 19.56-2b Administrative instructions: conditions governing the entry of acorns and chestnuts.
- 19.56-2c Administrative instructions authorizing the importation of frozen fruits and vegetables.
- 19.56-2d Administrative instructions for cold treatments of certain imported fruits.
- 19.56-2e Administrative instructions prescribing method of fumigation of oranges, grapefruit, and tangerines from Mexico and certain Central American countries.
- 19.56-2f Administrative instructions: conditions governing the entry of epollim from Morocco
- 19.56-2k Administrative instructions prescribing method of treatment of oranges, grapefruit, tangerines, and Manila mangoes from Mexico.
- 19.56-2h Administrative instructions prescribing method of treatment of garlic from specified countries.
- 19.56-2i Administrative instructions concerning handling and treatment of mangoes from Central America, the West Indies, and Brazil.

- 319.56-2j Administrative instructions prescribing method of fumigation of mangoes and plums from Mexico and plums from Guatemala.
- 319.56-2k Conditions governing the entry of apples and pears from Australia (including Tasmania) and New Zealand.
- 319.56-2l Administrative instructions prescribing method of fumigation of field-grown grapes from specified countries.
- 319.56-2m Administrative instructions prescribing method of treatment of imported yams.
- 319.56-2n Administrative instructions prescribing method of fumigation of apricots, grapes, nectarines, peaches, and plums from Chile.
- 319.56-2p Administrative instructions prescribing method of fumigation of oranges, grapefruit, citrons (Citrus medica), and tangerines for the Mediterranean fruit fly.
- 319.56-2r Administrative instructions prescribing a combination treatment of fumigation plus refrigeration for certain fruits
- 319.56-2s Administrative instructions prescribing method of treatment of avocados for the Mediterranean fruit fly, the melon fly, and the oriental fruit fly
- 319.56-2t Administrative instructions prescribing treatment and relieving restrictions regarding importation of okra from Mexico, the West Indies, and certain countries in South America.
- 319.56-3 Applications for permits for importation of fruits and vegetables.
- 319.56-4 Issuance of permits
- 319.56-5 Notice of arrival by permittee
- 319.56-6 Inspection and disinfection of importations of fruits and vegetables
- 319.56-7 Inspection of baggage and cargo on the dock
- 319.56-8 Territorial applicability.

QUARANTINE

§ 319.56 Notice of quarantine.

(a) The fact has been determined by the Secretary of Agriculture, and notice is hereby given: (1) That there exist in Europe, Asia, Africa, Mexico, Central America, and South America,

fumigation shall consist of fumigation with methyl bromide at normal atmospheric pressure in a fumigation chamber that has been approved for that purpose by the Plant Protection and Quarantine Programs. The fumigation may also be accomplished under tarpaulins in a manner, satisfactory to the inspector, that will insure adequate air and fruit temperatures, volatilization, distribution, and concentration of the fumigant. Such fumigation shall be in accordance with the following fumigation schedule:

Temperature, degrees F	Methyl bromide dosage in pounds per 1,000 cubic feet	Exposure time—hours
70-79	2	2½
60-69	2½	2½
50-59	3	2½
40-49	3½	2½

(e) *Supervision of fumigation.* Inspectors of the Plant Protection and Quarantine Programs shall supervise the fumigation of grapes and shall prescribe such safeguards as may be necessary for unloading, handling, and transportation preparatory to fumigation or other treatment. The final release of the fruit for entry into the United States will be conditioned upon compliance with prescribed safeguards and required treatments.

(f) *Costs.* All costs of treatment and required safeguards and supervision, other than the services of the supervising inspector during regularly assigned hours of duty and at the usual place of duty, shall be borne by the owner of the grapes or his representative.

(g) *Department not responsible for damage.* The treatment prescribed in paragraph (d) of this section is judged from experimental tests to be safe for use with field-grown grapes. However, the Department assumes no responsibility for any damage sustained through or in the course of such treatment or by compliance with requirements under paragraph (e) of this section or in the precooling of fruit required prior to unloading from the vessel.

prescribing method of treatment of imported yams.

(a) *Fumigation upon arrival.* Except as otherwise provided in paragraph (b) of this section, approved fumigation with methyl bromide at normal atmospheric pressure, in accordance with the following procedure, upon arrival at the port of entry, is hereby prescribed as a condition of importation under permit under § 319.56-2 for shipments of yams from all foreign countries.

(1) *Ports of entry.* Yams to be offered for entry may be shipped, under permit under § 319.56-2, direct from the country of origin to ports in the United States where approved fumigation facilities are available.

