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COLORADO FLOWER GROWERS ASSOCIATION, INC.

IN COOPERATION WITH COLORADO STATE UNIVERSITY
Dorothy Conroy, Executive Secretary
901 Sherman Street, Denver, Colorado 80203

Change

Bulletin 231

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Frontiers in Floriculture -- South America II

W.D. Holley

Argentina has a very large flower industry that presently markets almost all its products internally. Some roses are being exported to Germany. There is a potential for exporting unrooted cuttings of certain exotic plants, and hybrid flower seed production in the December to May period could be developed. Chile also has a large flower industry on a more primitive level. Most flowers presently being produced in Chile are not of export quality. Other flower producing countries such as Colombia can profitably export to Argentina and Chile, especially during major periods of shortage. Both Argentina and Chile have adequate airspace for shipping to the U.S. and Europe.

Argentina

Argentina fills the southern point of South America except for the thin strip of Chile along the western border. It extends for 2300 miles from Bolivia (22°S) to Tierra del Fuego (55°). Any way you look at it, it's a big country and one of the least known and least understood by North Americans. Argentinians are most like Americans of all the peoples of South America. While predominantly Spanish, there are many peoples of Italian, Portugese, and German descent. Even the language is distinct from Spanish - almost as different as Spanish and Portugese. Argentinians are a busy, well fed and prosperous people. They are peace loving and exuberant and they work and play hard.

The climate is tropical in the north, subtropical around Buenos Aires and temperate in most of the area below about 40°S or in the higher elevations along the Andes Mountains to the west. Most of the flowers are grown within a radius of about 60 miles of Buenos Aires where the climate is excellent for roses most of the year. Gladiolus grow easily. Sum-

mer temperatures (Dec. to March) are too high for quality carnations.

Acreage in flowers both north and south of Buenos Aires is extensive. The best estimate I could come up with on acres of greenhouses around Buenos Aires is around 1500. This does not include gladiolus and other flowers grown in the open. Argentina uses lots of flowers and plants and prices are reasonable most of the year. Buenos Aires has a population of around 7 million; the entire country over 23 million. The provincial cities of Mendoza, Cordoba, and others are excellent shipping markets for Mar del Plata and Buenos Aires.

Major flower sales periods besides Christmas and Easter are October (Mother's Day) and All Saints Day when cemeteries are decorated. There are not nearly enough flowers at these periods so exports of U.S. carnations and chrysanthemums might be profitable at these times. When asked about this possibility, several Argentine marketers thought there would be no problem in their importing flowers. They all agreed about the flower shortage in October.

There are two large cooperative wholesale flower markets in Buenos Aires. The largest has over 2000 members and another has around 500 grower members. Flowers are transported from farm to market in large canastas - 10 bunches or more per canasta with the flowers up. Large trucks from the co op pick up the flowers at the farm and return empty canastas. The largest cooperative, managed by Sr. Yajima, markets from one to three thousand canastas of flowers per day for over 2000 growers. Sr. Hideo Fuke is currently the elected president of this group that has a 12-man elected board of directors. They are projecting a new market that will have 7 acres of floor space. The current market may have as much as 3 acres under cover with headroom sufficient to accommodate the large flower trucks.

The international airport at Buenos Aires is served by many European airlines and has direct flights to Europe and the U.S. Airspace at this time out of Buenos Aires is not a problem. Roses of export quality are now being produced in the period December to May. Some other flowers and plant materials could be developed for export, although it is doubtful that the climates of Argentina adjacent to airports are cool enough in summer to produce export quality carnations. Chrysanthemums are still in the dark ages insofar as quality and methods of growing.

Argentine greenhouses are mainly glass-covered with construction of local manufacture and design similar to the Italian structures of 10 to 15 years ago. Dry glazing is used throughout. Sash bars have two grooves in them. One is to hold the glass and the lower one to conduct condensate to the gutter or eave. Separate and connected houses are used, but for best ventilation in summer the preference is for separate houses. Gutter and ventilation details are illustrated, Fig. 1. The most recently constructed houses at Mar del Plata are about two feet higher to allow more air to move through the houses in summer. Summer cooling is accomplished by taking all or part of the glass out of ends and sides of the houses. One of the major problems of Argentina is that summer greenhouse temperatures often are too high for quality flowers. Best quality of growth observed in both Mar del Plata and Buenos Aires during early February was in the open or in uncovered houses. A common practice is to plant a crop in summer and build the house over it during the fall.

