Ornamental plants in Hungary Part II. Open-ground cultivation

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INTERNATIONAL JOURNAL OF HORTICULTURAL SCIENCE

AGROINFORM Publishing House, Hungary

Key words: ornamental plants, Hungary, open ground cultivation, woody ornamentals, rose bushes, perennials, dried flowers, nurseries

Summary: The main fields of open ground ornamental plant cultivation in Hungary are: Woody ornamental nursery products (trees, shrubs, conifers) (950 ha cultivation area and 4-6 million plants sold per years; Rose bushes (around 140 ha and 2–4 million bushes per year); Perennial plants (20–30 ha and 3–4 million plants per year); Dried flowers (200–250 ha of land and a production value of 5–700.000 HUF per year). The paper is discussing in detail the structure, development and tendencies of ornamental nursery production (with figures in tabulated form) and later gives shorter assessments of the present state and perspectives of the other three fields. Finally, a list is given of the Hungarian professional associations and unions, education and research centres involved in ornamental plant growing and trade.

Introduction

In the first part of this paper, the general state of Hungarian ornamental plant industry was outlined, with a more detailed description of protected cultivation, e.g. cut flowers and cut foliage, pot flowers and pot-grown foliage plants, bedding plants. (*Schmidt,* 1999). Now, in this second part, the open ground cultivation of ornamentals is discussed.

In contrast to the protected cultivation where the climate is strongly modified and the growing medium is usually artificial, open ground cultivation is definitely climate- and soil-bound. There are traditional growing regions for each group of open ground ornamental crops all over Europe, depending mainly on the climatic and soil conditions. For Hungary, the most important crops are as follows:

- Woody ornamental nursery products (trees, shrubs, conifers) (880 ha cultivation area and 4-6 million plants sold per year)
- Rose bushes (100-140 ha and 2-4 million bushes/ year)
- Perennial plants (20-30 ha and 3-4 million plants/ year)
- Dried flowers (200-250 ha of land and a production value of 5-700.000 HUF per year)

Woody ornamental nursery products

Woody ornamentals (trees, shrubs, conifers) are far the most important open ground ornamental crops in Hungary, occupying 70–80% of the total cropping area.

Ornamental nursery production is a licensed activity in Hungary. Licence is given by the National Institute for Agricultural Quality Control, who is regularly controlling and keeping records on them. (*Vinis,* 1996 and 1999; *Neszmélyi & Rátkai,* 1996).

The most important statistical data (between 1969-1996) are given in *Tables 1 and 2.* As shown in *Table 1,* the first steady increase (from 163 to almost 700 ha) took place between 1969–1979, after which the cropping areas and the production remained essentially the same for about 10 years.

The changes after 1989–90.

A slight decrease in cultivation areas occurred between 1989–1992, followed by a steady increase after 1994. These changes were in close connection with the radical social and economical changes taking place during this time in the country.

Main factors of the changes were:

- changing markets,
- changing ownership and
- growing international competition (opening of the borders).

Changing markets

Before 1989 the main consumers of ornamental nursery products were the municipal councils (public parks, housing projects and the relating green areas) and the highway and roadside plantings. Market share of private gardens was relatively low.

After 1989 the "traditional" state-dominated market collapsed. Fortunately, the sudden drop of demand from the side of state was soon being recompensed by a steady increase from the side of small private gardens. In such a way, most of the nurseries managed to survive the changes. They had, however, to adopt themselves to the new market situation by offering a more varied stock, in higher quality and in larger sizes as before.

Table 1 Ornamental Nurseries in Hungary: Numbers, areas, production, sales, cultivated species and varieties. (Source: Vinis, 1996, 1999, OMMI, 1997, 1999)

