International Journal of Horticultural Science 2005, 1, (11): 15–18.
Agroinform Publishing House, Budapest, Printed in Hungary
ISSN 1585-0404

Hungarian apple growing and marketing on the doorstep of the European Union

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Summary: The scope of apple growing and marketing has been determined by the economic and political systems in the recent decades. One may follow the booms and collapses in the Hungarian apple industry. Re-establishment of the market economy gives new chances for recovery in the fruit section as well.
Reconstruction of the apple industry has started with private ownership of lands. In the present work we characterise the still existing apple farms inherited from the previous system, present the newly established orchards in detail, deal with the present state of apple commerce and finally, we try to predict the near future of Hungarian apple industry.

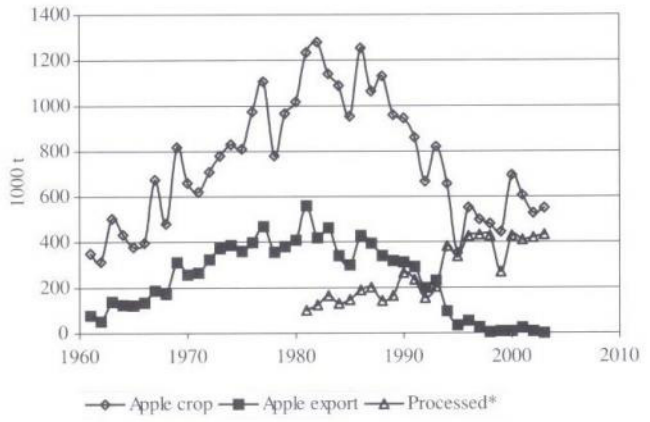
Key words: market, apple industry, apple growing, EU, Hungary

History

At the beginning of the sixties, due to multi-lateral, long-term agreements among countries of the Eastern block a large fruit market was opened to Hungary. About 30.000 ha of uniform, large scale apple orchards were planted, cold-stores of some 300.000 t capacity were constructed and significant technical improvement in logistic was achieved in a relatively short time. The apple crop went up threefold, at the end of the seventies it passed the 1 million tons level, of which 400.000 t was exported.

By the time being the gap between the total apple production and exportation had gradually increased, the home consumption could not adsorb the remaining almost half a million tons of apple. As losses increased, the establishment of an apple juice industry had become more and more urgent. In the eighties, Hungary had appeared with its fine Jonathan-based concentrated apple-juice on the world market *(Figure 1)*.

The exclusion of market- forces finally led to a complete breakdown of economy of the Eastern block in which the apple sector was also seriously involved. A slight rise in apple crops from 1995 was the first sign of recovery. As privatization of orchards was completed by 1992, that year can be taken as a milestone from where one may study the changes that have been produced by restoration of the market economy.



*Note: figures are calculated on an end-product basis

Figure 1. Apple production, exportation and apple juice processing

Present scope of apple growing

Privatization influenced the orchards' area in two ways; it enhanced the grabbing of old orchards on the one hand and favoured the establishment of new plantations on the other. According to a detailed statistical assessment in 2001, the total apple area had not diminished significantly in the last 20 years of the twentieth century but the age composition proportion of orchards had changed in a positive sense.

Table 1. Area and distribution of Hungarian apple orchards by age of plantations in 1982 and in 2001

	1982	%	2001	%
Total area,	44875	100	39264	100
Over 20 years	29259	65	22498	57
Under 20 years	15617	35	16765	43
Under 10 years	11398	25	13676	35

Cultivars

In the Hungarian apple orchards Jonathan – together with its well coloured strains – has been the dominant cultivar. Even in extensive conditions, it is a reliable, regularly cropping variety, its good inner content, taste and aroma made it popular among consumers and also for the processing industry. In spite of its quality, it is not suitable for intensive plantations, due to its feeble storage ability and expensive phytosanitary requirements.

Changes in the use of cultivars are good indicators of growers' answer to the challenges of fruit growing and marketing *(Figure 2)*. For the replacement of Jonathan the strains of Red Delicious were introduced in large amounts, later on Idared followed. Similarly to Jonathan, the Idared has better colour and taste in Hungary than in Western Europe, so it gained a place in modern orchards successfully. In recent years, Fire blight reduced its backing among growers.

