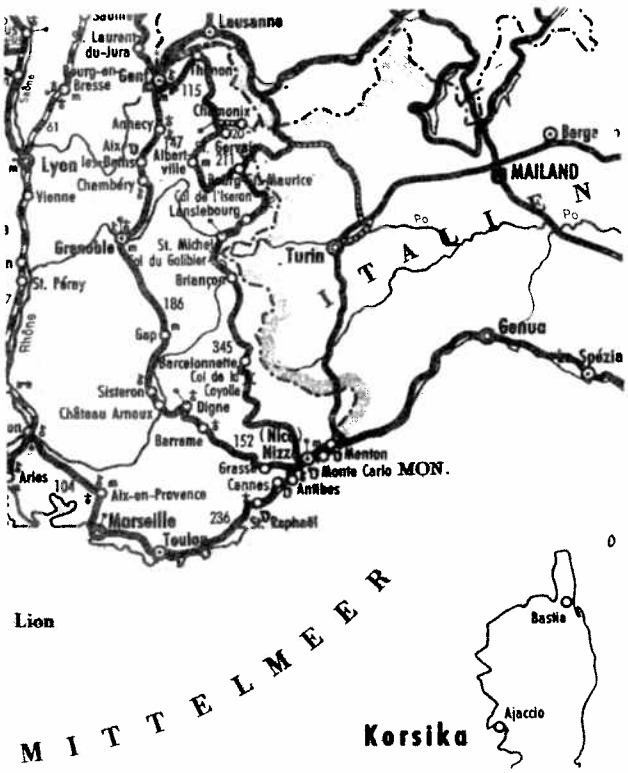
Carnation Growing along the French Riviera

by W.D.Holley

Along the south coast of France from Toulon to the Italian border, a distance of about 125 miles, is located the most concentrated carnation growing area in the world. Around 5000 acres of carnations are grown with possibly 10 per cent of this under glass and the rest in open ground.



The annual value is 10 to 12 billion old francs. Approximately 50 per cent of this crop goes to Paris, 40 per cent to the provinces, and 10 per cent is exported.

Soils along this section are mostly calcium saturated clays, with varying amounts of gravel. Some ground is very stony-- all of it seems well drained. The soils however are highly variable in their fertility and color. A flaky clay subsoil is used in some cases but it should weather a year after preparation before it will grow a good crop. Most carnation farms are located on top, or on the sides of hills so air drainage is usually good. Terraces around the sides of hills are quite a common sight both in France and Northern Italy. Tillable land is scarce along this coast and quite expensive.

Greenhouse construction varies almost as much as the people who build them. The crudest type of cover consists of posts in the ground fastened together with 1X2 or 1X4 boards. Plants are grown in the open until late fall, then glazed sash are placed over this frame work until about June 1 to keep off dews and occasional rains and light hails. Paillassons (bamboo mats) are also used as covering in coldest weather by some growers. Some glasshouses are constructed so the walls or parts of the roof can be removed in summer. The most modern greenhouses have steel trusses and large glass.

The Riviera section enjoys a mild climate with up to 80 - 85°F in summer and little or no frost in winter. Although this section is at a latitude of 43°N it enjoys lots of sunshine in winter.

The Sim varieties make up most of the plantings in modern greenhouses while the Nice or Riviera varieties are planted in the open or under sash. The ancestors of the so-called American carnation were imported from this section around the middle of the nineteenth century. New varieties of the Nice strain are constantly being developed by several breeders in Southern France and Northern Italy. Their selections are made for ability to stand up and produce in open ground as well as for resistance to the common diseases.

Since many of the carnations are grown in open ground, stem and root rot diseases of all sorts are prevalent. Both bacterial and fungus diseases give trouble, but Fusarium and Rhizoctonia stem rots seem to cause the most losses. Sterilization of the soil is done in greenhouses and clean planting stock of Sim varieties is available through two large propagators. No "disease free" stock of the Nice varieties is available. One large grower steam sterilizes field soil with small 2-square-meter inverted pans and a portable boiler. He realizes that the soil becomes recontaminated during the operation but his yields are increased up to 50 per cent following steaming. One man using two pans (approximately 40 ft^2 in area) can steam 160 to 200 ft^2/hour with 7 gallons of oil as fuel. The boiler and equipment cost $1500 so not many growers can afford this.

