NICARAGUA

ARAP

Agriculture Reconstruction Assistance Program

Export Ornamentals for the North American Market
Cut Flower Sector Study

Prepared by:
Michael S. Reid

Submitted by:
Chemonics International Inc.

To:
United States Agency for International Development
Managua, Nicaragua
Under RAISE IQC Contract No. PCE-I-00-99-00003-00
Task Order No. 802
August, 2000

Itinerary

Tuesday July 25
- Meeting with Henry Pedrozian, CNIA, a visiting scholar in theUC Davis Department of Food Science and Technology

Wednesday July 26
Sacramento to Managua
Depart Sacramento
Arrive Managua
Thursday, July 27
Meeting with ARAP officials
- Planning for scheduled visits
- Visit to coolstore and export handling operation at airport
- Visit CNIA
- Visit small-scale potted plant grower, nursery and growing area
- Visit nursery operations, Santa Catarina, Masaya

Friday July 28
- Travel to Matagalpa,
- Visit greenhouse operations in the hills above Matagalpa
- Discussion with growers
- Drive to Jinotega

Saturday July
- Discussion with growers
- Visit cooperative greenhouse operation
- Visit greenhouse grower
- Tour vegetable packing line and coolstore

Sunday July 30
- Prepare Monday seminar

Monday July 31
- Drive to Matagalpa
- Deliver seminar (appended)

Tuesday August 1
- Discussions with CNIA staff

Wednesday August 2
Managua to Sacramento

Foreword

This report summarizes the results of a request from the ARAP project (Appendix I) that I evaluate the prospects in Nicaragua for establishing an export cut flower industry. I visited Nicaragua in late July, and met with present growers in the Matagalpa region, as well as visiting other potential production areas and examining the facilities at the airport in Managua for export of perishables. Although my stay in Nicaragua was relatively brief, I had the opportunity to see much of the current floricultural production in the country, and to visit potential production areas in the zone affected by Hurricane Mitch, thanks to the energy of the staff at ARAP, who put in some substantial days to accommodate my abbreviated schedule. I thoroughly enjoyed my visit, and found much to think about with respect to the development of this beautiful country, which clearly has substantial potential for agricultural development, and a desperate need for increased productivity to support its population. In particular, I should like to thank the staff for spending long hours driving me around the country, and helping me understand the present situation in Nicaragua.

I greatly appreciated the hospitality of all that I met, and their willingness to share information and ideas. I thank the growers for allowing me to visit their farms, and for invaluable help in giving me information on projected costs of production. My analysis suggests that there is potential for Nicaragua to become a producer and exporter of targeted ornmental crops, and I look forward to seeing the implementation, through the ARAP project, of the recommendations contained in this report.

Michael S. Reid

November, 1999

SUMMARY

There seems to be limited potential for Nicaragua to become a major player in the production and sale of traditional cut flowers for the North American market. Present market trends indicate, at best, a plateau in the consumption of cut flowers, and Nicaraguan production would be in direct competition with production from other countries in the region, countries with considerable competitive advantages in terms of climate, infrastructure, and established market presence. My recommendation is that thought be given to the possibility of exporting ornamentals crops by marine container, which opens up other sectors of the ornamentals market, particularly the production of tropical flowers, and production of bedding plants.

1. Introduction

Flowers have long played an important role in the lives and culture of the peoples of Central America, and the diverse flora of the tropical forests includes many wonderful ornamental plants. In other countries of the region, the production of cut flowers and other ornamentals has become an important means of generating foreign exchange, but the geography and politics of Nicaragua have hitherto not favored development in this sector. As requested by the ARAP project, I visited Nicaragua in July/August 2000 to consider the prospects for establishing an export market in cut flowers from Egypt. I visited a number of growers, and the present perishables export facility at the Managua airport.

1.1 The local market for flowers in Nicaragua

As detailed in a companion comprehensive report by, the market for cut flowers in Nicaragua is relatively small, and largely supplied by imports from major producers in the region, particularly Costa Rica and Ecuador. Indeed, several of the participants at the seminar that was presented in Matagalpa commented that the survey under-represents the volume of product being imported. There clearly is at least a modest opportunity to replace imported product with locally grown cut flowers and, particularly, potted plants and nursery materials. As standards of living improve, and tourist interest in Nicaragua revives, there will be increased opportunities to produce flowers and other ornamentals for the local market. It would be well worthwhile exploring opportunities in the native flora, and for crops that could become a tourism 'signature' for the country, in addition to the traditional crops that are the focus of the small-scale operations presently producing flowers and nursery materials for the local market.

In the Matagalpa area, floriculture greenhouses are perched on vertiginous slopes. Fern production (under shade cloth, in the background) is modeled on production in Costa Rica.

1.2 Present production facilities

The cut flower production facilities that we visited, all in the Matagalpa region, were on a very modest scale, and operating under what I consider to be extremely difficult climatic and topographic conditions. Greenhouses were perched on very steep slopes, making construction and management of the greenhouses difficult. The climate in the Matagalpa area, although cool, is very wet (1000 – 1500 mm annual precipitation) which increases disease pressure, both in the root zone and on the leaves and flowers.