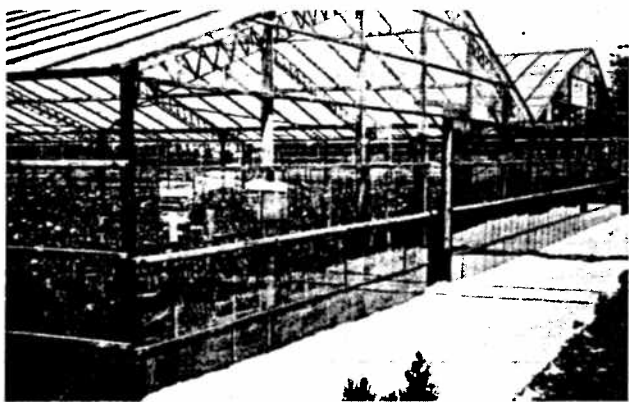


Fig. 1. Dry glazing is prevalent in Argentina. Glass is removed for summer ventilation.

Floriculture around Buenos Aires

Rose and gladiolus culture are good in this section where summer (Jan.-Feb.) temperatures often reach 90F in the open and higher under glass. Night temperature minimums seldom go below 70F. Carnation culture is not so good because of the temperatures and because of the lack of disease-free planting stock. Winter temperatures are much better for carnations but are too low without some heat, which is not used.

Roses

John, Hnos. CIA have 100,000 rose plants under glass, polyethylene and saran in the flower growing section north of Buenos Aires. This is a modern

operation geared to the export of flowers to Germany during summer (Germany's winter). They export around 1100 pounds of roses three times a week based upon a guaranteed net return to them of 15 cents each for their top grade of roses. Varieties exported are mainly Tropicana and Baccara. The German importer pays air freight and duty, but the commodity rate to Germany is 79 cents per kilo. The roses are cut and cooled in water then graded and packed. The cartons are then precooled by refrigeration until put on the plane. No ice is used. Flights are all direct (same plane all the way) but stops are made at Rio and in Europe before the roses arrive in Germany. Flight time is 20 to 24 hours.



Fig. 2. Glass, polyethylene, and saran covers are used by John, Hnos. CIA.

No other rose growers in Argentina are presently exporting although this is a good potential export crop for the summer period. The Utsumi family has 50,000 rose plants in another direction from Buenos Aires. The plants are well grown and marketed locally. Rose supply in the wholesale market is quite adequate in summer but short in winter when very little heating of greenhouses is done. There are two plantings of roses in the tropical area north of Buenos Aires, Corrientes province. This area is too hot in summer for quality roses but in winter when the Buenos Aires market is short of roses the two plantings of about 30 acres total help to fill the demand. Stock plants of philodendrons, dracenas and other foliage plants are also grown in the northern tropical provinces and are also imported from Paraguay and Uruguay.

Foliage Plants

The foliage plant business is extensive in Argentina. The use of all tropical plants in landscaping is highly developed. Patios and balconies of high rise apartments are filled with yuccas, dracenas, philodendrons, cactus and others. The Cerrotta brothers have a fine collection of exotic plants and propagate these by the millions. Bromeliads are very popular as are all forms of grafted cactus. The Wolf firm in San Isidro has several places that grow foliage plants and one outstanding range producing mostly orchids. Wolf also produces its own stock plants of the larger exotics near Iguassú in the north. This production is mostly under partial shade.

Wolf has one connected section of orchids being cooled by a fan and pad system. Fans were custom made in Argentina but at high cost. With a heavy shade on the glass he is able to reduce the temperature most days to 5 degrees below outside air temperature. The relative humidity is so high that

efficient evaporative cooling is just not possible in the Buenos Aires area.

Mar del Plata

Mar del Plata, on the Atlantic Ocean, about 250 miles from Buenos Aires, is Argentina's leading beach resort. It is much cooler than Buenos Aires in summer and warmer in winter. With the help of the leading grower in this area, Juan Carlos Giannotti, I was able to see flower growing as done in Mar del Plata in greater detail. Their best markets are to provincial cities by air or rapid transit buses. Summer carnation prices are around 3 to 4 cents each with roses at 2 to 7 cents. In winter they get 15 to 17 cents for carnations but few roses are available. Summer carnation quality was better than in Buenos Aires, but poorer than they should be able to do. The removal of more glass during summer to approximate outdoor temperatures would certainly improve flower quality. The best quality growth of young plants was in the open while the highest quality carnation flowers were under well-ventilated polyethylene.



Fig. 3. Two types of flower packages ready for bus transit, Mar del Plata.



Fig. 4. Good quality summer carnations under polyethylene, Mar del Plata.