(2) *Approved fumigation.* (i) The approved fumigation shall consist of fumigation with methyl bromide at normal atmospheric pressure, in a fumigation chamber that has been approved for that purpose by the Plant Protection and Quarantine Programs. The dosage shall be applied at the following rates:

Temperature, (F)	Dosage (pounds of methyl bromide per 1,000 cubic feet)	Exposure period (hours)
90-96	2.5	4
80-89	3.0	4
70-79	3.5	4

(ii) Yams to be fumigated may be packed in slatted crates or other gas-permeable containers. The fumigation chamber shall not be loaded to more than two-thirds of its capacity. The four-hour exposure period shall begin when all the fumigant has been introduced into the chamber and volatilized. Cubic feet of space shall include the load of yams to be fumigated. The required temperatures apply to both the air and the yams. Good circulation above and below the load shall be provided as soon as the yams are loaded in the chamber and shall continue during the full period of fumigation and until the yams have been removed to a well-ventilated location. Fumigation of yams below the minimum tem-

ANNEX D
UNITED STATES STANDARDS FOR
GRADES OF BLUEBERRIES

**UNITED STATES STANDARDS
FOR GRADES OF
BLUEBERRIES**

EFFECTIVE JUNE 1, 1966



U.S. DEPARTMENT OF AGRICULTURE
CONSUMER AND MARKETING SERVICE
WASHINGTON, D.C.

TABLE I—SHIPPING POINT¹

No. of samples ²	Total berries	Total defects (including serious damage, damage and injury)	Damage (including serious damage)	Serious damage (including decay)
6.....	600	65	25	3
8.....	800	73	32	4
10.....	1,000	90	39	5
12.....	1,200	106	46	6
15.....	1,500	130	56	7
18.....	1,800	154	66	8
Total defective berries permitted in individual 100 berry sample....		13	7	1

TABLE II—EN ROUTE OR AT DESTINATION

No. of samples ²	Total berries	Total defects (including decay, serious damage, damage and injury)	Damage (including serious damage and decay)	Serious damage (not including decay)	Decay
6.....	600	59	23	3	3
8.....	800	76	35	4	3
10.....	1,000	94	43	5	4
12.....	1,200	110	50	6	4
15.....	1,500	135	61	7	6
18.....	1,800	160	72	8	6
Total defective berries permitted in individual 100 berry sample.....		13	7	1	2

¹ Shipping point, as used in these standards, means the point of origin of the shipment in the producing area or at port of loading for ship stores or overseas shipment, or, in the case of shipments from outside the continental United States, the port of entry into the United States.
² The number of 100 berry samples examined will depend upon the number of containers in the lot but it must be one of the sample numbers indicated in the table.

(b) *Off-size*.—In order to allow for variations incident to proper sizing not more than 10 percent of the samples in any lot or one sample, whichever is the greater number, may fail to meet the range in count specified for one of the size classifications in § 51.3478 or the maximum count specified in § 51.3476.

DEFINITIONS

§ 51.3480 Similar varietal characteristics.

"Similar varietal characteristics" means that the berries are similar in color and shape.

§ 51.3481 Clean.

"Clean" means that the individual berry is practically free from dirt, frass, or other foreign material.

§ 51.3482 Well colored.

"Well colored" means that more than one-half of the surface of the individual berry is blue, bluish-purple, purple, or bluish-black.

§ 51.3483 Overripe.

"Overripe" means that the individual berry is overmature, soft, and past commercial utility.

§ 51.3484 Wet.

"Wet" means that the individual berry is wet from juice from crushed, leaking, or decayed berries.

§ 51.3485 Injury.

"Injury" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects which more than slightly affects the appearance, or the edible or marketing quality of the blueberries. The following specific defects shall be considered as injury:

- (a) Berries which are not clean;
- (b) Clusters when there are three or more joined capstems with at least one berry attached;
- (c) Berries with stems attached;
- (d) Russeting when readily noticeable;
- (e) Scales when readily noticeable;
- (f) Scars when readily noticeable; and,
- (g) Berries which are not well colored.

§ 51.3486 Damage.

"Damage" means any specific defect defined in this section, or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially affects the appearance, or the edible or marketing quality of the blueberries. The following specific defects shall be considered as damage:

- (a) Broken skins when caused by stem cracks, bird tears, water splits, punctures, or mechanical means;
- (b) Green berries when one-half or more of the berry is green;
- (c) Wet berries;
- (d) Shriveled when the skin is wrinkled and the shape of the berry is distorted; and,
- (e) Overripe berries.

1.3107 Serious damage.

"Serious damage" means any specific defect defined in this section, or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which seriously affects the appearance, or the edible or marketing quality of the blueberries. The following specific defects shall be considered as serious damage:

- (a) Decay;
- (b) Moldy berries;
- (c) Mushy berries;
- (d) Mummified berries; and,
- (e) Insects when any insect larva is present or there is other visible evidence of the presence of insects.

The U.S. Standards for Grades of Blueberries contained in this subpart shall become effective June 1, 1966.

Dated: April 18, 1966.

G. R. GRANGE,
*Deputy Administrator,
Marketing Services.*

[F.R. Doc. 66-4411: Filed, Apr. 21, 1966;
8:48 a.m.]

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E

END