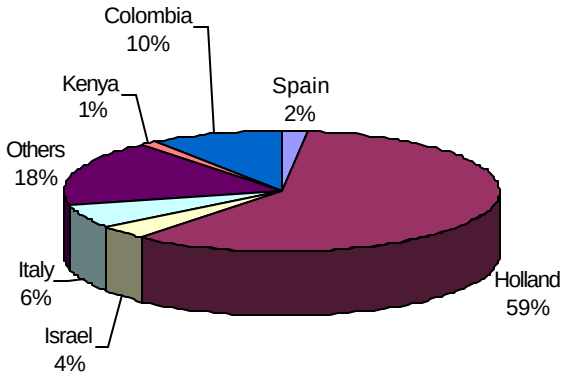
Export production of ornamentals is presently confined to several large 'turnkey' operations producing leatherleaf fern in the manner that has been so successful in Costa Rica. This crop is well adapted to high rainfall, and although the slope of the fields must increase the cost of production, these enterprises are said to be successful.

2. The market for cut flowers

Although the terms of reference for this visit were in relation to the U.S. market for cut flowers, the global nature of the market for these products means that valuable indicators can be obtained by considering recent developments in the world market.

2.1 The world market for cut flowers

The global flower market is expanding very rapidly and in the year 2000 the market is expected to gross, annually, in excess of US$23 billion. World exports of cut flowers are conservatively estimated to be in excess of $5 billion. 59% of the total worldwide exports are from Holland; other important exporting countries are Colombia (mostly to North America), Italy, Israel, Spain, and Kenya.



Share of the world exports of cut flowers - total value

The Netherlands leads the world in the production and export of flowers, a result of the success of sophisticated production systems and of the Dutch wholesale auctions. However the production of flowers in Holland is rather expensive because of the cold and low-light winter climate and high labour costs. During the autumn, winter and springtime the Dutch growers have to grow flowers in greenhouses with heating and lighting installations and in addition to the consequent high cost of energy are still handicapped by the short days and the lack of light intensity during that time of the year.

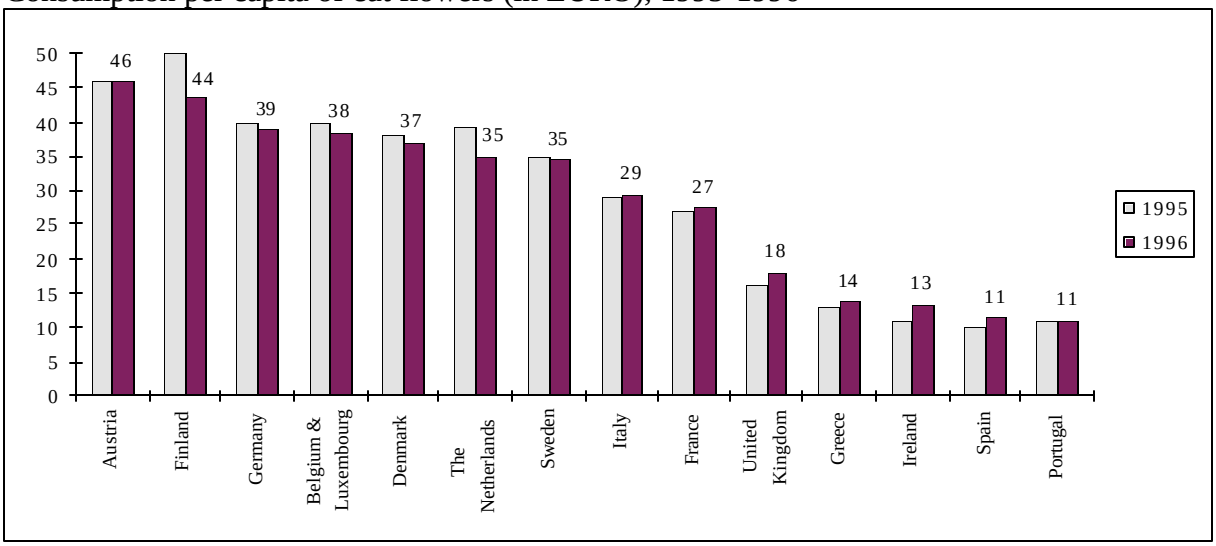
As a result of this the flower production in Holland is stagnating and countries like **Colombia, Israel, Kenya, Zimbabwe and Spain** are primary sources of European floricultural products in the winter months, especially of high-volume products like carnations and roses.

2.2 Market Trends - 1996-1998

Because of the important role of the Dutch auctions, and the fact that many floral trends originate in Europe, developments there tend to be predictors of developments in the US market. In recent years, cut flower sales have shown a declining tendency. However, average consumer prices of bouquets are slightly up indicating that consumers are buying fewer, but more expensive bouquets. As a consequence of the bouquet business, many large growers are diversifying their production mix, adding crops specifically for use in bouquets such as *Ammi majus*, *Trachelium*, *Limonium*, *Statice*, *Gypsophila*, *Solidaster*, waxflower, *Hypericum* and others.

consumer sales	
anthuriums	↓
carnations	↓
daffodils	-
eustoma	↑
freesias	↓
roses	↑
sunflowers	↑
tulips	↑

Consumption per capita of cut flowers (in EURO), 1995-1996



Source: Flower Council of Holland (1998)

2.2.5. Price Developments

Given the dominant position of the Dutch flower auctions in the world flower trade, prices at the auctions are an excellent indicator of price movements world-wide. Despite (or perhaps because of) the continuing increase in supply, the average annual prices on the flower auctions have remained almost constant for over 10 years at a nominal NLG 0,36 per stem. Real prices have decreased slightly. By improvements in production productivity and development of better trading systems, profit has therefore been maintained. Average nominal annual prices of the ten largest flower species decreased from NLG 0,355 per unit in 1985 to NLG 0,317 in 1990. This seems to indicate a trend where volume products will fetch lower prices, as a result of assortment expansion and increased production volumes from low-tech/low-cost countries.

