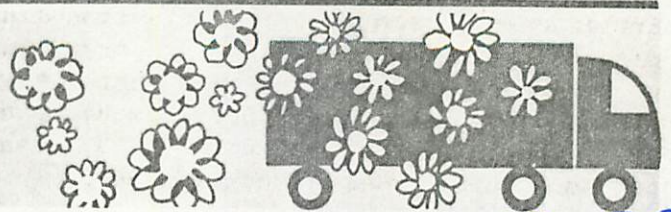


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# Flower Growing & Marketing



**STABY - OSU**

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## Israel and Its Floral Industry (Part IV)

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### Rose Culture

Until 1976, roses were the leading flower crop in Israel for export. Since 1976, the main flower is the spray carnation. As of 1978-79 rose production occupied about 515 acres, producing 180 million stems at an F.O.B. value of \$27 million.

As mentioned earlier in this sectional report, most greenhouse operations are small, about 1/4 to 1/2 acre and are family enterprises. The exception are a few large greenhouse ranges such as Shav Zion ( a communal moshav ) and Nes Amim (also a communal moshav, operated by a Dutch Christian group) in the northern coast area of Israel. Nes Amim has over 8 acres of greenhouse roses and about 5 acres of outdoor flowers. Nes Amim has installed basic machinery commonly used in Holland, such as rose graders and conveyors.

As of 1978-79, the Israeli rose types were 62 percent sweethearts, 37.5 percent hybrid teas, and 1.5 percent garnettes. The number of cultivars being grown is quite vast, and there is much shifting around as new cultivars are developed. The leading rose cultivars and approximate area of production for 1978-79 are as follows:

Israeli rose cultivars and area, 1978-79

<u>Cultivar</u>	<u>Area, 1000 m<sup>2</sup></u>	<u>Acres</u>
Mercedes	506	126
Garbiella	381	94
Baccara	247	61
Sonia	200	50
Golden Times	140	35
Belinda	104	25
Bingo	103	26
Jaguar	84	21
Samantha	47	12
Visa	40	10
Lara	38	9
Bellona	20	5
Red Success	6	1.5

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Most Israeli rose production is in ground beds with two rows of plants per bed, irrigated by a single drip irrigation line. Due to many poorly drained soils, plastic drains and imported sand or top soil are also common. There are a fair number of growers who grow in plastic bags or buckets, a technique actually first proposed by U. C. researcher, Tom Byrne at San Jose, California. The plant density is about the same as in the U. S. or about 25,000 plants per acre (one plant per square foot of planted bed area).

Production of rose flowers is also similar to that in the U.S. Cultivars such as Bingo or Golden Times produce about 135,000 stems per dunam (1/4 acre) from January to April. Mercedes is a much higher producing cultivar.

Much research has been done in Israel to compare rootstocks vs. own-root roses. The rootstock Rosa indica continues to give better production than other rootstocks or own roots in the mid-east area. The use of "mini-plants" for rose production offers interesting possibilities. A one-leaf scion is cleft grafted on the one-leaf root stock and placed directly in a rotting bench under mist or also in multi-celled trays with a strip of rockwood wrapped around the rootstock base. The graft union is made and roots formed in a 3 to 5 week period. These mini-plants are planted closer together and enable growers to rapidly change rose cultivars.

Sulphur pots, one per each 1,000 square feet of greenhouse area are also used in Israel for standard mildew control. I saw very little mildew problem in any part of Israel during my three month stay. Whether this is typical or unusual, I don't know.

For additional impressions of Israeli rose and production of other flowers, refer also to an excellent report written by Dr. Joe Hanan, Colorado State University, and the report published in the July 1979 issue of Roses, Incorporated Bulletin.

#### Other Israeli Flower Crops

As mentioned previously (Part II), there has been a dramatic diversification and increase in the production of many field flower crops since 1976. As in southern California, perennial gypsophila and annual statice have become leading items. The following table is a list of the 1978-79 acreage of outdoor items.

