

PEAR VARIETIES AND SELECTIONS, WITH EXTRA-EARLY AND EARLY RIPENING, OBTAINED AT THE FRUIT RESEARCH STATION CLUJ (FRS CLUJ)

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Abstract. Pear-breeding in the Fruit Research Station Cluj started in 1953 when the Fruit Research Station was founded, carrying the following objectives: productivity, quality and different ripening periods in order to assure fresh fruits for a longer period of time. Due to this activity, the following pear varieties have been certificated: Napoca, Doina, Haydeea, Ina Estival, Virgiliu Hibernat, Jubileu 50 and Milenium. To obtain the first generation of hybrids were used the 400 existent varieties at FRS Cluj. The method used concerning the issue of variety was conducted hybridisation. Taken by the improvement objectives which were proposed, there were chosen as genitors the varieties and selections that were suitable for the aim to follow. At the time being, in the trial fields of FRS Cluj, there are over 140 selections of pear hybrids, obtained by selections. From the large number of tested selections can be noticed a few selections with extra-early and early ripening, with great perspectives for being certificated: 72-17-11, 72-2-16, 72-15-45, 99-7-51, 72-21-13. We recommend studying them in production conditions and promoting the best selections for propagation and for being included in the local and national range of varieties.

Key words: pear, breeding, selections, varieties

INTRODUCTION

Among the main objectives that were set at the time of the development of these new varieties it is worth mentioning the following: productivity and quality of the fruits, different time-intervals for the ripening of each fruit, so that the period for the consumption of fresh fruit could be as long as possible, resistance to the attack of the main diseases and pests.

As a result to these activities, the following varieties have been homologated: Napoca (1970), Doina (1978), Haydeea (1993), Ina Estival (1999), Virgiliu Hibernat (2001), Jubileu 50 (2003) and Milenium (2003).

Among these varieties, Napoca entered the production and conquered a large area, lending itself to an intensive cultivation and being highly appreciated for the fruits' productivity, for the constancy of the crop and the quality of the fruits. Haydeea variety excelled in an outstanding productivity. It proved to be tolerant to the attacks of the *Psylla sp.*, and quite resistant to *Fabraea maculata*.

The Ina Estival variety is harvested in the second decade of August, and the fruits can be kept for quite a good period of time, even though we are talking about a summer variety.

The Virgiliu Hibernat variety excels in a long lasting freshness even if kept in store, and in a belated consumption period (February-March).

MATERIALS AND METHODS

In order to create the initial material for selection, the researchers have started from more than 400 varieties of pear selected on the territory of the experimental fields of the Station, to which they have permanently added the newest creations from all over the country and from abroad.

The fundamental method used for the creation of variability was the controlled hybridisation.

Depending on the objectives of amelioration, the researchers have chosen as genitors the varieties and selections that proved to be the most corresponding to these aims, the fundamental rule being that those varieties had to present the expected distinctive characteristics at the highest level possible.

During the last three decades approximately 200.000 flowers have been pollinated as part to over 250 hybrid combinations. The researchers have obtained more than 100.000 hybrid seeds from which such plants resulted that took part in many selection – processes beginning with the stage of three or four real leaves and hybrids' normal fruit-bearing phase, on their own roots.

The alarming increase in the attacks of *Psylla sp.* and the danger represented by *Erwinia amylovora* during the last three decades, have caused serious necessities concerning the development of artificial hybridisation by usage of corresponding genitors in order to obtain new descendants in the case of which they could carry out a selection having in mind the resistance or at least the tolerance to pests and to the above mentioned diseases.

RESULTS AND DISCUSSIONS

At the end of the successive selections applied to these varieties during a long time, a series of hybrid selections have been chosen, which have been propagated by the process of grafting on various grafts (Frank, quince tree or quince tree with an intermediar) and have been promoted in the superior links of the selection-process.

Due to the valuable characteristics they have, many of these selections have been widely used in the amelioration processes, being beneficial genitors for new hybrid combinations.

At the moment, one can find in the microcultures (trials) taking part in the competition and in the comparative cultures of competition belonging to the FRS Cluj, more than 140 hybrid selections of pear. All these selections have passed the quality-test conceived for fruits and have been propagated in a vegetative way, by grafting and from them the researchers have obtained clones with more than 25 variants of fruit trees. They are continually being tested for: productivity, adaptability, their behaviour in case of the main diseases and of serious pests, many selections are already delivered and verified in the network of our institute.

Among the many hybrid selections already tested some are excellent – those with an extra-early and early maturation-process, which will be doubtlessly homologated. The characteristics of these will be briefly presented, as follows (Table 1).

Jubileu 50 (Cluj 72-17-11) was homologated in 2003 and was obtained by the crossing of the varieties Napoca x Beurré Precoce Morettini. It can be described by moderated growing of the trees, by earliness in fruit bearing and by high productivity. The fruits' size is medium, the form is long, the colour is greenish, reddened on the sunny side, they resemble

very much to the fruits of the mother-variety, Napoca. Fruit flesh is white, melting, juicy, sweet and slightly sour, with a sophisticated aroma. They reach their maturity simultaneously with the Napoca variety and can be stored until the 1st – 10th of September, under natural circumstances.