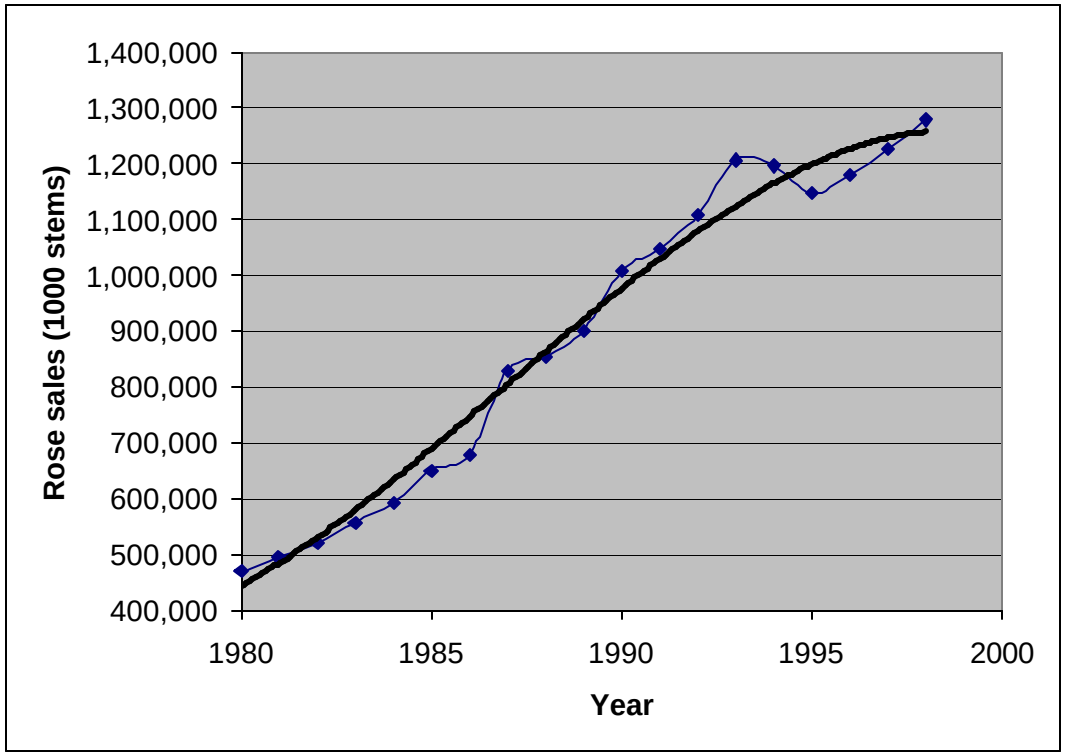
Higher prices are obtained by expanding the assortment of flower type and cultivar (variety), but short-term price fluctuations are frequent in the cut flower trade, and individual products may cycle in and out of favor in a five to twenty-year period.

2.2.4. Trade structure

The wholesale trade in cut flowers is becoming more concentrated. In the United States, this strong tendency towards concentration has led to increasing vertical integration, where production, wholesale and retail aspects are part of a single organisation. The primary example of this is Dole flowers, a company that owns production areas in Central America and Mexico, has its own shipping infrastructure, marketing organizations in Miami and Los Angeles, and distribution networks (based on its existing fruit and lightly processed operations) to most US supermarkets. The fastest growing companies in the flower business are those working with supermarkets. Vertical integration of producers/exporters, wholesalers and retailers is somewhat eroding the function of the specialised importers. This leads to those same importers functioning partly as logistics service providers, quality controllers and co-ordinators of the flow of flowers. In general, the importers still play an individual and specific role in the chain, because they have a strong relationship with their suppliers and because they play an

indispensable role as collectors of a broad palette of products. In recent years, the supermarkets have increasingly become major players in cut flower and potted plant sales. This trend has led to an increasing importance for pre-made bouquets, and bouquet manufacture is certainly one of the most lively parts of the market at the present time.