	1969	1980	1985	1990	1992	1994	1996	1998*
Total number of nurseries:	56	119	213	441	526	550	532	422
Total licenced area ha:	2106	2263	2155	2084	2188	2198	2151	1975
Total cropping area,ha:	163	659	710	620	628	880	865	1100
Production data:								
Propagated (millon plants):	0.6	6.5	9.5	8.6	5.8	7.2	6.6	7.1
From this: -broadleaves	0.6	5.5	8.0	5.6	3.1	4.1	4.5	5.0
-conifers	–	1.0	1.5	3.0	2.7	3.1	2.1	2.1
In the process of growing (millon plants):	0.5	11.1	12.4	9.0	8.6	8.8	10.6	10.0
From this: -broadleaves	0.5	9.2	9.7	5.8	5.3	5.0	6.2	6.1
-conifers	–	1.9	2.7	3.2	3.3	3.8	4.4	4.4
Sold (millon plants):	–	3.8	6.5	5.7	4.2	4.8	4.0	4.0
From this: -broadleaves	–	3.5	5.8	5.3	3.2	3.2	2.9	2.9
-conifers	–	0.3	0.7	0.4	1.0	1.6	1.1	1.1
Species and cultivars in production (No):	–	794	1075	1262	1393	1596	1865	1900
From this: -broadleaves	–	–	756	824	878	984		1264
-conifers	–	–	319	438	515	612		636

Notes:
OMMI = Hungarian National Institute for Agricultural Quality Control.
*In the last column (year 1998) figures in the first 3 rows are including roses, figures below that are without roses.
– :No data

Table 2 Numbers of Ornamental Nurseries in Hungary in different size groups. (Source: Vinis, 1996 and 1999)

Total licenced area	Number of nurseries					
	1979	1987	1991	1992	1995	1998
Under 1 ha	53	227	362	397	414	242
1–5 ha			92	86	84	129
5–10 ha	12	12	15	15	22	25
10–50 ha	17	13	23	20	19	34*
More than 50 ha	10	4	8	8	7	
Total number	92	256	476	526	546	422

Notes:
In 1998 the rose nurseries are also included.
Figure indicated with *-symbol is the total for size categories 10-50 and over 50 ha.

Changing ownership

Political and economical changes after 1989-90 brought changes in ownership in two ways:

1. In connection with the reimbursement-system many of the former private farmers (or their inheritants) acquired a piece of land again.

2. From 1991 on, the majority of the former state- and municipal ornamental nurseries were gradually transferred into companies with mixed ownership. Usually, 51% of the ownership remained in the hands of the former owner (the municipality or the state) and the remaining part was "sold out" to the employees.

A third element was the appearance of foreign capital, discussed in the following chapter:

International competition

International competition had affected Hungarian ornamental nurseries in three main ways:

- *Direct import* (and export) of nursery products and equipment,
- Entry of foreign capital in the form of *mail-order companies,*
- Establishment of *new nurseries with foreign capital* (joint ventures).

The direct import of nursery products and equipment contributed to raising the biological and technical level without being a real competitor on the inner market. The present import is estimated at 10–20 truckfuls of plants, mainly from Italy and Holland. Other important items are those special nursery equipments and accessories, which are not nor be ever produced in Hungary.

Mail-order companies had also a rather positive than a negative impact on the home production. Their colourful catalogues contributed to raising the level of gardening and evoked a desire in consumers to buy more and new types of nursery products: not only from the mail-order company, but also from the traditional Hungarian suppliers. After a big initial boom, now only two mail-order nursery companies have remained with a minimal market share.

The establishment of new nurseries in Hungary with foreign capital seems to be the greatest challenge. By now, only a couple of Dutch-Hungarian and Austro-Hungarian nurseries are operating, but these few are responsible for the majority of recent increase in nursery areas and a further increase can be anticipated in the future.

Western-European investors have the advantage over the Hungarians of having the necessary capital and the technical background for quick developments. Their "native" (Hungarian) counterpartners, on the other hand, have the only advantage of being at home: They know the land, the people and the market.

The present situation

After the changes and fluctuations between 1989–94 (with many small growers starting but later dropping

business), the nursery industry seems to get more and more stabilised. The cropping area is increasing, the number of nurseries decreasing *(Table 2).* In 1998, the number of licensed ornamental nurseries was 422, (almost 100 less than 2 years earlier!) the total licensed area 1.728 ha, the total cropping area (actually planted with trees and shrubs) 956 ha. The number of species and varieties in cultivation was 1900. (*Vinis,* 1999, OMMI, 1999).

More than half of the cropping area is in the hands of the largest 6 nurseries as follows:

- The PRENOR Nursery, near Szombathely (Western Hungary)
- The Alsótekeres Nursery, near the Balaton Lake (20 km from Siófok)
- The Tahi Nursery, north of Budapest
- The Silvanus Nursery, around Fertőszentmiklós (Western Hungary) and Budapest
- The Ökoplant Nursery, near Sopron (Western Hungary)
- The Martin Ltd. Nursery, near Zalaegerszeg, Western Hungary

Almost 50% of the production is situated in Western Hungary. 11% of the cropping area and 17% of the growers are around Budapest. There is another important region in the South (around Szeged) and a smaller one in the East (around Debrecen).