Cluj 72-2-16 has been obtained by the crossing of Red Williams x Beurré Giffard. It has a moderate growth, its fruits are big, pyriform, the colour is red on the whole surface that provides them with a commercial appearance, which might be extremely attractive. The pulp is white, with no stone cells and of a delicious taste: slightly sour, moreover sweet. The fruit's ripening begins in the last decade of July.

Table 1

The main features of the pear varieties and selections

Variety	Genealogy	Period of consumption	Characteristics
Jubileu 50 (72-17-11)	Napoca x Beurré precoce Morettini	I st decade of August	Early crop High productivity
72-2-16	Williams roșu x Beurré Giffard	III rd decade of July	Big sized fruits Very early ripening
72-15-45	Napoca x Beurré precoce Morettini	II nd decade of August	Fruits of medium size even big size Juicy, finely flavoured
99-7-51	Napoca x New Jersey	III rd decade of August	Yellow fruits, intensely coloured on the sunny side
72-21-13	Clapp Favourite x Napoca	III rd decade of August	Big sized fruits, juicy High productivity

Cluj 72-15-45 proceeds from the crossing of the varieties Napoca x Beurré Precoce Morettini. The fruits are of a medium size and can grow to a big size, having the form of the short-necked variety, the colour is yellow, reddened on the sunny size. The pulp is yellow white, melting, juicy and of a sweet and sour taste, finely flavoured. The consumption period can be fixed in the second decade of August.

Cluj 99-7-51 has been obtained from the crossing of Napoca x New Jersey 7. The (fruit) trees have a moderate growth. The fruits' size is medium or even big, the colour is yellow and on the sunny size they are intensely coloured. Their pulp is of a yellow white, consistent, but of a sophisticated structure, and of an intense succulence and of a sweet, slightly sour taste. It reaches ripeness in the second decade of August. The consumption-period may be fixed between the 25th of August and the 10th of September.

Cluj 72-21-13 proceeds from the crossing of the varieties Clapp Favourite x Napoca. The trees grow from medium to robust, having very rich foliage of an intense green colour. Its crop is abundant, the fruits are big, the form is conically distorted and their colour is yellow green. The pulp is white, crispy, juicy and finely flavoured. It ripens at the end of August almost at the same time with the Williams variety.

CONCLUSIONS

As a result to the breeding activity and that of creating new varieties of pear at the FRS Cluj, during the last years, an important number of selections have been selected, and these specimens have especially valuable characteristics.

Among these, the most successful were: Cluj 72-17-11, Cluj 72-2-16, Cluj 72-15-45, Cluj 99-7-51, Cluj, the characteristics of which have been thorough presented in this work.

It is highly recommended to study them in conditions of production and to promote them, especially the most successful of them for propagation, and to include them in the regional and national variety-range.

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REZUMAT

SOIURI ȘI SELECȚII DE PĂR CU MATURARE TIMPURIE ȘI EXTRA-TIMPURIE OBTINUTE LA SCDP CLUJ-NAPOCA

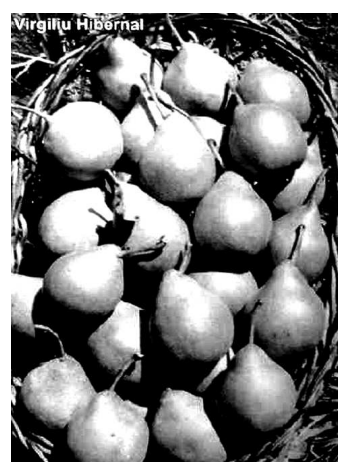
Ameliorarea părului la Stațiunea de Cercetare și Dezvoltare pentru Pomicultură Cluj-Napoca (S.C.D.P. Cluj-Napoca) datează din anul 1953, odată cu înființarea Stațiunii, principalele obiective în crearea de soiuri noi fiind productivitatea, calitatea fructelor, perioada de maturare a fructelor, rezistența la boli și dăunători. Principala metodă de provocare a variabilității a fost hibridizarea artificială, în acest scop fiind aleși genitori adecvați din cele peste 400 de soiuri existente la S.C.D.P. Cluj-Napoca. În urma lucrărilor de ameliorare desfășurate au fost obținute soiuri precum: Napoca, Doina, Haydeea, Ina Estival, Virgiliu Hibernat, Jubileu 50 și Milenium. În momentul de față, în câmpurile experimentale ale Stațiunii, există peste 140 de selecții obținute prin selecție și înmulțite clonal. Dintre acestea, unele selecții cu maturare timpurie și extra-timpurie a fructelor se remarcă în mod deosebit și au mari șanse de a fi certificate: 72-17-11, 72-2-16, 72-15-45, 99-7-51, 72-21-13. În lucrare sunt prezentate principalele lor caracteristici, cele mai valoroase urmând a fi propuse pentru omologare și incluse în lista oficială a soiurilor cultivate în România.



Haydeea



Ina Estival



Virgiliu Hibernat