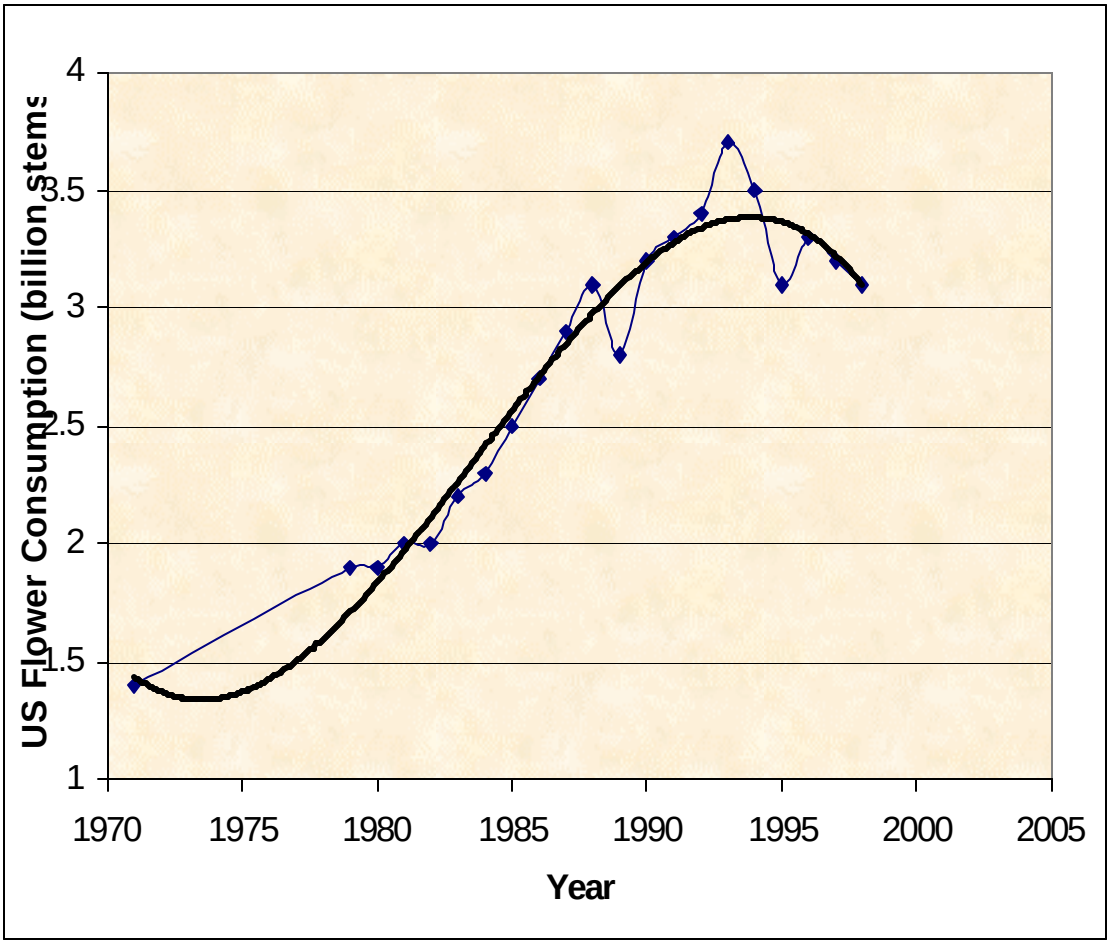
A relatively new development in the North American market is the development of the 'dot coms', companies selling fresh flowers on the Internet, usually at high prices, and usually promising 'farm fresh' product. Another development that is in its infancy is the establishment of 'chains' providing standardized product from a large number of specialty florist shops.



2.2.5 Trends in the US market

As in Europe, sales of cut flowers in the U.S. have not shown robust growth in recent years. For example, sales of roses have shown a steady increase over the last 20 years, but show a tendency to flattening out in the late 1990's. This pattern is in stark contrast to the pattern of economic growth in the US. In the 80's when the economy was struggling, rose sales increased. In the 90's, when the booming economy should have provided increased disposable income for the purchase of luxuries such as cut roses, sales stagnated.

The picture is even more dismal if one examines the total sales of cut flowers in the US market over the last 30 years. Sales increased rapidly during the recession period of the '80s, when Central American production increased supply and reduced prices. But during the '90s, total sales of cut flowers in the US market show a clear declining trend similar to that reported in Europe. The recent development of an aggressive marketing campaign for sales of flowers in North America, cooperatively funded by American and Colombian growers has the goal of reversing these statistics, a goal that I consider can be achieved only if the industry is able to supply product of sufficient quality to provide adequate vase life and satisfaction to consumers.



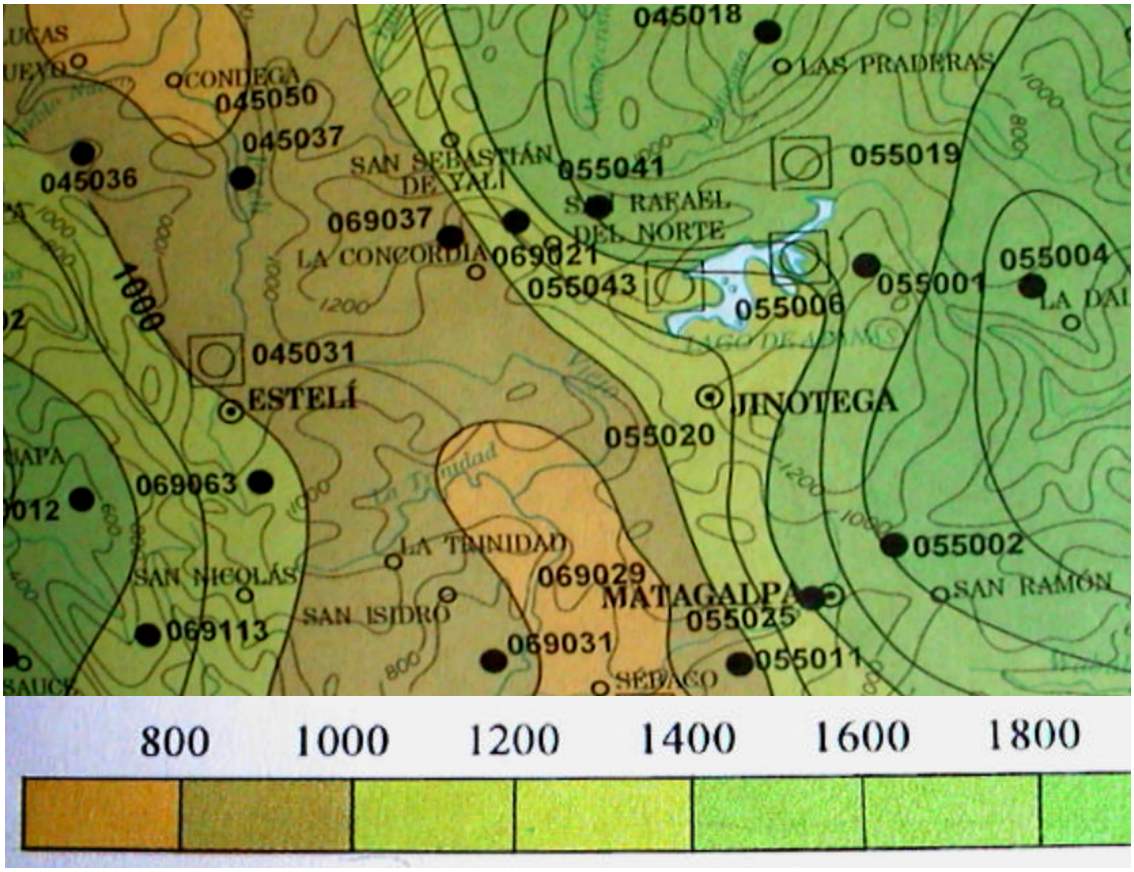
3. Opportunities for Nicaragua in Cut Flower Exports