Sr. Giannotti is planning to produce disease-free cuttings for sale in Argentina. The Utsumi firm together with Sr. Ara Osepyan are planning a similar operation in Buenos Aires. Clean planting stock is

one of the greatest needs of the carnation industry in Argentina and the high cost prevents importation of such stock in quantity from either the U.S. or Europe. Other major problems of summer cooling and winter heating must be solved before carnations of export quality can be grown.

Chrysanthemum culture in Argentina is about where we were in the U.S. in the 1930's. There is enough difference in daylength (about the latitude of Albuquerque) that chrysanthemums go through normal vegetative and reproductive cycles. Normal flowering time is in April, May and June for most varieties. Planting is often done by divisions of old crowns, sometimes by rooted cuttings. No lighting or black cloth was seen. Some blocks of two-year-old plants were seen between houses that have flowered once and will be cut again this coming April or May. Good varieties, crop control and all the newer developments in chrysanthemum culture are still to come for Argentina.

Chile

Santiago is about 3 hours flying time from Lima, 1 hour from Buenos Aires. While Chile is a 2600-mile strip along the west coast from desert on the north to wooded rain forest on the south, Santiago at a latitude of 33°S is the center of most of the agriculture, and almost all of the population and major cities are in this central California-type climate. Like Argentina, Chile has more international influence, having many people of English, Irish and German ancestry as well as the predominant Spanish.

The flower industry in Chile is both modern (garden centers) and primitive. My contacts proved some of the best in South America. Through the help of Anthony Clarke, son of Hugo Clarke of Jardin Ingles in Santiago, and Max Schmidt, a prominent fruit grower of La Cruz, I was able to see the important cultural methods and both wholesale and retail marketing methods used in Chile.

Bedding Plants

The firm of Hugo Clarke y Hijos in Santiago is one of the finest horticultural businesses seen anywhere in South America. Hugo, the father, is a landscape architect and a real plantsman. Recently Anthony, one of the sons, spent several months with Geo. J. Ball, Inc. in West Chicago and took back many ideas that are being put into practice.

The garden center, Jardin Ingles, is located in one of the better residential areas of Santiago. They are concentrating on petunias and the better herbaceous plants but do carry canned stock of the better trees and shrubs. A recent addition is a small conservatory as a means of showing off foliage plants and house plants and a conference room in which clients can sit down and discuss their landscape and garden problems over a cup of tea. Since Santiago is relatively frost-free, gardening goes on year around. While the Clarkes buy some of their woody materials, they produce most of the plants they sell in extensive greenhouses outside the city.

Son Anthony lives at the greenhouses and supervises production of an unbelievable array of petunias,

primulas, foliage plants and many plants not seen in the U.S. Since his trip to the U.S. he is starting to produce pot mums, previously not grown in Chile. The operation is extremely complicated due to the wide variety of crops. Most of the bedding plants are grown in short polyethylene bags. Watering is done overhead by hand with a sprinkler rose. They pay labor on a piece work basis whenever possible and employ many girls. Greenhouse construction is evolving here independently of other areas of South America. While the plants have been grown on low beds or benches, there is a move in the newer houses to raise the benches to working height and make them wider (see photos).

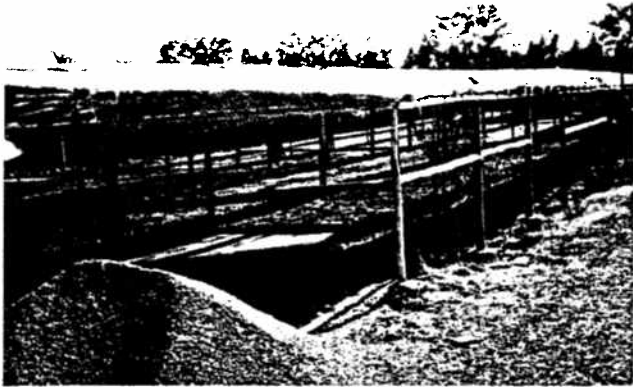


Fig. 5. Newer construction near Santiago. Polyethylene sidewalls are added for winter.

Flower Growing

Extensive fields of gladiolus and asters are adjacent to Santiago and several other cities in central Chile but the best climate for flower growing is an inland valley about 30 miles from Valparaiso and the Pacific. This is a natural climate caused by high fog cover and continuous air movement off the ocean. Citrus and avocado grow in the valley as well as other tropical crops, but temperate zone crops also grow well. There is no frost and extremes of high or low temperature are rare.