The Hungarian climatic conditions are not favourable for Golden Delicious, we may grow only its strains of lower sensitivity to russeting such as Golden Reinders; Golden B;. Lysgolden; Smoothee etc.

The „Golden group" includes also the hybrid Mutsu. This cultivar always enjoys an increasing demand on markets.

Among many beautiful cultivars of the „Jonagold group", Jonica, Jonagored, Morrens Jonagored are the leading cultivars in our country. Out of the match between Gala and Elstar, Gala came out as winner. We primarily grow Gala Must, Imperial Gala and Royal Gala. From Rome Beauty (Morgenduft) strains, we grow almost exclusively Red Rome Van Well which is very attractive with its shape and full colouration; however, it is is not safe for storage.

Following the intentions of juice factories, some specifically industry-oriented orchards were planted with scab-resistant varieties as Florina, Prima and Freedom, recently the German originated Re- varieties (Remo, Relinda, Rewanda, etc.) were introduced at a smaller extent. Among the late maturing cultivars Granny Smith is the leader, Fuji has been planted experimentally. Theoretically, these late cultivars do not have a future in Hungary if we consider the relatively short frost-free period of 160–170 days from full bloom to harvest. As early varieties are assumed, the Summerred is the most popular variety among growers and customers. Among "new" cultivars Braeburn may have a bright future, due to its nice taste and colour. Fortunately specific Braeburn storage problems have not (yet) occurred.

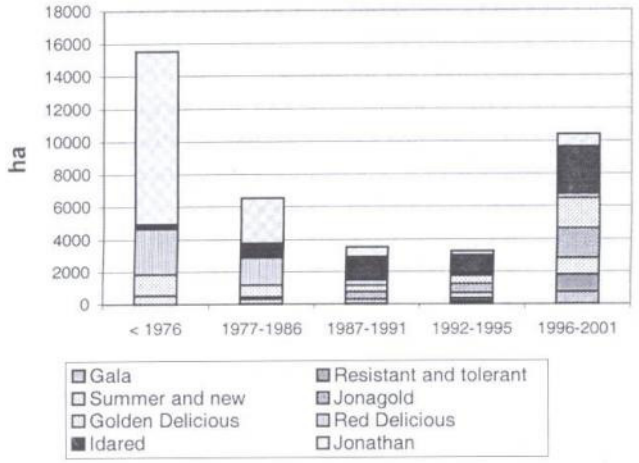


Figure 2. Area and cultivar composition of Hungarian apple orchards by age-groups of plantations, in 2001 (ha)

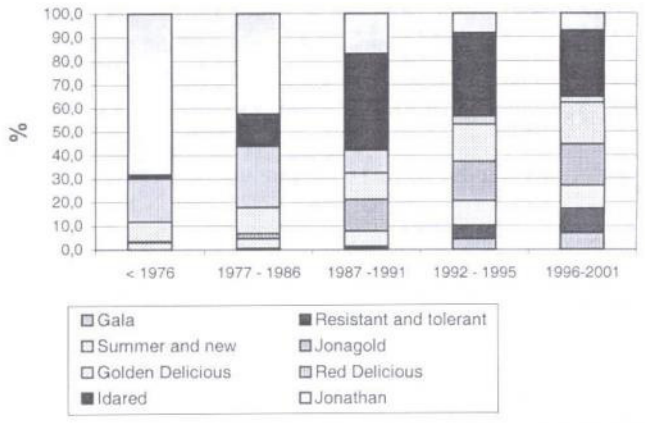


Figure 3. Changes in the use of cultivars in the different periods

Questions of intensive cultivation

The climate of the Carpathian-basin may be characterised by high irradiation, significant changes in day-night temperatures, irregular precipitation and also low relative humidity during summer. Such conditions result in stronger shoot growth, better colouration, higher sugar and acid content in fruits, but lower net photosynthesis. This latter determines the possible degree of intensification of growing techniques in strong correlation with the use of rootstocks and plantation density.