The vagaries of the coffee market have driven interest in small and large producers in Nicaragua to consider opportunities for alternative crops. Cut flowers have been demonstrated by producers in Costa Rica, Guatemala, Colombia, and Ecuador to provide interesting export opportunities. In evaluating a possible niche for Nicaragua in cut flower exports to North America it is important to compare the Nicaraguan situation with that of the present main suppliers, and to evaluate possible competitive advantages. Most of the cut flowers that presently are imported into North America come from Nicaragua's neighbors in Central America, particularly Colombia, Ecuador, Guatemala

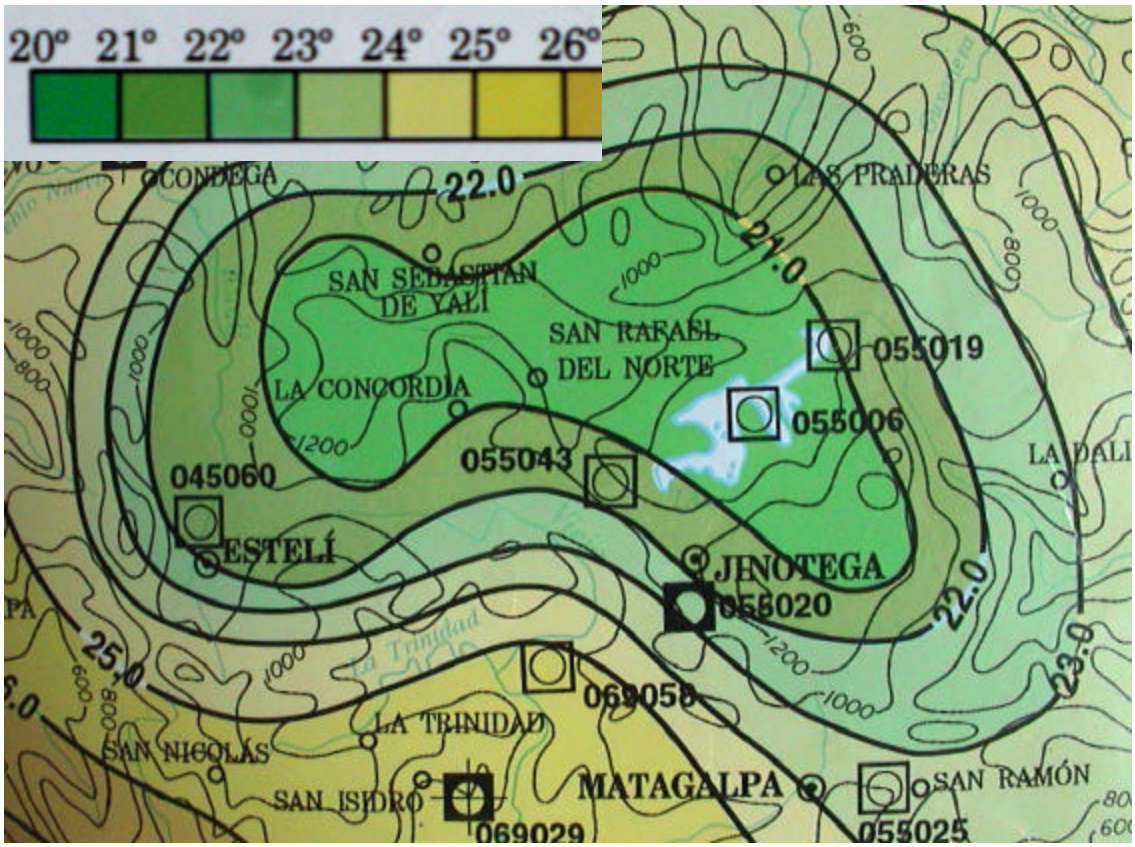
and Costa Rica. Although Nicaragua's labor costs may be low compared to those of its neighbors, in most other respects it seems to me that Nicaragua has no competitive edge. In contrast to the steep slopes and small areas of land available in Nicaragua in the zone where the cut flower industry presently is located, Colombia and Ecuador have large areas of flat land which, by virtue of their elevation and equatorial location, are perfect for the year-round production of temperate flower crops. These other countries (and those in Africa and Asia) have been very effective in providing production that meets the world demands, resulting in a global market that is presently over-supplied for these high value crops. Breaking into this market would take a combination of low cost and high quality that is unlikely to be easy for Nicaragua in the near term.

