

Valuable offsprings of Seyve-Villard 12375

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Summary: Powdery mildew, Phylloxera and downy mildew epidemics devastated large areas of vineyards in Hungary in the 1800s. To establish new plantages resistant so called "direct producers" were imported from America (direct means "without grafting"). Direct producers have secure yield but their quality is inferior. After World War II, an organized breeding programme was started to replace them and parallel to this the law prohibited their production. As a resistance gene source, the E.2 clone (S. V. 12375 E.2) of Seyve-Villard 12375, Franco-American hybrid selected in Eger was used by Hungarian breeders. Several valuable hybrid families have originated from crosses of this variety hybrid.

In the Research Institute for Viticulture and Enology at Kecskemét, two valuable table grape hybrids were registered under the names of R.65=*Esther* and R.78=*Fanny* coming from 2 hybrid families of the parent S. V. 12375 E.2. Both varieties may be cultivated "environmentally".

Key words: resistance, breeding, resistant hybrid, table grape variety, ampelography, productive and market values, protection of environment.

Introduction

Nowadays, vine must be protected in Hungary and Europe alike from diseases and pests which have earlier been unknown in the region. During the 19th century, severe epiphytotics appeared on grapes. Pathogens and pests were shipped, unconsciously, on propagation-wood from America to the coasts of France and from there to other parts of Europe. Powdery mildew (*Uncinula necator* (Schw.) Burr.) appeared in France in 1847, Phylloxera (*Viteus vitifolii* Fitch.) in 1860 and downy mildew (*Plasmopara viticola* (Berk. & Curt.) Berlese et de Toni) in 1878. Downy mildew caused catastrophes in 1910, 1915 and 1917 (Bastler, 1970).

In Hungary powdery mildew appeared in 1851 (Bognár, 1994), Phylloxera in 1875 and downy mildew in 1880. Phylloxera destroyed 140.000 ha of vine in Hungary between 1875 and 1894 (Feyér, 1970).

In this desperate situation efforts were made to find ways to protect vine from biotic stress effects. The solution was found in vine breeding to produce disease and Phylloxera resistant varieties. Resistance gene sources have been found in American vine varieties and hybrids issued from them. French breeders (Couderc, Seibel, Seyve-Villard) pioneered in developing resistant rootstock, wine and table grape producing scion varieties.

Preliminaries of resistance breeding in Hungary

In Hungary vine breeding dates back to nearly 120 years. It started with selection and was continued with cross breeding. Objectives of breeding are always determined by the consumers' demands and actual production problems. The level of production and breeding increased by technological development.

In the time of developing capitalism consumers required table grape varieties of large clusters and big berries. Phylloxera epidemics demanded resistant and lime-tolerant varieties. Hybridisation began to satisfy requirements and to increase resistance. After the appearance of powdery mildew, Phylloxera and downy mildew epidemics, "direct producers" were imported from America. Due to their reliable yield, they were soon cultivated on large areas. Their poor quality and the methyl alcohol content of their wine necessitated their replacement which began in the 1940s in the frame of a purposeful breeding programme.

Hungarian experts (Csepregi & Zilai, 1973, 1988) singled out the resistant Franco-American hybrids, S. V. 12375 and S. V. 12286 bred in the vineyards of the firm Seyve-Villard, during their study tour in France and introduced them to Hungary to be tested. They have been evaluated for several years (Csepregi & Zilai, 1973, 1988). Of these varieties J. Csizmazia D. selected the clones of S. V. 12375 E.2 and S. V. 12286 E.1 at Eger. Successful combinations issued from crosses of these varieties of which the wine grape varieties *Bianca*, *Csillám*, *Duna gyöngye*, *Medina*, *Viktória gyöngye*, *Zalagyöngye* and the table grape varieties *Nero*, *Palatina*, *Pölöskei muskotály* and *Teréz* were registered up to 2003. *Kunleány* and *Orpheus*, resistant wine grape varieties originate as crosses with *Vitis amurensis*, an Asian species crossed by I. Koleda.

New resistant table grape varieties

Nowadays, the protection of environment is of high importance. Table grape varieties which are resistant and can be cultivated by applying minimal spraying (2-4) during the growing period are well adapted to environmental production. In Hungary, resistance breeding began at Villány

in the vineyard of count *Zs. Teleki* by crossing in order to obtain Phylloxera-resistant rootstock varieties. After the World War II, cross breeding of wine and table grape varieties began in the Research Institutes of Viticulture and Enology at Eger and Kecskemét and at the Horticultural University in Budapest.