Another means of decreasing the disease problem is by crop rotation or moving to new ground. Some growers rest ground one year after the first crop, two years after the second crop.

M. Jules Cassiabue, one of the largest growers of the Nice varieties, was my host for a day and explained thoroughly his culture of these carnations. He steams the field soil about 12 inches deep and starts his crops off with bone meal and horn shavings, both of which are cheap. He plants around April 15 in narrow beds with three staggered rows and a walk between of equal width. In all, he plants about 1.2 million plants--would use twice as many if in the Sim varieties. By the time pinching is stopped around August 1, plants often have 18 to 20 breaks. Supports consist of 3' stakes on either side of plants and a network of string woven between these.

M. Cassiabue has his own wholesale outlet in Nice and sells to buyers who ship all over. When the price gets as low as 1½ cents, he dumps the flowers. Flowers are bunched in 50's. In addition to several grower-owned wholesale outlets, Nice has an auction market which in season is far too small. Instead of wheeling in the entire lot of flowers from a grower, one or two bunches (often the best) are held up before the buyers. Buyers depend more on the reputation of a grower than the appearance of the sample bunches.

Labor on the carnation farms earns up to $5 per 11-12 hour day with housing and insurance. The laborers work hard for this is a good job in this area. Many women and girls are also employed in carnation growing. In fact, the majority of the carnations are probably produced in small, family unit operations.

M. Cassiabue and his family are also leading breeders of new varieties in the Riviera section. One of their farms is devoted entirely to seed production, selection and the multiplication of potential new varieties. They select for well formed flowers with good color. Most varieties have split calyxes but they must have symmetrical shape. It is undesirable for the petals to drop down in the splits of the calyx. They also select for vigor, disease resistance, and cut flower life. The Nice varieties keep 3 days longer and ship better than the Sim varieties. They get no single flowers when crossing among the Nice varieties; some singles result when these are crossed with American carnations. Fertility varies greatly in the Nice carnations as some set little or no seed. In the Cassiabue operation they collect pollen from a number of varieties, mix it, and pollinate selected seed parents of known fertility. They keep records only on the seed parent.

Information

Mme. Denise Blanc and others of the Station of Agronomy and Biochemistry at Antibes are doing carnation nutrition research. They publish bulletins which aid growers in handling their soils and the use of fertilizers. Most of the growers to whom I talked seemed well informed on the identification of carnation diseases, thanks probably to Mme. Moreau and her coworkers at the Research Station near Paris. Good Insect control information is disseminated by chemical companies for the most part.

Acknowledgement

My special thanks to Mr. Robert Chappel my gracious host while in Southern France. Not only does Mr. Chappel know most of the carnation producers, he is also a fluent interpreter and a most pleasant companion.

APHID CONTROL ON CARNATIONS AND OTHER CROPS

During the past two years a series of experiments on green peach aphid control has been conducted by Dr. A. Earl Pritchard, Department of Entomology, University of California, and R.H. Sciaroni, Farm Advisor.

The green peach aphid is a serious pest of carnations, and it is difficult to control on this and other flower crops. A new systemic insecticide, Dimethoate, promises to be very effective under greenhouse conditions. Dimethoate is an organic phosphate that is relatively non-toxic to mammals.

Experiment work conducted at Redwood City during the past two years has included granular, dust, and liquid formulations of Dimethoate. The liquid applied in the irrigation water with the aid of a proportioner has given the most consistent results on carnations. Excellent control of the aphid has been obtained with a rate of 5 to 6 pounds of the technical material per acre, without any plant injury being evident. Dimethoate is not yet commercially available.

Dimethoate was also tried as a dust on the foliage and a granular application to the soil on chrysanthemums. In both instances injury occurred with this crop. Preliminary investigations on greenhouse roses with a foliar dust indicated that aphid control was good and no injury occurred.

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