3.1. Possible production areas

As noted above, I was not impressed with the opportunities for developing large scale production of temperate cut flowers in the steep terrain and high rainfall conditions of the cool zone between Matagalpa and Jinotega. Conversations with faculty of CNIA and examination of topographical maps suggest that other areas may be better suited, particularly the region around Esteli. As seen in the map sections below, this zone has temperatures cooler than the Matagalpa area, and has considerably less rainfall.

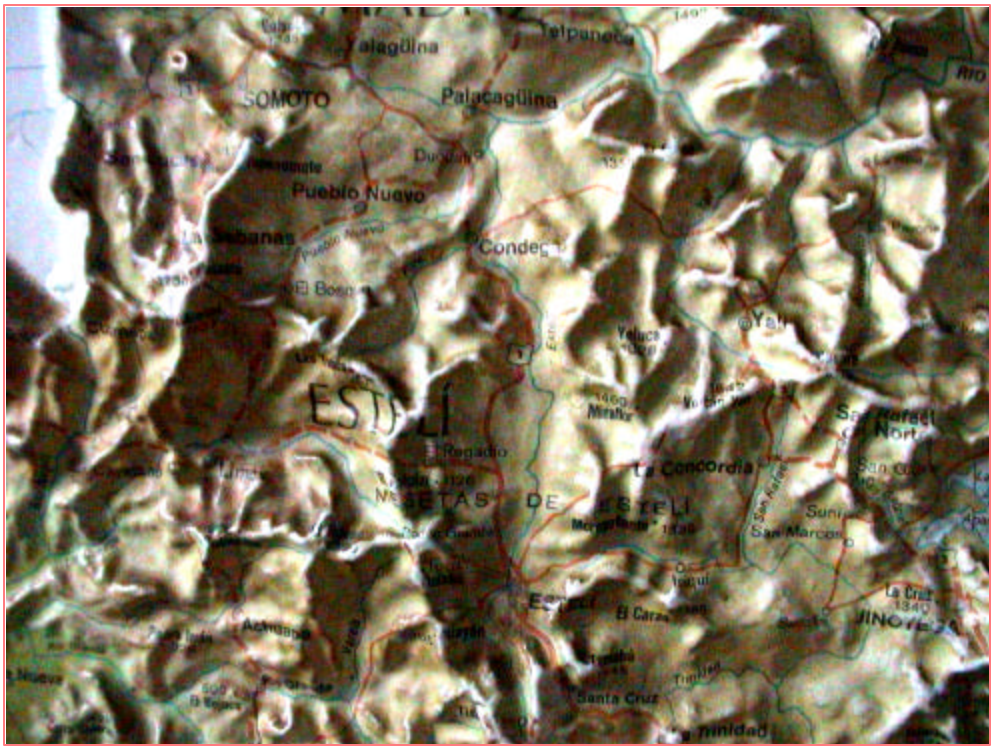


The Matagalpa – Jinotega zone has ca. 50% more rainfall than the Esteli – La Concordia zone



The zone of mean temperatures below 21 is to the north of Matagalpa and includes substantial areas to the north and east of La Concordia.

Between Matagalpa and Jinotega the terrain is very steep, making it less suited to large-scale production of cut flowers



To the east and north of La Concordia it appears likely that there are areas of moderate relief where greenhouse construction and access would be less difficult than in the Matagalpa area.

In considering further development of a cut flower industry in Nicaragua it certainly seems worthwhile to spend some effort evaluating the optimal locations, based on the key issues of mean temperatures, light, availability of adequate land with moderate relief, and access.

3.2. Transportation considerations

While transportation from Bogota and Quito is a major obstacle to further development of the Ecuadorian and Colombian ornamentals industries, air transport from Managua is unlikely to be any better, given the cramped facilities presently available at the airport for handling perishable cargot and the relatively limited lift capacity provided by the present commercial flights. In evaluating opportunities for transport of ornamentals from Nicaragua, I discussed with a number of individuals the possibility of surface transport in marine containers. As I understand the situation, most marine transport is presently through ports in Honduras or Costa Rica. Depending on the time taken for border crossings and port clearances, it is conceivable that ornamentals could be transported in refrigerated containers from Nicaragua to North American markets. The reduced cost of such transport would provide opportunities for transport of higher weight items, and could therefore provide a competitive advantage for Nicaragua. My strong recommendation is that opportunities for surface transport of ornamentals be vigorously pursued in conjunction with evaluation of possible market niches in high weight and high value ornamental crops.

4. Other potential crops

The possible opportunities for Nicaragua presented by a surface transportation route would be the production and marketing of ornamental crops that are too heavy to be profitable for the producers in Ecuador and Colombia who are forced to export by air. Although there clearly are other possibilities, I focus here on two crops that seem well worth a thorough exploration – tropical flowers and foliage, and bedding plants.