Table 2. Area of apple orchards by density-groups, planted before and after privatization, in ha

Planted :	tree/ha	Before 1992	After 1992	Total
Low density orchards	< 400	14915	1505	16420
Medium density orchards	400–1000	9852	7192	17044
Semi-intensive orchards	1000–1600	546	1041	1587
High density orchards	> 1600	276	3937	4214
Total		**25589**	**13675**	**39264**

One may note that in young orchards Hungarian growers preferred the "medium density" plantation systems, however, the high density orchard area is significant. The typically used rootstock in "medium density" orchards is the MM106, while in high density orchard, apple trees are grafted on M26 and/or M9 rootstocks. The question of intensity may be better explained with the water supply and irrigation.

Irrigation

Table 3. Area of irrigated and non irrigated apple orchards before and after privatization, in ha

Planted:	Before 1992	After 1992	Total
Irrigated	2989	5821	8810
Non irrigated	22600	7854	30454
Total	**25589**	**13675**	**39264**

Since privatization took place, growers have doubled the irrigated area of apple plantations; however, the proportion of irrigated orchards is still very small. The water sources in certain apple growing regions are limited, and in other regions, being rich in water, apple growing has no traditions. Evidently, that water is becoming a strong limiting factor of commercial apple growing in the near future. Success of the newly established, irrigated high-density orchards would certainly motivate growers to follow.

Ownership and size of orchards

In a recent statistical assessment, the size of existing orchards has been studied. However, some of owners have not motivated the assessment, but the size of orchards may reflect changes in cultivation methods as well as in the older or younger plantations *(Figure 4)*. The distribution pattern of the old plantations clearly shows the dominance of large-scale, more exactly, extensive organization of cultivation. After privatization, the distribution of orchards' size shows double peaks. The first peak suggests strengthening of family cultivation while the second represents the still alive traditions of large-scale farming, even in apple growing.

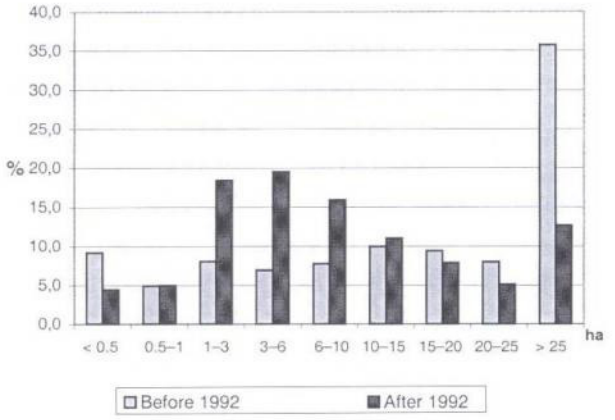


Figure 4. Distribution pattern of orchards by size planted before or after privatization

Post-harvest operations

In the previous system, two-thirds of the storage capacity were run by grower companies, while one-third by trade organizations. With privatization many of those cold stores became unsuitable for further use and terminated serving the fruit industry. Powerful private growers and growers' organizations started to build high-tech CA-ULO stores in the middle of the 90'es; the actual capacity is over 100.000 tons. Investments in packing houses and packing lines have become more interesting as labour costs and quality packaging requirements have increased. Construction of cold stores and installation of packing lines have been backed by massive state subvention. Recently, EU sources also became available.

Growers' associations

In contrary to Poland, private growing in Hungary has commenced by privatization of old apple orchards of former cooperatives and state farms. Large-scale orchards of cooperatives were distributed among their members, having almost no equipment to cultivate their apple trees. Organization of some kinds of associations has become inevitable. As a general rule, producing-marketing organizations have been formed under different legal titles in the first attempt. These organizations provided valuable services for new growers in solving their mechanization and trade problems. Private persons and legal entities also successfully invested in fruit growing at the same time. Later, in order to safeguard growers' interests, organizations of growers' associations commenced at the turn of the century. Association, however, has not yet been completed. Regional organization of growers is a point for future development.

Apple commerce

The value of foreign trade of fruits in Hungary has changed significantly recently, however, the balance sheet was still positive for 2001 *(Table 4)*. The value of preserved fruit is excluded. The apple juice purchase and selling are given separately.

