

COLORADO FLOWER GROWERS  
ASSOCIATION, INC.

IN COOPERATION WITH COLORADO STATE UNIVERSITY

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## Frontiers in Floriculture -- South America I

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There has been considerable concern in the U.S. Flower Industry regarding future competition from imported flowers. Little, if any, serious competition is probable from Europe or Japan as they too are in the Northern Hemisphere and have surpluses and shortages at the same times that we have in the U.S. and Canada. We must turn to tropical zones or to the Southern Hemisphere for substantial flower imports in winter and spring. These imports can be a boon to our industry as they may be just the added supply we need to develop successful mass marketing of cut flowers. Possibly adequate summer and fall supplies of U.S. cut flowers can be supplemented with high quality imports during our period of shortage.

It was with these thoughts in mind that I visited the potential flower production areas of South America during January and February of this year. A few areas have many advantages for profitable flower production. All of the growers I visited have problems to solve before they become really profitable enterprises. In the fine year around climates of Costa Rica (see Bulletin 229), Bogota, Colombia, and Quito, Ecuador flowers are presently being produced and exported to the U.S. Possibly Brazil, Argentina and Peru could become exporters of certain items. Chile and most of the other countries have little export potential in the foreseeable future.

### COLOMBIA

There are two exporters of flowers located near Bogota. The Savana de Bogota is about 30 miles long by 15 miles wide at 8600 feet elevation. Bogota is a bustling, modern city, and one of the few places in South America where a large middle class is emerging. The climate is cool and seems ideal for growth of carnations and chrysanthemums. It is slightly too cold for rose culture unless additional heat is supplied. The firm of Flores Colombiana is a combine of Colombian capital, managed by a Colombian who was in the diplomatic service stationed in New York City for many years. Sr. Edgar Wells and his partners put together the company and started the plantings

with two houses each of mums and carnations in mid 1965. They started shipping their first flowers in January of 1966 and market through the S. S. Pennock Company. They doubled their plantings in 1967 and added one more house of each crop in 1968, to a present planting of 5 houses each of carnations and chrysanthemums or a total of about 5 acres. They have learned much about construction and the need for adequate airflow during the warmer times of the year. While they are building some new houses at the present time, plans are to start a new firm for the major part of their expansion that will come in the next step. The grower-manager for Flores Colombiana is Paolo Sverko, of Yugoslavian ancestry. The assistant grower is Hernando Monroy, a Colombian with training in Horticulture.



Fig. 1. A fine crop of Albatross mums at Flores Colombiana; Paolo Sverko, grower.

### Chrysanthemums

Their chrysanthemum crop starts with unrooted cuttings from Yoders at a delivered cost of about 5 cents each. These are rooted in coarse sand with some coffee shells added. They use dexton terrachlor drench in the medium, then stick immediately. They

drench once or twice with fermete and other fungicides while rooting. The cuttings root in about 2 weeks and are transplanted and lighted for 2 to 3 weeks depending on how well the cuttings recover after transplanting. Chrysanthemums take about 8 to 10 days longer to flower than in the U.S. with this time required between bud initiation and flowering. The standard mums are grown single stem while some of the spray types are pinched. Growth was remarkably uniform on every planting I observed. Up to this time, they have had no serious shipping problems with chrysanthemums.

## Carnations

Carnations at Flores Colombiana in January had heavy stems and large flowers comparing favorably to our spring crops in Colorado. Timing is intermediate between our fastest and slowest crops and almost the same year around. Photoperiod control might give spectacular results for certain holiday crops.

The flowers are cut and placed in water in a cool room for one day or more before packing and shipping to the U.S. They do not use refrigeration at this time. Petal burn on the carnations has been a serious problem at certain times of the year. They ship up to 700 carnations per box with newspaper liners in the boxes. At the time flowers are showing petal burn, they have shipped boxes of flowers to Baranquilla, and returned them without a petal burn problem. There is some association with the international flights that seems to increase petal burning. The limited data gathered so far indicates that the hold of planes is often very cold and extremely dry. There is no question in my mind that the climate at certain times of the year is cold enough that the carnations are conditioned for petal burning, if the right conditions are supplied. Work at Colorado several years ago strongly indicated that the colder the growing temperature, the more petal burning that occurred on the flowers after

harvest. Flower color is also associated with petal burning in that temperatures low enough to prevent color from fully developing will increase petal burning after harvest. Petal burn is a problem on shipments of carnations that are grown without environment control and the problem has been experienced by every South American producer who has shipped carnations to the U.S.