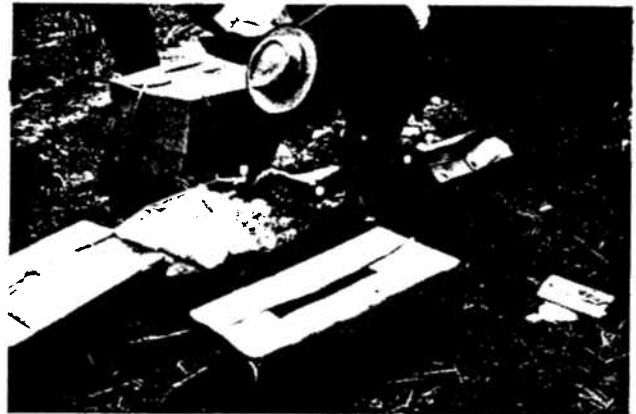
Through Sr. Max Schmidt I met Sr. Antonio Sone, a leading flower grower-entrepreneur of Japanese



Fig. 6. Field culture of carnations near La Cruz. These young plants are ready for first support wires. Senor Sone on right.

ancestry. Sr. Sone probably has some 150 acres total in flowers. One of his major operations includes a 60-acre farm of carnations at the head of the valley in which some 25 sharecroppers work their separate tracts on a 50-50 basis. The soil is prepared by modern machinery but little or no organic matter is added. Hand labor is used from planting to the termination of the crop one year later. Short beds about 100 ft. long are raised above the walks and water is applied by flooding the walks until the moisture moves over by capillarity. Little feeding is done. This culture is not very different from that used in some of the open fields of Italy.

Flowers are cut during the morning. They are bunched as they are cut and laid at the end of beds in the sun until enough are accumulated to pay to carry them to the shade of a tree. About noon the bunches are packed in paper lined banana boxes and stacked by the road for pickup by a truck at around 1 pm. Again they are stacked in the sun. The trucker, who charges 15% commission for hauling and sale of the flowers, arrives with the flowers in Santiago at a standard 4 pm. The buyers are present at this appointed time so that within an hour or less all the flowers have been sold to wholesalers, peddlers, retail shops or people who make the flowers into wreaths for funerals and grave decorations. From the time these flowers are cut in the morning to the



Figs. 7 and 8. Flowers are packed just before noon in banana boxes. They arrive at the market in Santiago at 4 pm in open trucks like the one on left (bottom photo) and are sold almost immediately to customers such as the one in center of bottom photo.

time they are sold by the truckers they have not been in water. Flowers shipped from this market to other cities may or may not be in water before shipment.

Sone controls 2 million plants and at the time I visited prices of undisbudded carnations were around one cent net to the farm. Winter quality and prices are much better. It was estimated by Sone that there are some 700 acres of flowers produced in this part of the Aconcagua valley. All evidence indicates that this primitive way of growing is profitable, especially since no better quality is available in Chile.

Labor

Pay of labor is often very low in South America. The government regulations in most countries "protect" labor with many regulations, some of which make difficulties for the employer. Chileno laborers are paid a minimum of \$1.50 per day but many extras are required of the employer such as social security, extra pay for many holidays and paid vacations, housing, certain amounts of food, etc. All employers say that hourly workers are not productive. It is difficult to discharge workers after a short probationary period of two weeks. Some employers get around this by continually hiring on a 6 month contract. If the worker is not satisfactory after the contract period, the contract does not have to be renewed.

Sr. Sone bypasses most of the labor regulations by renting to sharecroppers on a 50-50 basis. These people are theoretically in business for themselves and they take greater interest in their work and are much more productive than day laborers.

New Edition

The Department of Floriculture and Ornamental Horticulture at Cornell University announces the publication of the 1969-70 edition of Cornell Recommendations for Commercial Floriculture Crops. This 72-page illustrated edition is expanded in both scope and depth of subject matter treatment, and includes discussions of additional crops and topics not treated in earlier editions. Authored by Cornell University floriculturists, entomologists, plant pathologists and agricultural engineers, the publication incorporates the latest research and industry information and adapts it to commercial production programs.

Cornell Recommendations is available to out-of-state persons for \$1.00 per copy from the Mailing Room, Building #7, Cornell Research Park, Ithaca, New York 14850. Make checks payable to Cornell University. CFG.

Paraquat and Diquat are toxic to humans

Warnings and some bad publicity have appeared in the trade papers recently regarding these two herbicides. Both Paraquat and Diquat are considerably more toxic to humans than most weed killers. While they are valuable herbicides, especially in ornamentals, they must be used with caution. Read the labels and follow directions to the letter. These precautions include the following:

1. Do not store in any unlabeled container; store only in original container.

2. Store out of reach of children and away from foods.
3. Avoid any skin or eye contact.
4. Wear protective clothing when handling and applying Paraquat, including gloves, face shield, or other eye protectors, and a protective device to prevent inhaling of fumes and drift.
5. Avoid exposures to drifts and fumes.
6. Train personnel before permitting their use of Paraquat.
7. Do not smoke, drink, or eat in areas where Paraquat is being used.
8. Wash protective clothing after use.
9. Wash thoroughly after use.