The most successful combination included crosses of *S. V. 12375 E.2*. This Franco-American hybrid has reliable yield and a wine free of foreign taste (Ambrosi et al, 1994). The variety was cultivated on more than 20.000 ha in France in 1950 (Csepregi & Zilai, 1973). In Hungary it was cultivated on nearly 100 ha in 2003.

In the Research Institute of Viticulture and Enology at Kecskemét S. Szegedi, table grape breeder, planned several crosses using *S. V. 12375 E.2*. He obtained several valuable hybrid families. Among seedlings promising individuals can be found. Article presents 2 hybrids released 8. Dec. 2003 by the National Council of Plant Variety-Qualification.

ESTHER

Origin: *S.V. 12375 X Magaracsi csemege*. 1969, *S. Szegedi* developed the hybrid family in 1969 at Kecskemét. Former marking: R.65

Ampelography:

vine stock: vital, wood: light yellow-brown
 foliage: dense, shoot tip: light bronze and hairless
 leaf: middle large, quinquangular, not dissected, open petiolar sinus, green veins, abaxial side

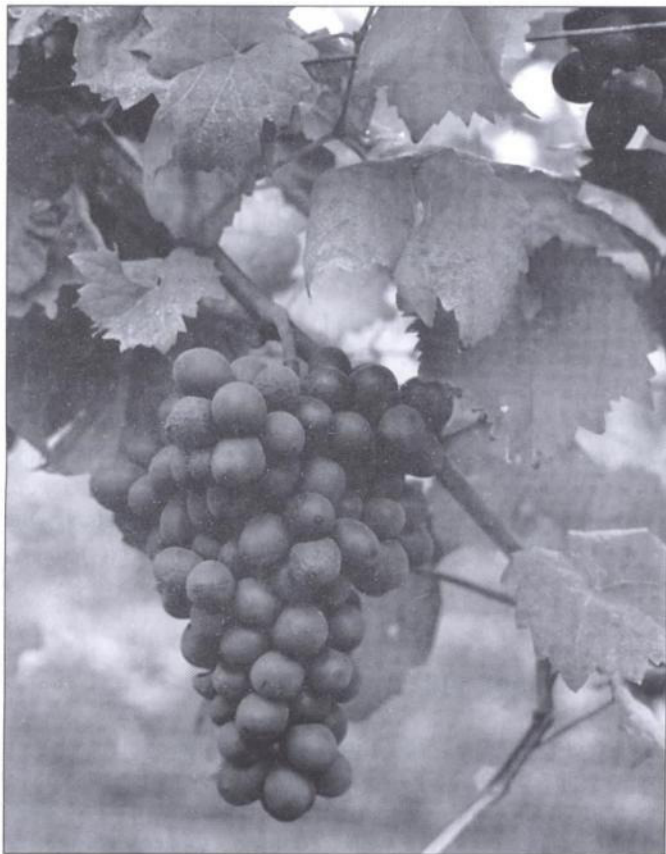


Fig. 1. Esther

hairless, serrated edge, petiole middle long and reddish.
 cluster: large (294 g), shouldery, somewhat compact but berries are not deformed, peduncle short and green
 berry: middle large (3.6 g), oval (Table 3), dark blue, distinctly bloomy and melting skin, cracky, flesh fine, seeds hardly sensible

Production value: short growing period (120 days), very early ripening (first half of August) (Table 1). Fertile buds. Moderate or somewhat superior resistance to winter frosts and fungal diseases (Table 2). High micro-element requirement. Under boron deficiency parthenocarpic berries can occur in the clusters. Long pruning can be used.

Market value: attractive clusters and bloomy, blue berries increase its market value. Good packability and transportability (Table 4).

FANNY

Origin: *S.V. 12375 X (Téli muskotály X Olimpia)*. *S. Szegedi* developed the hybrid family at Kecskemét in 1970. Former marking: R.78

Ampelography:

vine stock: vigorous growth, wood: yellow-brown
 foliage: airy with few shoots, shoot tip: green and hairless
 leaf: middle large, dissected, five-lobed, petiolar sinus open and shallow, green veins, abaxial

