Reviewed Research Paper

Producing New Morello Cherry Varieties

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The morello cherry has a long tradition in Hungary as one of the most important fruit species. The native morello cherry has resulted in special Hungarian varieties like Pandy and Korosi cherry or later Pipacs. Korosi and Pipacs are variety groups including many biotypes or subvarieties.

Most of the morello cherries produced are exported to Western European countries; consequently, Korosi and Pipacs cherries have become well known with a very good reputation in many countries.

In order to produce uniform fruit size and quality, selection was made within these variety groups. The most important criteria for selection are as follows:

1. Fruit diameter should be at least 20 mm because fruit of that size can be well marketed in Hungary and abroad;
2. The quality including flavor, taste, and flesh characteristics, should meet home and exporting demands;
3. Big and regular yields should be achieved which are closely related to the self-fertilizing capacity;
4. Resistance or tolerance to *Monilia*/ *Monilia lax*, is necessary.

Results of Our Breeding

Korosi cherry is an original Hungarian variety group. Its fruit is large and crimson with pleasant sour cherry flavor. A morello of this sort is known and grown in South West Europe. Pandy (one of our best cultivars at the present time) was selected from this variety group more than 100 years ago.

Pandy has splendid fruit size and quality characteristics, but from the point of view of fertility it has great disadvantages. Cross pollination does not guarantee fertilization. Its pollen has low germination percentages and is therefore not suitable for fertilization of other sorts. It is also susceptible to *Monilia*. Therefore, its production is difficult and uncertain.

During our selection process, cultivars of the Korosi variety group were selected which are similar to Pandy in value but are self-fertile and resistant or tolerant to *Monilia*.

Three variety candidates are produced as follows: Keceli/Korosi/1, Keceli/Korosi/2, and Korosi early.

Keceli/Korosi/1. Keceli/Korosi/1 has large, round fruit which reaches 20 mm and sometimes 23 mm in diameter. It is relatively late ripening, approximately a week after Pandy, which in Hungary is about July 10. The tree is of medium height, relatively stiff, with branches growing upwards. It has a spur habit, making the tree advantageous for machine harvesting. It is self-fertile. In 1978 and 1979, 16.2% and 10.3% respectively of the fruit set without artificial pollination. It has a regular and rich annual crop and is resistant to *Monilia*.

Kerceli/Korosi/2. The fruit size of Keceli/Korosi/2 is similar to that of Keceli/Korosi/1; however, Keceli/Korosi/2 ripens two weeks earlier than Keceli/Korosi/1. The foliage of Keceli/Korosi/1 is more dense, with branches hanging down lower. Its capacity for self-fertilization is a little lower, between 6-7%. It is suitable for mechanical harvesting and tolerant to *Monilia*.

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Korosi early. Korosi early ripens early about 20 days earlier than that of "Pandy," June 15-20th. The fruit size is relatively large with a diameter of over 20 mm. Because of its early ripening time, it is the first marketed in Hungary and is therefore easily exported. Its fruit is characterized by a refraction of 14.6, acid of 2.36% and a sugar of 15.2%. Its foliage is fairly dense with relatively little spur development. Its great advantage is a good capacity for self-fertilization (20%) yielding a regular and heavy annual crop. It is suitable for mechanical harvesting, because the fruit has a dry stem scar. It is resistant to *Monilia.*

The Pipacs morello cherry gets its name from Pipacs/Papaver flower because of its similar bright red color.

. The Pipacs morellos cherry has clear juice and probably comes from the Montmorency variety group which is grown in North-West Europe mainly in France, Belgium, and the USA.

The Pipacs variety group appeared in Hungary through spontaneous selection from the Montmorency variety group taken to Hungary before records were kept.

From this variety group two cultivars were produced by the above mentioned selection criteria: that is Pipacs 1. and Pipacs 2.

Pipacs 1. Fruit from Pipacs 1 ripens medium late approximately the last days of June in Hungary. Pipacs 1 has large fruit which are broad and dented on the stem side. The average size of fruit has surpassed 20 mm diameter during the years of research. (1977 22.6 mm, 1978 23.5 mm and 1979 22.2 mm) Its flavor is slightly sour-sweet making it a good ingredient for pastry.

It gives a good crop regularly because of its good capacity for self-fertility. Data of 1979 show that 12.6% of the flowers self-fertilized in artificial isolation. The ratio of self-fertility in 1980 was 19.7%. The foliage is half-round shaped. Thickly growing branches are fully covered with buds. It is early blossoming. It is not suitable for mechanical shaking. It is resistant to *Monilia.*

Pipacs 2. Pipacs 2 is similar to Pipacs 1 except that it ripens 10 days earlier. These two cultivars can be grown well together to prolong harvesting time.

Reviewed Research Paper

Breeding of New Disease Resistant Apple Varieties

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The main objectives of our apple breeding program are to produce cultivars with good ecological adaptability, resistance or tolerance to powdery mildew *Podosphera leutotricha*, and to prolong the ripening time.

In order to breed good resistant cultivars we tried to find local varieties having proper characteristics for crossing. During research we found an old cultivar, Egri Red, of unknown origin which is resistant to powdery mildew *Podosphera leutotricha* and tolerant to scab *Venturia inaequalis.* (Described in *Fruit Varieties Journal,* January 1973, Vol. 27, Number 1.)

We have crossed Egri Red, a promising selection giving a good crop of red

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