Table 4. Balance of foreign trade of fruits in Hungary in 1000 US dollars, in 2001

Fruits and fruit products	Export	Import	Balance
Tropical and subtropical fruits	1 115	40 107	-38 992
Deciduous fruits (with melon and grape)	52 871	15 746	37 125
Other fruits	94	639	-545
Frozen fruits	18 236	1 644	16 592
Intermittent preserved	527	3	524
Dried fruit	1 911	1 534	377
Apple juice concentrate	42 269	1 620	40 549

During the crisis, Hungary lost its table apple markets, the apple surplus was sold abroad for industrial use. As the apple juice producing capacities strengthened at home, so the industrial apple export diminished. Actually we sell about 60.000 to 70.000 tons of apple juice concentrate in 45 to 54 million US dollar value on the world market. The juice apple

exportations have practically ended. The Hungarian apple juice has been processed almost solely by the use of Jonathan apples. The amount of apple to be processed is some 350.000 to 450.000 tons annually.

The importation of dessert apples has been a common practice together with other fruits from the Mediterranean, sub-tropical and tropical countries. The importation has been led by the newly established supermarket chains such as Tesco (37 units), Auchan (8 units), Cora (7 units), Metro and others. The apple import itself, however, might have been assumed as a positive factor in the restoration of the Hungarian apple growing and marketing. The high, but quality-related price of imported apples surprised the customers in the first period. Later on those high prices have been accepted among consumers and also they showed a way to continue for the Hungarian growers as well. As the new orchards became fruiting, the Hungarian dessert apple export met with the importation at the beginning of 2000 *(Figure 5)*. This is the first success of reconstruction, however, still a little success.

Actual problems and challenges

The relatively high production costs of dessert apple as well as the stabilized home prices lessen our competitiveness on foreign markets. Hungarian foreign trade companies are unable to offer dessert apples at a lower price than 35 – 38 eurocent since Hungarian growers negotiate on home apple price basis. Trade people often meet competition of very good quality apples in nice packing on the European Union markets, offered by Polish dealers at a much lower price.

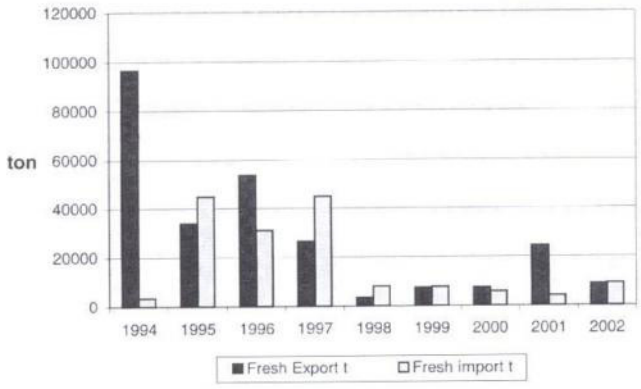


Figure 5. Fresh apple foreign trade in recent years

Polish apple has not entered yet the Hungarian market in a significant extent.

As Hungary has had long traditions in the countries of the former Soviet Union, it seems to be quite understandable that we want to regain markets in Eastern-Europe. The struggles in this direction have not been successful since the prices offered by the customer have not attained the lower borderline of the Hungarian home price range. State subvention did not help.

As the supermarkets have played a positive role in re-establishing market economy in our country, it is somewhat surprising to see low quality products displayed sometimes. To offer products for customers of low purchasing power is included in their strategy, marketing managers explain.

Mid-term forecasts for apple industry

The Jonathan based juice production is to be kept, possibly at a decreasing extent. For the coming 10 years or so, the raw material of high-quality apple juice production is being ensured by the existing plantations. The question whether the Jonathan may be replaced by new industrial cultivars would be answered in the coming years. Challenges originating from the Far East may strengthen the position of Jonathan.

Intensive cultivation of dessert apples has been widely accepted. Hungarian consumers demand about 150.000 to 200.000 t of good quality dessert apple, which can be easily harvested on the young plantations. Further growth of dessert apple production is export dependent. Regaining the apple markets of North and East Europe is a basic point in the reconstruction program.

As far as apple trade inside the EU is considered, Hungary may accept European apples if import and export are balanced. Outside the EU, the apples from the Southern hemisphere may enhance competition of ULO stored fruits in the late season.