



Colorado Flower Growers Association

IN COOPERATION WITH COLORADO STATE UNIVERSITY

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Frontiers in Floriculture--Latin America

by W.D. Holley

When we think of industrial potential, Latin America is a sleeping giant. Many of its resources, such as climate, are just beginning to be tapped. As industry progresses (see the March issue of *Readers Digest*), the demand for and use of flowers will increase. Its people already have a tradition of using lots of flowers. There is an abundance of cheap flowers in most public markets. On the other hand, quality flowers for the retail florist trade are in short supply in many cities. A few details of Mexican floriculture were given in Bulletin 179. This article deals with Guatemala and Costa Rica, the two countries that probably have the best climates and other conditions for flower growing.

North Americans who start flower growing operations in Central America often have feelings of frustration. The red tape and delay in obtaining fertilizers, insecticides, nozzles, and common supplies can be endless. Importation of supplies requires dealing with the governmental agencies. Deliveries can be extremely slow, even when the imports arrive at the port of entry. The right palms must be crossed. No one is in a hurry. A grower has to be prepared to revise schedules right and left or he shouldn't consider Latin countries. This is not meant to be discouraging. It is merely facing facts.

Guatemala

Probably the first flower grower to take advantage of Guatemala's fine climate on a large scale is Señor Jose Carlos of the firm Flores de

Guatemala. His home and finca are located a few miles up the hill from the city, about 20 miles from the airport. Sales of flowers from this firm are mostly local; however, they do export to Nicaragua and are considering Mexico. Local prices are 25 cents for a bunch of 15 stems of pompons. The shorter stemmed flowers are increased to 20 stems per bunch for the same price. Flowers that are shipped to Nicaragua bring about double this price for best quality. Local carnation prices are also low.

Señor Carlos propagates chrysanthemums from lighted stock under continuous mist during the day, at least in the dry season. He roots in a soil-perlite-sand mix in 20 to 30 days. Plants are lighted after planting in the field for 1 week, using 4 hours of light during the middle of the night on the first crop. He grows single stems planted at 4- by 4-inch spacing in the dry season and 6 by 5 or 6 by 6 in the rainy season (winter). Carlos is producing a second crop on the same plants by removing all growths from the base of the old stems after the flowers are cut off and turning on the lights for 2 weeks. The second crop is heavier stemmed and has more flowers per stem than the first crop. He has produced a third crop before replanting. Due to the short days year around at this latitude, there is no need for black cloth. The length of nights is always right for bud initiation and development. Lighting is necessary for producing vegetative growth. The length of the lighting period is determined by the length of stem needed in the market.



Fig. 1. Second crop pompons as produced by Jose Carlos of Flores de Guatemala.

Señor Carlos has an extensive area in roses for the cut flowers. He produces his own bushes by budding, and plants in 2-row beds. The bushes are kept relatively low by hard cutting. Most rose colors seem to be popular in Guatemala, but no baby roses are grown. There is no predominance of red colored varieties as in Mexico. This firm has a good export of roses to Nicaragua at 50 cents a dozen for all lengths that have good heads.

Carnation production by Flores de Guatemala is at a low point at this time. Their stock blocks were lost so cuttings are now taken from flower stems on the grading bench. Disease is prevalent in most of the beds. The only hope for improving this planting is to obtain disease free stock and keep it free of disease at least through the planting stage. Steaming of the soil is more or less out of the question in open ground, but chemical treatment would no doubt help reduce plant losses. Otherwise, crop rotation would need to be practiced. Diseases that kill the plants are not common in other crops grown on this finca.

Regular and frequent spraying overhead is necessary under these open field conditions to prevent or reduce the ravages of botrytis and other blights. This spraying has to be intensified during the rainy season when wet flowers are a real problem. Some system of drying the flowers with heat after cutting and before packing for shipment is needed during the rainy season.

Señor Carlos has many ideas about other crops, principally for export, and novel methods for selling flowers. One of his main problems is the lack of reliable assistance in carrying out some of these ideas. He is building a sales area in the central market of Guatemala City for selling mixed bouquets to the consumer. This is a popular way of selling in Latin America. He also has a plan to sell flowers to travelers at the airport. This sale would be handled by a charitable agency on a 10% basis, another custom in Guatemala.