4.1. Tropical flowers

It is estimated that tropical flowers account for some three percent of the total world trade in fresh cut flowers (ca. $600 million). The two major tropical flowers traded are orchids and anthuriums. Other important species are gingers, birds of paradise (strelitzia), heliconias and proteas. These tropical flowers are not only grown in the tropics, but also, because of the high cost of air-freight of these heavy or voluminous items, in greenhouses in Germany, Italy, France, Japan, USA and The Netherlands. Clearly, the availability of a surface transportation option for Nicaragua would provide an interesting niche opportunity to enter the North American market. Moreover, the wet tropical environment of much of the country is ideal for the production of these crops.

Imports of orchids into the EU (value in EURO thousand, volume in tonnes)

	1995		1996		1997	
	value	volume	value	volume	value	volume
Total	66,909	6,981	62,818	6,997	63,999	6,763
Extra-EU	22,906	3,430	21,019	3,318	21,115	3,092
Developing countries	20,456	3,257	18,954	3,148	19,389	2,945
ACP	32	4	11	0	11	1
of which from:						
The Netherlands	42,183	3,396	40,741	3,514	41,549	3,528
Thailand	19,688	3,153	18,202	3,066	18,666	2,877
Singapore	1,624	111	1,143	89	913	63
New Zealand	754	55	841	72	761	79
Germany	436	63	421	71	473	67
Malaysia	253	40	404	51	364	30

Source: Eurostat (1998)

4.1.1 Orchids

Among the tropical flower species, orchids are the oldest and most familiar product on the market. Orchids represent the major share of tropical flowers imported into the European Union. The Netherlands is the only European country with a sizeable orchid export industry. On about 300 hectares, Dutch growers cultivate mainly subtropicalorchids like cattleyas and cymbidiums, but also dendrobiums, oncidiums and mokaras. Other important suppliers of orchids to the European market are Thailand, Singapore, Malaysia and India. Thailand has over 2 thousand hectares of tropical orchid spray production. About half of the orchids produced are sold in the home market, the

rest is exported. In Singapore, only about 55 hectares are utilised for the production of orchids, while Malaysia is aiming at one thousand hectares by the end of 1998. It should be noted, however, that Singapore traders export a large part of the orchids produced in Malaysia.

Starting in 1990 and up until 1996, EU imports of orchids showed a downward trend. Most of the decrease in imports was in the sales of Thai orchids. In Thailand, flooding caused a shortfall in dendrobiums and the recently very popular mokaras and other vandaceous types. As a result, Italy and Germany, the two largest EU markets faced a period of under-supply, causing prices to rise. In 1997, however, orchid imports recovered to EURO 64 million or 6.8 thousand tonnes. Products entering the EU through Singapore are declining in volume and value. Given that the U.S. market often follows the EU in trends for cut flower sales, it is likely that supply of a range of exotic orchid types from Nicaragua would find a ready market.

4.1.2 Anthuriums

The Netherlands is the world's largest producer and trader of anthuriums. Dutch growers produce some 30 million stems annually (on 76 ha in 1996). Mauritius is the second most important source of anthuriums with 85 ha under production in 1997. That year, production amounted to 14 million stems and was mainly exported to Japan. However, a significant portion of the Mauritian production is also sent to Europe and to Italy in particular. Other important exporters can be found in the Caribbean. Martinique is the largest Caribbean exporter to the EU, followed by Guadeloupe. In the EU, the market for anthuriums increased slowly until 1994 and seems to have stagnated since 1995 - Dutch dominance in anthurium production and export is increasing. Anthuriums for the U.S. market are primarily supplied from Hawaii, and there seems to be an opportunity for increased supply of the range of new cultivars coming from European breeders.

4.1.3. Gingers

Major exporters of gingers (*Alpinia purpurata*) to the European market are Côte d'Ivoire, Costa Rica, Jamaica, Mexico, Colombia and Ecuador. This heavy crop provides seems worth exploring as an opportunity for Nicaragua if a surface transport route is developed.

4.1.4 Birds of Paradise (Strelitzias)

High costs, due to heavy weight of the birds of paradise, are a major limiting factor in the export of this product from developing countries to the European market. Although most of the strelitzias sold in the EU originate in Southern European countries (Italy, South of France and the Canary Islands), some are imported from Costa Rica, Guatemala and Mexico. In the U.S. there are limited supplies of this flower, primarily from plantings in California, and air-freighted from Colombia and Ecuador.

