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Frontiers in Floriculture — Mexico and Central America

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Latin America holds much promise for floriculture. Two major advantages for the cut-flower grower exist today in this land south of the border. Excellent year-round climates can be found near airports, and labor costs are unbelievably low. There are other advantages and some disadvantages that should be considered.

While desirable land is not easy to find, it can be obtained at \$1,000 per acre, or less, in Costa Rica and Guatemala. Prices may be 50 percent higher in the better areas of Mexico for land with water and electricity for irrigation. Cheaper land can be found in good flower growing climates around Guantajuato, but transportation may be a problem. While Mexican land prices are high, land can be leased very cheaply. Finding an owner who is willing to sell and will set a firm price is not always easy. After he has contracted to sell, he may change his mind. Legal work involved in the sale can run into weeks or months, as there is no apparent hurry. This is ingrained in the Latin way of life.

We spend \$3 a square foot, or more, to create a climate for our crops. Even with the most modern structures, we are limited by the climate outside our greenhouses. The climates are already there in several spots of Latin America. Such micro climates exist that a few hundred feet change in altitude can be a temperature advantage for a specific crop. Most of the good climates for

cut flowers are at elevations between 4,000 and 6,000 feet. A rough guide rule is 3°F change in mean temperature for each 1000 ft. change in elevation.

Mean temperature from the few weather statistics available can be misleading. Even the temperature extremes of given locations that pass by word of mouth must be taken with a grain of salt. In one area, an owner told me his maximum temperature was 70°; and his minimum never below 50°F. Further questioning revealed that some days reach 80°, and some of his coldest nights might get down to 45°. This can happen too often in greenhouses, even in the best of climates.

Rainfall patterns are also important not so much for irrigation water as for their influence on humidity and diseases. The general rainfall pattern in the high plateau section from Guadalajara to Mexico City and Guanajuato is a rainy season from May to September, with most of the rain in June and July. The rest of the year is dry. This is typical of the Pacific Slope throughout Central America, although September may be the wettest month around Guatemala City. When heavy rains come every day, the soil must be extremely porous, the flowers have to be cut wet, or cover is required to shed the rains. Many hundreds of acres of flowers are grown without cover, but growers who are looking to future export markets are building cover for carnations and chrysanthemums.

Labor

Starting workers in the area around Mexico City are paid \$1.12 per day. After experience, this is increased to as much as \$1.60. Women receive 64 to 80 cents per day. While ordinary jobs pay less, Curtis Hathaway in Costa Rica pays his growers \$1.80 per day. His foreman, trained on the job, receives \$2.40 per day. Costa Rica has strict labor laws requiring time-and-a-half pay for overtime. Hathaway is well above the minimum wage, hence can be selective of his help. He does not like female workers at any price; his experience is that they waste too much time. Claude Hope, also in Costa Rica, employs many women, but says they quit their jobs as soon as they get married. While the general price structure is higher in Guatemala, labor costs are lower than in Costa Rica. Help seems to be plentiful in all three countries. It must be selected and trained, but many workers have a background with growing plants.

Transportation

Bus and truck transport is highly developed in Latin America. Costs of cars and trucks (all imported) are about double U. S. costs. Public transport is cheap by our standards. Airlines serve all major cities. Each country has its own airline with mostly prop planes. Air transport seems adequate for the quantity of flowers now being exported and will probably grow with flower production. Some shortage of transport space occurs for small shipments from Guatemala to Nicaragua and other local shipments. Adequate space and good handling have been available from San Jose to Miami (4 hours). Pan American serves the major cities with jets, and is interested in regular shipments. Regularity and size seem to determine priorities. Good connections are available from Central American points to Miami, New Orleans, and Houston, as well as the West Coast. Mexico City (5 million people) is a potential market for Central American flowers at present.

Mexico

Every major city in Mexico is a good market for flowers, and there is production of some flower in quantity near most cities. In addition, the flowers sold at lowest prices are produced in favorable locations and shipped by truck to major cities for sale in the open markets.

In the area around Toluca, and in several other areas, there is extensive gladiolus production. Some 400 to 500 acres of carnations are grown in the open near Villa Guerrero. Most of the production is by small farms, and of course,

diseases are widespread in this field culture. From Querétaro to Guadalajara there is a plateau at an altitude of about 5,000 feet where roses grow beautifully the year around. Cuernavaca is warmer and extensive winter production of roses in the field involves many acres. The best of these roses sell for about 6 to 7 cents each in the Mexico City wholesale markets during winter.

There are tremendous opportunities for the production of roses in Mexico. One of the principal problems is low humidity during winter, however misting could remedy this. For best quality, cheap covers would no doubt help. The color of rose wanted in Mexico is red, with little demand found for other colors.

A problem in field culture that seems common is the theft of gladiolus bulbs and carnation plants. A grower moves into an area and makes a planting of carnations. Within 2 or 3 years, the whole area is planted to the same crop. The neighbors take slips or even pull up plants to get their planting started. The Rockefeller Foundation has taken advantage of this problem in disseminating improved potato varieties. No one was interested in planting stock of new varieties as a gift, so these varieties were planted along roadways with no protection. Within a few years, the new varieties were scattered all over the countryside.

Wholesale Markets in Mexico City

There are two types of wholesale markets in Mexico City. The most interesting to a visitor is the one built by the government and financed by fees from the growers and standholders. Open fluted concrete roofs cover docks that are accessible to trucks bringing in fruit, vegetables, and flowers. This area covers about two city blocks, and through it moves an unbelievable quantity of produce. Outside the general market area are located commission wholesalers for servicing retail florists throughout the area.