## Edificio German-Ribon

A second producer of carnations for export in the Bogota area is Sr. Miguel de German-Ribon, who has started his greenhouses in the last 2 years. At this time he is exporting only carnations from about 2 to 3 acres of greenhouses. He is in a colder area than Flores Colombiana; in fact when I visited in late January, he had just received a slight frost on plants growing outdoors. At this time also he was experiencing severe problems with petal burn on the flowers being shipped to Miami.

This firm also has polyethylene covered greenhouses, but does not close up the sidewalls as well, hence experiences somewhat lower temperatures at night than Flores Colombiana. Flowers so far have been marketed through Southern Flower Farms of Miami. Roses are being propagated for planting in the field, but winter temperatures will probably be too low for good growth of roses for export to the United States during the winter season.

## ECUADOR

Ecuador is on the northwest coast of South America, between Colombia and Peru, occupying a region where the Andes split into two ranges. Quito, the capital, is almost on the equator so daylength is the same year around. The mean low temperature varies only a few degrees from one month to the other. The mean high temperature in Quito is around 69° from January to May and 71° in July and August. Of course mean temperatures do not tell the whole story, but it shows what a uniform climate is to be found at this high altitude on the equator.

The only firm presently growing flowers and shipping them to the U.S. is Jardines del Ecuador, C.A., a combination of Ecuadorian and U.S. interests. Credit for the formation of this enterprise should go to Bill Sieck of the wholesale florist firm, Claymore C. Sieck of Baltimore, Maryland. Bill had the idea that some-



Fig. 2. Polyethylene houses used for carnation production by Flores Colombiana near Bogota, Colombia.

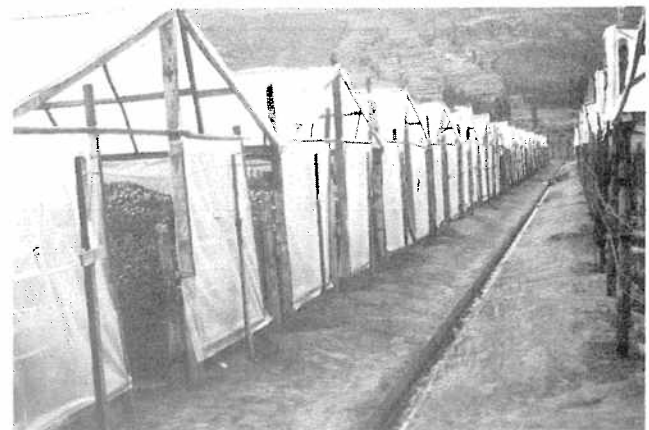


Fig. 3. Structures at Jardines de Ecuador.



Fig. 4. Young carnations shaded by cheesecloth under the polyethylene.

where in South America there should be the right climate for growing flowers without expensive structures and ship them by air to the American markets. He studied all information he could get on South American climates and came up with what he considered the ideal climate near Quito. Connections had to be made with Ecuadorian investors since a local controlling interest is required. The Sieck firm is the marketing agent and helps supply North American know-how to make the enterprise a going concern.

While the temperature in Quito at 9200 feet elevation is too cold for flower growing, microclimates that are much better occur within an hour's drive as one descends the mountain. The first location of Jardines was not satisfactory so a move was required to the present location. Presently the company has about 17 acres under cover, about equally divided in carnations and chrysanthemums. They obtain their stock plants from the U.S. and multiply them for planting stock. About 20% of their space at any given time is in stock plants, or being sterilized to make ready for replanting.

The purpose of the company is to export flowers to the U.S. during the season when markets are good. While local sales are not extensive, they are an important part of the income to the company since flowers that are not quite good enough to export, can be sold at a standard price to local florists.

There are no direct flights from Quito to the U.S., but there are flights that involve only one stop in transit. Air space is a problem and will probably limit the size of operations in this area until larger planes are being used. Their commodity rate is based on 1100 pound shipments. Larger shipments sometimes cause problems as there is not space available for unlimited boxes of flowers.

The local manager is Sr. Hernan Barahona. The two grower-managers are Peter Hanneford and Roger Chiriboga. American know-how is supplied by William Sieck and Dr. Bob Langhans of Cornell. They have had to learn a great deal about growing in this climate since information available from anywhere in the world must be checked and reworked to put it into practice at this latitude and under these climate conditions.

## Carnations in Quito

Plants of their own propagation grow off stronger than those unrooted cuttings from the United States. Apparently the trip from the U.S. weakens the cuttings to an appreciable extent. They renew stock plants about every 6 months while mum stock is renewed even more often.