Recent tendencies and future trends

The ornamental nursery, industry, as a whole, survived succesfully the changes. The market first changed from the state-controlled to private consumers. Now the share of the state-controlled consumers is increasing again. (Highway-programme, environmental plantings, reconstruction of green areas, new public parks).

Future trends

- Hungarian ornamental nurseries will maintain their competitiveness.
- The size of the nurseries will further increase, their number decrease.
- A further increase is anticipated in quality and size of the plants.
- A restriction of the environmental regulations, (regarding the use of water, fertiiisers, pesticides, and the recycling of organic materials) can be anticipated.
- The "green movements" will result into an increasing demand towards native (or, at least, native-looking) deciduous stock, instead of the non-native plants (conifers).

Rose bushes

Although roses belong also to woody ornamentals, they are grown in specialised rose nurseries all over the world. The number of rose bushes produced in Hungary is ranging from 2 to 4 million plants per year (*Fojta,* 1996).

Rose-nursery production is a licensed activity and is controlled and recorded by The National Institute for Agricultural Quality Control since 1998 only. In that year, the cropping area was 143 ha, the produced amount of bushes (ready for sale) 3,5 million plants. (*Vinis,* 1999)

The cultivation is traditionally concentrated in Southern Hungary where the vegetation period is long, the number of sunny hours is over 2200 per year and rich alluvial soils by the river Tisza provide excellent growing conditions. Around the village Szöreg, (near the town of Szeged) 1,5–2,5 million bushes are grown yearly (60–80% of the total Hungarian production). About 90% of this amount is exported to Western Europe. Roses are labour-intensive crops. Their cultivation is caried out on family basis, with 10–30.000 bushes per family. The bulk of production is co-ordinated by the co-operative Szöregi Virág-Dísznövény ÁFÉSZ. The co-operative makes the international contracts, the contracts with the producing individuals (families), organises the uniform packing, labelling and storage, and finally, the shipment (sale). It is also the co-operative's responsibility to pay the royalties to the international rose-breeders.

Recently some private companies started their individual business in the Szőreg area or grow smaller amounts at families in a similar system as the co-operation does. (One of the largest is the Fráter Rózsafaiskola).

Besides the Szeged-Szőreg region, the Alsótekeres Nursery is growing considerable amounts of roses, in the range of 100–300.000 bushes per year.

Perennial plants

Production of herbaceous perennials is dynamically increasing in Hungary. (*Gerzson,* 1998; *Szántó,* 1998). In 1990, it was less than half million plants, in 1998 about 2,5 millions, and in 1999 almost 4 million. The largest consumers are the private gardens, demanding small-size plants. The bulk of the production is, therefore, represented by alpine plants and other small-size perennials.

Although several large tree and conifer nurseries started some perennial production, the bulk is concentrated in specialised perennial nurseries, such as the Hegede Nursery (near Kecskemét, alpine plants), the Kugli and Sons Nursery (near Tatabánya, water plants), the Zsohár Nursery (medium size and speciality perennials), the Mocsáry Nursery (Budapest, mixed perennials), the Balázs Nursery, Nyírszőlős (Irises), the Geranium Nursery, Tatabánya, (alpine and medium-size plants) and others.

In the future, a further development is anticipated with a 3–5 fold increase of production. It is motivated by increasing demand not only from the side of home gardens but also for intensive public and community parks (robustly growing hardy perennials). Huge potential markets are the „green roofs" (succulent plants), the embankments (ground-covering low perennials) and balconies.

A special attention should be paid to the protected and endangered native herbaceous perennials. These plants

became endangered partially because of their limited living possibilities (the decline of native biotops), or, in many cases, because of their intensive collection by the public. Horticultural cultivation of these plants would constitute a solid reserve to their reintroduction to nature and, in the same time, prevent the public from illegal collections.

In Hungary, the cultivation of protected and endangered species is strictly regulated by law and is allowed only under permanent control by the respective authorities. Before cultivation, therefore, the necessary permissions of the environmental authorities should be taken and the proper technologies elaborated.