Lebens Firm

On the road to Antigua in the area around Santa Lucia is a new planting of carnations made by a

combination of Guatemalan and American interests. This planting made September 1964, consists of something over 2 acres of beds (see figure 2) with the idea of constructing cover after the plants come into bloom in March.

Nic Lebens, Jr., formerly of the armed forces and the Minneapolis area, is one of the partners in this venture along with a retired executive from the United Fruit Company. Most of the carnations produced by this firm are slated for export to the United States.



Fig. 2. Carnations nearing first crop on February 1 from September planting. Near Santa Lucia, Guatemala.

Santa Lucia is considerably higher in altitude than Guatemala City and offers a fine climate for carnation culture. In this same area are several other plantings of carnations. Most of them are handled in a primitive manner and are full of diseases.

Costa Rica

In many respects Costa Rica offers the most promise for Americans planning to produce flowers for export to the United States. As with Mexico and Guatemala, about any climate can be found by changing altitude and slope. The governments of all the countries are not what one considers easy to deal with. While their stability is always questionable, Costa Rica seems about as stable politically as any Latin country.

Claude Hope has been in Costa Rica producing hybrid flower seeds, cut flowers, and fancy vegetables for about 20 years. The valuable experience he has gained both in culture and in dealing with the government is available to anyone seeking it. His firm of Linda Vista is well known throughout Latin America. It is a large operation by any standard. This company consists of two farms in slightly different climates, within a few miles of each other. At the main farm, he has some 12 acres under polyethylene cover with open side-walls and ends. The cover is used primarily to shed rain. Polyethylene is the preferred cover, although he has tried almost all kinds of films. Most of the longer-lived films support growth of algae and cut out light. As poly is replaced regularly, the algae problem is minimal.

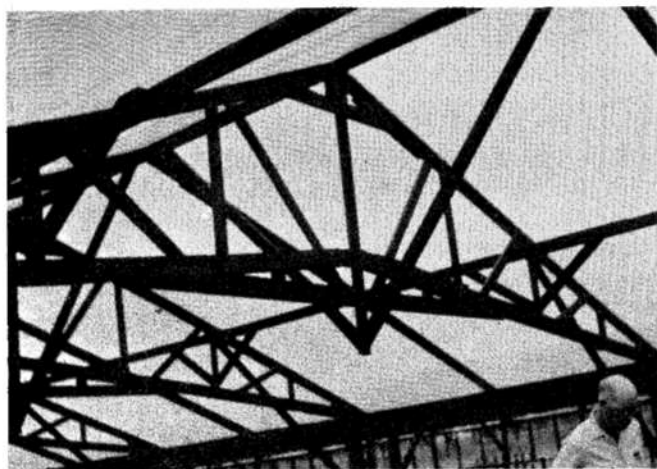


Fig. 3. Wooden trusses and permanent supports for polyethylene are preferred by Claude Hope.

Claude has tried many structures and has settled on the best one for his operation as illustrated in figure 3. His cost of covering with poly on a wooden frame is near 15 cents per square foot.

Claude is an excellent plantsman. He is interested in all native plants that are useful in the ornamental field. His smaller farm includes an active nursery business with container plants for home landscaping. Rose bushes are the most popular item though green foliage plants, tropical shrubs and trees are grown.

Soils in this central area of Costa Rica are variable, but very good ones can be found. There is good access to agricultural chemicals for insect and disease control. The Linda Vista firm has good boilers and steams soil for container plants and cut flowers. Most of its field soils can be chemically treated, if this is essential to the success of a crop. In chemical sterilization, they usually prepare the soil to the desired tilth and moisture content, apply the chemical, and cover with plastic to confine the gas.

Water is not available on every farm, but most of the desirable farms either have an irrigation supply, or one can learn from the natives the likelihood of obtaining water by drilling. Claude Hope has a number of irrigation systems. He uses overhead sprinklers and aluminum pipe for field irrigation. For the greenhouse, he uses a great deal of plastic soaker hose on a raised bed arrangement. For container plants, such as the stock plants on which he grows petunia seed, he has level benches and subirrigates the containers by bringing the water up to the bottom of the containers. Much of the container growing is done in quart oil cans which have been cut in half. There are so many innovations on this place that it would require several pages to list them.

Cut Flower Crops

Linda Vista produces a general line of cut flowers for the San Jose market and for export to

Nicaragua. The average price in local markets is around 50 cents a dozen for carnations and pompons, 75 cents per dozen for roses, and 80 cents for standard mums.