Fig. 1. Several rows of these concrete covered loading docks make up a portion of one of Mexico's largest wholesale markets.

In another part of the city is a large wholesale flower market that caters mainly to the retail florist trade. Individual producers may have sections of this market, or the sections may be run by commission wholesalers. All kinds of florist supplies are available from this market.

Field grown carnations averaged \$2.00 to \$2.50 for 12 dozen bunches, while glads were bringing an exceptional \$4.80 to \$6.40 for 6 dozen bunches because of the unusually cold winter. The few greenhouse grown flowers available bring considerably better prices, with standard mums selling for around 25 cents each, and carnations and roses bringing 6 to 10 cents. Pot plants are usually not expensive, but neither are they well grown. Nursery stock, primarily exotic plants as we know them, and some trees and shrubs, are available in most of the markets and retail shops.



Fig. 2. Heriberto Barto in an open air commission wholesaler's place. Field grown carnations and glads are in the foreground.

Greenhouse Horticulture Around Mexico City

Mexico City is located on a high lake bed at about 6,500 to 7,000 feet in elevation. It is subject to a rainy season from May to September with most of the rain in June and July. It has an extremely dry season with humidities below anything I have ever experienced. During the winter, or dry season, most of the mountains around Mexico City receive snow on occasion. Two of the volcanoes are snow covered most of the year. Temperatures this winter went as low as 24°F, or possibly lower, in the areas where greenhouses are located.

The Matsumoto family has an extensive and well-run organization, including a large irrigated farm, a certified dairy, a distillery making Scotch-type whisky, and extensive greenhouse and flower sales organizations. Glasshouses of around 100,000 square feet are used for production of roses, standard chrysanthemums, and carnations. A mile or so from this, on a different section of the farm,

is a smaller range of about an acre in which a complete line of pot plants and nursery stock is produced. They have a large collection of cymbidium orchids that seem to thrive in this location.

Standard mum varieties grown by this firm are those commonly grown in California, such as Betsy Ross and the News. Quality and growth on these were excellent. There seems to be little or no demand for pompons in the Mexico market.

Carnations at Matsumoto's were variable with most of the stock fair to poor. One excellent house of carnations in flower in January from an early fall planting was from clean stock obtained in California. Their roses were hard and almost dormant at this time (February 1). Happiness was almost the only variety grown. Reasons for the hard condition and the tendency to "go to sleep" could have been low humidity, with nematodes as another possible cause. A spray humidification system was being installed on the roses, but nozzles available there leave quite a bit to be desired.

The Matsumoto family runs one of the most extensive and tremendous retail outlets in Mexico City. The only other business I have seen that compares with it is the Bachman operation in Minneapolis. The design of their layout and the excellence of construction plus the use of modern materials for construction make this a "must" on any flower grower's or seller's visit to Mexico City. All kinds of container plants and shrubs are sold. Beautiful examples of their arrangements are displayed with prices. They do an extensive FTD business and cater to the more affluent people. However, materials are available to fit any pocketbook.

Clevelandia

In the past few years, the partners Barto and Gallegos have built polyethylene cover near Texcoco, some 20 miles out of Mexico City. They began with small, isolated greenhouses located with individual families. From this more or less fragmented operation, they are now concentrating on covering a larger area to centralize operations. Carnations and some standard mums are produced. A good market is found through wholesale channels connected with the Barto family in Mexico City. Quite a few cultural adaptations and innovations in polyethylene construction have been worked out by this firm.

Rooted carnation cuttings are planted in polyethylene sleeves at a lower altitude and in warmer temperature. After sufficient growth, these plants are trucked to Texcoco and planted in producing beds under cover. As much as two months may be gained on the first crop. This firm does most of

its own propagating under mist systems. In one propagating house a flue-type of bottom heating is used. Cuttings root very slowly in this area during winter without bottom heat.

The polyethylene construction used by Clevelandia is extremely light of weight. Supports are constructed of locally obtained posts with a minimum use of rafters. Wires are stretched lengthwise of the structures and two laths attached to the wires between each pair of rafters (fig. 3). In this way they obtain good support for the cover with a minimum use of expensive lumber.



Fig. 3. Polyethylene cover for carnations as built by Clevelandia.

Another large glasshouse range near Texcoco is operated by Ernesto Barto and his son, Raul. They grow roses, principally Happiness, and

standard mums. Their plantings of the Indianapolis varieties were excellent. Three crops are grown per year with prices received for the flowers comparable to those in most areas of the U.S. This range had heating and fan and evaporative pad cooling. The pads used are too dense for good air flow, so neither cooling obtained from this system nor humidification is adequate. Low humidity is no doubt a limiting factor in rose growth around Mexico City during winter.

The Mexico City market is undersupplied with quality flowers. Certainly there are plenty of flowers of a sort for everyone and at a price most everyone can afford to pay. The use of flowers is extensive. One of the major uses is in religious rites and festivities. I doubt that any other country uses more flowers in their church activities. Whether quality flowers can be exported from the United States to Mexico remains to be seen. There is a large wealthy class in Mexico City and the upper middle class families are on the increase.

There are definite opportunities for producers of quality flowers in Mexico, either in the best climates or under cover near Mexico City. Comments on Guatemala and Costa Rica will appear in one of the next issues. Watch the coming issues of "Grower Talks" for comments on Latin America by Carl Ball.

Your editor,

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