4.1.5. Heliconias

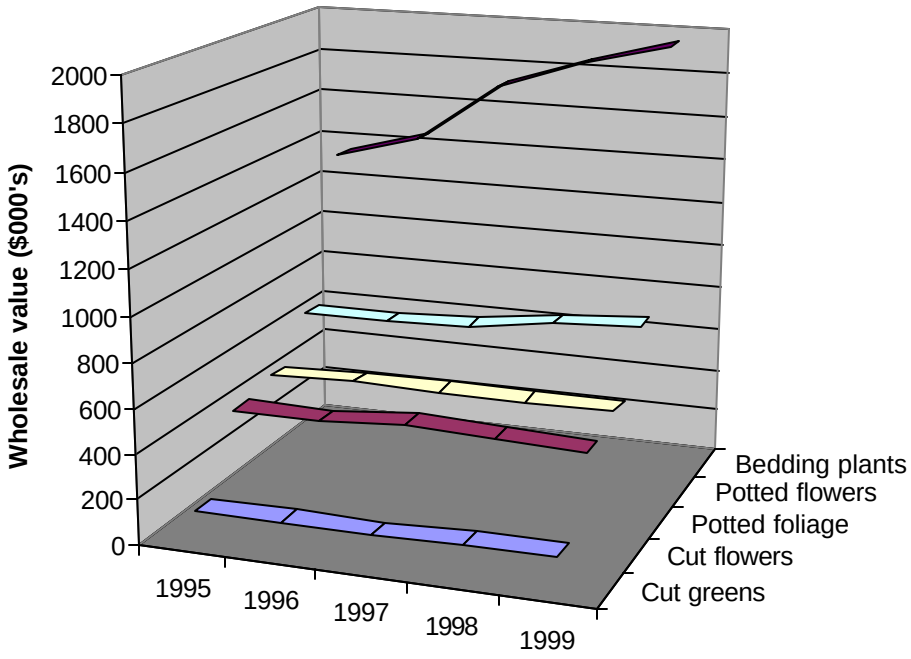
A growing volume of heliconias is imported from Costa Rica into the EU. Heliconias are used mainly in very large arrangements, such as those found in hotel lobbies. The size of most heliconia blooms limits their popular appeal in homes. The heads are frequently bigger than the stem and they are not only heavy to transport, but also hard to arrange in vases. There is now growing interest in smaller varieties such as *Heliconia psittacorum*.

4.1.6. Proteas

European countries mainly import their proteas from South Africa, Israel and Australia. Proteas are popular because of their long vase life, but they have many of the same limitations as other heavy flowers. Transport costs are high, therefore exporters close to the target markets have an advantage. Proteas grow exceptionally well on volcanic soils, and it seems likely that production in Nicaragua would be successful.

4.2. Bedding plants

Examination of recent changes in the ornamentals market in the U.S. (below) demonstrate that the most dynamic (and valuable) sector of the industry is in bedding plants, small plants grown in trays or six-packs for planting in gardens and landscapes. The tropical environment of Nicaragua combined with a surface transport option would provide a very interesting opportunity to supply some of this growing market (expected to be in excess of $2 billion in 2000.



If the possibility of transporting ornamentals by surface is confirmed, I think a careful investigation of this market opportunity is warranted. Obviously there will be important issues to be resolved in relation to quarantine, postharvest handling, and the like, and for these reasons, a more detailed evaluation of the potential of this market sector is clearly necessary.

5. Postharvest Considerations

5.1. Premium quality

There is no point in even considering export of ornamentals from Nicaragua unless there is also a commitment to production of premium quality flowers, propagules, or bedding plants. Production of premium quality crops requires proper starting germplasm, attention to the growing environment, nutrition, irrigation, control of pests, diseases, and weeds, and careful attention to postharvest handling.

5.2 Refrigerated cold chain

Ornamentals are the most perishable of the horticultural crops, and proper postharvest temperature management is absolutely critical. After harvest, they should be cooled as soon as possible, graded and packed cool, and immediately brought to the correct storage temperature. Variations in temperature result in condensation on the delicate petals, buds, or leaves, and rapid infection by *Botrytis*, the most common cause of infection of flowers or plants. Obviously, therefore, cooled ornamentals should be transported in refrigerated trucks. If they are to be sent by air, they should be placed immediately into the aircraft or into a cool-store awaiting the aircraft, and should preferably be consolidated and covered with an insulating blanket to reduce temperature gain during air shipment.

5.3. Quality packaging

The value of ornamentals means that it is foolish to attempt to save money by reducing the quality of the carton in which they are packed. A well-made carton not only gives a good impression in the market, it also protects the product from transportation damage.

Appendix I
Terms of reference

TERMS OF REFERENCE
CUT FLOWER SECTOR STUDY

I. Background

The Nicaraguan Agricultural Reconstruction Assistance Program (ARAP) is a two-year effort focused on promoting greater market access to Nicaraguan agricultural products, facilitate farmers' transition to higher value crops and promote a better agribusiness environment. As part of its mandate to explore and develop higher value crops the ARAP project will execute a market development study focused on the potential for production and export of cut flowers from Nicaragua to the North American market. The ARAP project will hire a consultant to carry out a study of the North American market with the goal of determining the market demand for cut flowers, the types of flowers in demand, and the potential that exists in Nicaragua to produce these flowers.

II. Duties

1. The consultant will visit Nicaragua to determine the suitability of Nicaragua as a source for a variety of floral products. This will include a visit to various climate zones, existing floriculture projects, and meetings with local producer associations.

2. The consultant will research and provide information on the current market demand, including historical price and quantity data for North America for the products identified during his/her field visit.

For these products the consultant will report on the following:

A. Market channels including sales systems (for example, auction, contract, etc.) minimum volumes, packaging requirements, distribution networks
B. Phytosanitary requirements for target markets
C. Price information

3. The consultant will identify constraints facing the development and/or expansion of the industry in Nicaragua. This will include discussion of credit, transport, cold storage and other areas where constraints may exist.

III. Deliverable

The consultant will provide the ARAP project with a written report (and its electronic copy in MS Word) on his/her findings. In addition, the consultant will discuss in Nicaragua with a target audience to be chosen by the ARAP project the initial consultancy findings.

IV. Qualifications

Minimum 10 years of related experience. Spanish capability preferred.

V. Level of Effort

Total 14 person-days.

Field visits in Nicaragua:	6 days
Desk research in target market (N. America or Europe):	5 days
International Travel:	3 days

VI. Reporting

While in Nicaragua the consultant will report to the ARAP Chief of Party or his designee.