Roses do exceptionally well in this section of Costa Rica with no cover. Hope grows them tall, continuing to cut up so that bushes are about as tall as one can reach after 2 or 3 years. He uses many varieties in this outdoor situation that are not good as greenhouse roses in the U.S. As the climate near Cartago is moist, roses do well even in the so-called dry season. There is usually some rain or mist at times in the dry season. *Odorata* understock is used for all varieties. Recently matured canes are budded about every 8 inches and as soon as they knit, the leaves are pulled down to force the budded eyes. When the eyes are well started, the canes are cut up and rooted under mist. Successful rooting depends upon this started growth of the budded eyes. A well branched flowering rose bush is produced in about 5 months, and sells in bloom for \$1.75. This is a popular and a good profit item.

Chrysanthemum varieties for this area are selected for their stretch after bud initiation. They are propagated from lighted stock and no lighting is done after the cuttings are planted in the bench. The plants are grown single stemmed and even the shorter ones find a ready market. Both standards and pompons are popular in Costa Rica.

The carnation crop at Linda Vista is not as good as it could be, primarily because the main emphasis is on hybrid seed. Claude has not renewed his stock in recent years. Original stock came from Holland. Carnations have been a profitable crop and the quality he can produce is good. Calyx splitting has not been a problem since temperatures from night to day and from day to day are even and cool. Carnations are grown in ground beds with the usual support system and are watered with plastic soaker hoses. In a three and a half foot bed, three paired rows of plants are set on ridges lengthwise of the bed. On either side of the middle row of plants a soaker hose is placed in a slight furrow (figure 4). Water is applied as needed and the soil allowed to soak by capillarity.



Fig. 4. Planting arrangement for soaker hose irrigation at Linda Vista.

All carnations and chrysanthemums are grown under polyethylene cover.

New Carnation Operation

Curtis Hatheway, of North Carolina, purchased a large farm up the slope from the San Jose airport at an elevation of about 5500 feet. In January of 1964 he started leveling the side of a hill and building three sections of polyethylene covers in the open-shed arrangement illustrated. He also built a good sized boiler and grading room adjacent. His first plants were planted before cover was put on, but later plantings made under cover were somewhat better in early growth. V-bottom beds were scooped out of the leveled soil and the

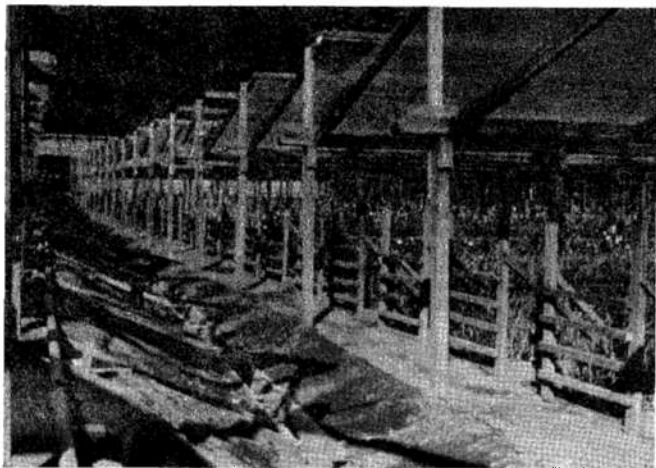


Fig. 5. Modern equipment has been adapted to carnation growing in an equatorial climate by Curtis Hatheway.

bottoms lined with polyethylene. Half-tile was placed in the bottom of the V and gravel leveled above the tile before the soil mixture was put in. Soil was steamed before planting with cuttings obtained from Florida. In February of 1965, Hatheway was cutting around 25,000 flowers a week and should average better than 15,000 flowers per week on this acre planting. Quality was good, although there were some splits at the time because of unusually cool weather. This location may be a bit high for best carnation temperature.

Gates irrigation hose is used throughout, and a steam generator is used for soil sterilization. While a few flowers are sold locally, almost all of his production is going to Miami and the Southeast. San Jose is 4 hours from Miami by prop plane. No serious trouble has developed from transportation so far. Good prices have been received this year with a minimum of complaints from his customers.

Hatheway is enthusiastic about his operation, and well he should be. He knew no Spanish when he came there, but has been able to communicate with the men he has hired and train them to do a creditable job in growing carnations. His operation is one of the most modern for open structures and this kind of climate that I have seen.

Your editor,

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FIRST CLASS