Several fatalities have resulted when Paraquat damage to eyes and lungs has resulted when not used properly. THE DAMAGE IS PERMANENT. THERE ARE NO KNOWN ANTIDOTES - SO BE CAREFUL.

Bouquet of Cut Flowers Plucked from Abroad Burgeons in Value

May flowers come with April showers. They also come with foreign bills of lading.

We imported about \$15.3 million worth of nursery and greenhouse stock in the year ending June 30, 1968. And we exported \$10.3 billion worth.

The total value of our horticultural trade, both incoming and outgoing, is still relatively small in relation to our total agricultural trade, but it has gained more than 26 percent since fiscal 1962. Most of this gain is due to increased U.S. exports.

However, a 400-percent rise in our imports of cut flowers is a significant development.

U.S. purchases of fresh foreign blooms rose in value from \$110,000 in 1961/62 to \$548,000 in 1967/68. Their share of nursery and greenhouse imports quadrupled from a mere 1 percent to nearly 4 percent.

We gather our imported cut flower bouquet from about 20 countries and all continents.

Ecuador is one example of a major supplier. Like many other South American countries, it enjoys a "micro-climate" within its borders. The wide variety of altitudes and temperatures assures year-round crops of carnations, chrysanthemums, and other garden favorites - as well as tropical flowers and foliages.

Australia is another big cut flower supplier. In this case, our floral imports are mainly orchids - with special emphasis on the multicolored cymbidiums in lieu of the traditional lavender and white giant corsage types.

While our imports of cut flowers have risen 400 percent, our exports of cut blooms have risen 44 percent in the past 6 years. They are a valuable bunch - \$2.6 million in 1967/68.

In addition, we exported nearly \$2 million worth of bulbs, roots, and corms - and about \$5.7 million worth of miscellaneous nursery and greenhouse stock.

On the import side, bulbs and such made up over 90 percent of our purchases from abroad. The Netherlands is by far our biggest supplier of most items. Among the exceptions are lily-of-the-valley pips (West Germany), orchid plants (France), and tuberous begonias (Belgium). — I.E. Lemon, "U.S.

Foreign Trade in Nursery and Greenhouse Stock," The Farm Index, May 1969.

Ninth National Agricultural Plastics Conference

Theme: Are Plastics Meeting the Needs of Agriculture?

Conference: Plans for the Ninth National Agricultural Plastics Conference are progressing nicely. We have now formulated a general program for your information. A complete program will be mailed to you in early October.

Sat. Oct. 18 (Early Birds) Football Game - U. of Texas at El Paso vs. CSU

Sun. Oct. 19 (Early Birds)
11:00 NAPC Golf Classic

1 - 8 p.m. Registration

Mon. Oct. 20 8 - 9 a.m. Registration

9:00 Tour and Demonstrations,
Research Greenhouses,
Dept. of Horticulture

11:00 Tour, Industry and Scenic

5:30 Barbeque, Lazy B Guest
Ranch, Estes Park

Tues. Oct. 21 8:30 a.m. Welcome to 9th NAPC,
Bernarr Hall, President
Welcome to CSU, Dr. D. D.
Johnson, Dean of Agricultural
Sciences

9:00 Papers

6:00 Banquet - Speaker

Wed. Oct. 22 8:30 a.m. Papers and Business meeting

Trade Fair: A large area within the meeting facility if available for commercial displays. Any company or organization desiring space should contact NAPC, Trade Fair, Conference Services, Colorado State University, Fort Collins, Colorado. (All previous participants will be contacted directly.)

Demonstrations: We anticipate the actual placement of mulches, liners, greenhouses, etc., within the Horticulture Department's demonstration area. Some companies may also desire to demonstrate mechanical applications, etc. Further information can be obtained from W. D. Holley, Dept. of Horticulture, Colorado State University, Fort Collins, Colorado 80521.

Chairman of Arrangements: Dr. Kenneth L. Goldsberry, Department of Horticulture, Colorado State University, Fort Collins, Colorado 80521.

Your editor,

COLORADO FLOWER GROWERS ASSOCIATION, INC.

OFFICE OF EDITOR

W. D. Holley

Colorado State University
Fort Collins, Colorado 80521



FIRST CLASS



Mrs. Dorothy Conroy
COLO. FLOWER GROWERS ASSOC.
901 Sherman St. Suite 1410
Denver, Colorado 80203