Dried flowers

Dried flowers produced in Hungary are open ground and mostly annual (sometimes perennial) plants, requiring light soils, long and warm summers and many labour for processing. The total cropping area is 200–250 ha (Lévai, 1998) and the production value (at 1999 prices) ranges between 500–700.000 HUF. Most of this volume is exported. The main crops are *Statice, Helichrysum, Achillea millefolium, Gomphrena,* and various grasses including old cultivars of wheat and barley. The cultivation is concentrated to the middle of the Hungarian Plain, around town Kecskemét. Here the soils are sandy, the summer is warm and the labour relatively cheap so the conditions for an internationally competitive cultivation are given. Smaller amounts are grown on the North-West near the town Gyõr under similar environmental conditions.

Several grasses and reeds (*Calamagrostis, Typha,* etc.) are still collected from the wild.

In the future, the cultivation will probably remain at the same level as both the home and the international market are saturated. It is anticipated, however, that

- The use of tropical and subtropical dried flowers will increase in Hungary. On the other hand, our products will get to larger distances on the international market.
- The rate of wild-collected grasses will decrease and gradually replaced by cultivation.

Professional organisations

The top-association, uniting all the fields of ornamental plant growing and marketing is the *Hungarian Professional Ornamental Plant Growers and Traders Association and Product Council,* Villányi út 35–43, Budapest, Hungary, H-1118.

This Association is comprised of specialised unions, covering a section or an area of ornamental plants as follows:

- Union of Western Hungarian Nurserymen
- Union of Southern Hungarian Nurserymen
- Union of Central-Hungarian Ornamental Nurseries
- Union of Hungarian Garden Centres and Plant Centres.
- Union of Pot Flower Growers
- "Flora Hungaria" Union of Floriculturists
- Union of Wholesalers and Traders of Ornamental Plants
- Union of Hungarian Micropropagators
- Union of Hungarian Rose-Growers
- Union of Hungarian Florists
- Union of Flower and Vegetable Growers in the Szöreg Region
- Union of Graveyard- and Cemetery Gardeners

Education and research

Education

Vocational and basic training of floriculture is taking part in 24 vocational and specialised secondary schools. High education is concentrated at two establishments:

1. *Department of Floriculture and Dendrology (Saint Stephan University, Faculty of Horticultural Sciences),* H-1118, Budapest, Villányi út 35-43, Hungary. tel.: (36) (1) 372-6270, fax: (36) (1) 372-6333, e-mail: disz@kee.hu, internet: http:/ww.kee.hu.

Fields of training at university level (including PhD courses): open-ground ornamental crops; glasshouse-grown ornamental crops; horticultural dendrology (woody ornamentals); use of ornamental plants in landscape architecture; micropropagation, flower arrangament.

Fields of research: introduction and breeding of landscape plants; propagation technologies for hardy ornamentals; micropropagation of ornamental plants; energy-saving and environmental floriculture; use of new bedding and balcony plants; new crops; urban horticulture.

2. *Department of Floriculture and Gardening,* H-6000 Kecskemét, Erdei F. tér 1., Hungary, e-mail: levai@kfk.hu.

Fields of training at college level: floriculture; dendrology; herbaceous perennials; ornamental nursery; flower seed production; flower arrangement and marketing; plant geography; phytocoenology.

Fields of research: hydroculture in floriculture; forcing of flowers under frameless plastic; bedding plants; dried flowers; ornamental vegetables.

Research

The only national floricultural research station in Hungary is the Department of Floriculture, National Research and Development Institute of Fruits and Ornamentals, Budapest, Park u 2., Hungary. Field of research: Breeding of Annual Plants and Grasses.

Hardy turfgrass-breeding is also carried out at the Grass Department of the Research Institute of Irrigation and Melioration in Szarvas.

Considerable research work is taking part at the high education establishments mentioned above. Applied research is pursued mainly at the large growers like the glasshouse young plant nursery Óbuda, the producers of pot flowers Kertész Cooperative (Szombathely), Sasad Rt. (Budapest) and at almost all the large tree-nurseries mentioned earlier. From private breeders, Dr. E. Barabits (Sopron, conifers) and

Mr. G. Mark (Budapest, roses) are to mention. (See in more details in part III. of this paper, dealing with ornamental plant breeding and new cultivars in Hungary).

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