Area of other flower crops (acres) in 1978-79

<u>Crop</u>	<u>Acres</u>	<u>% Change from 1977-78</u>
Statice sinuata	421	124%
Gypsophila	298	422
Column stock	112	25
Ruscus hypoglossum	99	67
Chrysanthemum	97	550
Geraldton Wax Flower	57	109
Limonium	54	---
Liatris	50	82
Star of Bethlehem	35	75
Anemone	24	171
Centaurea	15	100
Achilea	15	---
Gerbera	14	400
Ferns	12	285
Pittosporum	11	165
Euonymus	9	---
Total.....	1,323	Average 152%

A notable difference between California and Israel is that nearly all gypsophila and statice sinuata is raised under plastic greenhouses in Israel vs. outdoors in California. The quality of these 2 crops in Israel is superior. Both crops are graded and bunched by stem size and number of stems. Both crops are planted in two rows per bed with a drip irrigation line.

Statice plants are pre-cooled before planting to initiate flowering. Gypsophila is lighted for winter production and to produce two crops of flowers (January or February and Mother's Day).

The Europeans prefer the smaller flowers, thus Israeli gypsophila production is presently 80% Bristol Fairy and 20% Perfecta. Following are gypsophila export grades (10 stems per bunch).

<u>Grade</u>	<u>Length</u>	<u>Weight (grams)</u>
Super	60	300
Extra	50	200
#1	40	100

Stems must have 70% open flowers. Growers pre-test in TOG and 5% sugar solution.

Ruscus hypoglossum, a bright green liliaceous foliage for cut greens has become very popular in Israel and is liked by European customers. Plants are grown from division, usually in double rows with plants 40 to 60 cm apart. By the third year, production should be about 400,000 stems per acre. Plants are grown under 50-60% shade screen. There are few cultural problems except some insect or snail control.

Crops such as Geraldton Waxflower are very recent in Israel. Growers were experiencing a frequent collapse of young plants (1 year or less) and considerable chlorosis problems, which I believe is due to poorly drained alkaline soils. A species of white flowered waxflower is being produced and a few other flower variants from Australia are being investigated.

Gerberas have been given quite a bit of attention in Israel. I saw some excellent quality flowers but growers were not happy with prices received. It is my opinion that gerbera production in Holland is too vast for Israelis to compete.

Gladioli have been a major crop along with roses and carnations. A system for planting about 250,000 corms per acre in a plastic greenhouse and lighted for winter flowering appeared to be possible. Actually, gladioli have not increased and may even decline as they have in the U.S.

#### Israeli Research and Extension

Most of the floriculture crop research has been done at the Volcani Institute at Bet Dagan or at the Hebrew University at Rehovot, both locations just south of Tel Aviv. There are now several regional extension stations where variety testing and other research is done. There is roughly one researcher or extension agent per one million dollars of export flowers. This is a very high ratio. In California we have one person to about \$30 million of products.

The Israeli research facilities are very simple but a lot of good research is done. Most of the basic ideas and technology for their flower industry was adopted from California because of similar environment. However, in many respects, the Israelis are now going out head of us on research accomplishments.

They are intensely studying new potential crops. Even crops grown for 50 years in Southern California are manipulated by chemicals or simulated climatic factors, of which we have never researched. Post-harvest treatments are developed rapidly for each new crop.



The extension agents have small territories and often specialize in one or just a few crops. They work very closely with the growers (many know nothing about horticulture) teaching all basic principles of growing and harvesting. There are several greenhouse engineering specialists as well as other specialists to assist growers. Research results move rapidly to industry adaptation.

#### SUMMARY

In the use of limited natural resources, Israel has truly performed some modern agricultural miracles. The climate is most suitable for winter production of specialty fruits, vegetables and flowers and there is a large population of affluent customers in Western Europe. The Israelis have done a masterful job of training people, collecting and utilizing all available information and quickly solving new problems of production and marketing.

The modern Israeli simply believes that anything is possible and nothing is impossible. The organization of the production and marketing is very complex, and of course, the Israeli government plays a close role in all planning, financing and the general politics. This is a big difference compared to the U.S. where our floral industry is very independent of government assistance or sympathy.

Both Israel and the Netherlands are going to sell many more flowers in the U.S. market. The Dutch call the U.S. and "underdeveloped" country for flower consumption. The next few years will be very interesting!

(Part V in the May Issue of Flower Growing and Marketing will report on the study trip in Europe)

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