Timing of carnations is about 4 months from planting the rooted cutting to flowering the first crop from a single pinch. They use mostly tear gas for fumigation, handling a whole block at a time and aerate the soil three weeks after uncovering it before planting. They have had considerable petal burn problems on flowers shipped to the U.S., and have observed that the burning is most severe when the light is brightest and the color of the flowers is poorest. They have



Fig. 5. A small work group banding carnation buds to prevent splitting.

reduced the incidence of petal burn by slight shading, refrigeration prior to shipment, polyethylene liners in the shipping boxes, and some other practices. Relative humidities in the shipping boxes have been recorded as low as 15% during shipment. The air in the hold of freight compartments is usually heated and cooled by the air from the passenger compartment. It is possible that cigarette smoke and other pollutants may contribute to flower damage in transit.

## Chrysanthemums in Quito

No black cloth shading is required since the day length is satisfactory for bud initiation at any time of the year. To get adequate stem length, lighting is done from planting until bud initiation is desired. 220W bulbs and bare wires are used in the lighting installation. Current is automatically cut during the daytime when workers are present. They found a serious loss of light bulbs by theft when 110 watts (the usual wattage in Ecuador) were used. Cheesecloth is used over mums for shading during the cutting period to reduce sunburn and botrytis infection. Cheesecloth shade is also essential over carnation cuttings when they are first planted, to reduce water stress.

While there are many advantages to growing in this equatorial climate, there are also a multitude of problems including dry winds, hard rains, and very large hail on occasion. Plants near the open end or corners of houses dry faster than those inside. They use sidewalls on the greenhouses but open ends are necessary to get adequate ventilation when the sun is bright. They use shade at some times of the year,



Fig. 6. These two women plant chrysanthemum cuttings at the rate of 22,000 per day.

both sprayed on the polyethylene covers and cheesecloth over the plants.

Their labor is unionized with three unions represented among the 200 workers. Pay for ordinary labor including fringe benefits is about \$1.50 per day, but the quality of help by our standards is not productive. The workers have little interest in their jobs and must be supervised closely. They are constantly demanding more in fringe benefits and they have a favorable ear of most governments.

The local wholesale price for carnations is around 70 cents per dozen, for standard mums about 10 cents each, and for pompons 82 cents per dozen.

Presently there are being exported from Costa Rica, Colombia and Ecuador the better grades of flowers from a total of about 15 acres of chrysanthemums, 15 acres of carnations and only about 2 acres of roses. Some expansion is in prospect this year but nothing large.

Many problems confront those who are pioneering this maiden floricultural effort in Latin America. Equipment is often very expensive. If it has to be imported one often waits endless weeks. Certain insecticides and fungicides may be unobtainable as are also some fertilizer chemicals. 1% per month is considered cheap for borrowed capital. Rates in Peru, Brazil and Argentina run to 2% per month on short term money. Dealing with governmental officials at all levels is an education in itself and can best be done by native businessmen and lawyers.

In summary, my impression after 5 weeks of

visiting and talking with the people on the scene and presently producing and shipping the flowers is that there are many opportunities and many problems.

## Conference on Mechanization of Grading

Jointly sponsored by the American Carnation Society and Roses, Inc., this conference will be held at the Denver Hilton Hotel September 29 and 30, 1969. Co-chairmen are Gordon Koon and Bruce Chase.

Rising labor costs, labor shortages, and future labor problems make it imperative that we accelerate the development of automation of cut flower grading.

Mechanical length sorting of roses and bunching of carnations is already a reality. However, we need equipment that will carry the flowers, once fed into the machine, into a package ready for market. Our present in-and-out-of-buckets-and-boxes routine is wearing out the flowers and the employees. A "memory" system is needed to provide control over grading personnel with needed incentive pay information and to supply a grade-out record for the grower.

Rapid development appears to be beyond the financial capacity of the individual producer. There is need for a cooperative venture.

The first day will include a morning bus tour of The Denver Wholesale Florist Company Growers' Centralized carnation grading company, Kitayama's Dutch rose machine, and Hep Peterson's carnation grading machine.

The afternoon session at the Hilton Hotel will be devoted to a discussion of the need to mechanize grading, reports on equipment presently available, and a look at what is needed.

The morning session of the second day will cover proposals by industry concerning grades needed, making the decision (manual or automatic), the memory system, and the final product.

The afternoon session will be a "Brainstorming Session" of all attending in an attempt to determine a course of action. From this we should be able to determine whether a cooperative development is needed or wanted, what initial goals should be, and whether carnation and rose producers have a common base to work from with regard to mechanical grading.

Your editor,

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