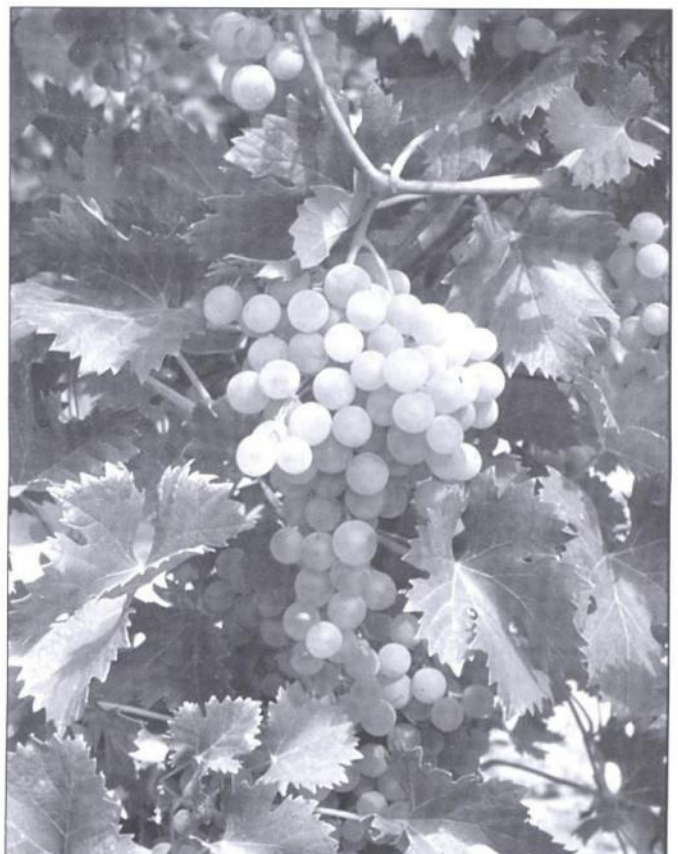


Fig. 2. Fanny

Table 1 Vegetation Phases
Keckskemét, 1969–1975

Variety	Duration of growing period, days	Date of vegetation phases (earliest–latest)			
		Bud break	Flowering	Start of ripening	Ripening
Esther	120	10.04. –25.04.	31.05. –26.06.	14.07. –05.08.	10.08. –22.08.
Fanny	131	20.04. –22.04.	01.06. –25.06.	20.07. –03.08.	28.08. –03.09.
Pölöskei muskotály (control)	144	28.03. –12.05.	05.06. –25.06.	22.07. –21.08.	17.08. –10.10.

Table 2 Resistance level of vine varieties
Keckskemét

Variety	Stress effects				
	Abiotic	Biotic (diseases)			
		Frost damage	Rot (Botrytis cinerea)	Downy mildew (Plasmopara viticola)	Powdery mildew (Ucinula necator)
Esther	4	2	2.5	3	1
Fanny	3	0	2	2	3
Pölöskei muskotály (control)	8	0	1	2	2

0 = resistant, 9 = sensitive

Time of test = frost: 17.05. 1996

(in field trial) rot: 04.09. 1996

downy mildew: 06.08. 1995

powdery mildew: 20.10. 2000

Table 3 Harvest/Yield Data
Keckskemét, 1992–1998

Variety	Yield kg/m ²	Cluster		Berry				
		weight g	size mm x mm	colour g	weight size	size mm x mm	sugar refr.%	titr.acid g/l
Esther	1.54	294	151 x 106	blue	3.6	16.7 x 14.2	18.0	3.5
Fanny	1.69	396	218 x 142	yellow	5.5	21.2 x 19.3	14.6	4.5
Pölöskei muskotály (control)	1.49	424	196 x 137	yellow	5.2	21.0 x 17.8	14.8	4.7

Table 4 Physical data of berry
Keckskemét, 1992–1998

Variety	Split kp	Pressure g	Elasticity g
Esther	351	955	7.4
Fanny	295	1170	7.8
Pölöskei muskotály (control)	287	1207	7.3

side hairless, edge serrated, petiole long and reddish

cluster: very large (396 g), branching, favourably loose, mid-long and green peduncle

berry: big (5.5 g), spherical (Table 3), skin: whitish yellow, somewhat bloomy, sometimes glass-like transparent, tough, flesh: hard and cracking, taste: neutral, seeds hardly sensible

Production value: short growing period (131 days), early ripening (end of August) (Table 1). Fertile buds. Resistance to winter frosts is somewhat better than moderate to fungal diseases very good (Table 2). Clusters can be harvested easily. Uniform ripening. Short pruning is recommended. The airy foliage facilitates summer pruning works.

Market value: nice, attractive clusters and berries. Excellent transportability (Table 4).

Both varieties are well adapted to environmental production under the ecological conditions of the Carpathian Basin. They can be used for organic-products. Under our continental climate, reliable yield can be expected without spraying if weather conditions are favourable and in adverse years 2–4 sprays are sufficient. Being registered they are found in the National Variety List and can be propagated. Both varieties aroused interest beyond our state frontiers. Variety trials can be found in several European countries. Esther and Fanny are propagated and favoured in Germany, Austria and Switzerland.

Breeders always appreciate when their varieties are accepted and used to general benefit.

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