

VARIABILITY PHENOPHASE OF APRICOT BLOSSOM IN DIFFERENT PHENOTYPES IN THE ROMANIAN PLAIN

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Abstract

Observations and determinations performed over the past years have highlighted the potential genitors attributes great importance to the objectives of genetic improvement programs.

Some of these genitors are already created the new Romanian varieties other selections included in the current study and others are reserved for future germplasm varieties.

INTRODUCTION

Flowering phenophase takes place every year, in a certain sequence, always the same, regardless of weather developments since the beginning of vegetation. Thus, depending on the year (very early or very late spring) there was a block away in the early flowering throughout the time from March to April. In different years, the same species (the earliest) bloomed first, and the same species (the late) flourished last. On the onset of flowering, different varieties need different amounts of active degrees of temperature, which confirms the genetic determinism of these phenophase. For practical fruit growing, late flowering varies with particular interest. These bloom later than 2-4 days, which is the average time for a group, avoiding the negative influence of frost later and eliminating the risk of loss in fruit production, due to this effect.

Another important feature related to the flowering period is the duration of flowering which is influenced by climatic factors and genetic determinism. It appears in different periods of time between the beginning and end of flowering to the same variety and in different years. Flowering occurs later, and has a shorter duration. One can appreciate that the longer persistence of flowers on the tree is a positive attribute, adapting to conditions unfavorable for pollination varieties whereas a longer duration of flowering, includes, of course, a greater number of sunny days, bees and ensures proper flight pollination.

MATERIAL AND METHODS

Biological material is represented by a total of 33 apricot phenotypes and 3 control varieties with different fruit maturation periods: extra early, early, middle and late. Experimental plot with a competitive culture destination was planted in spring 1998 on an area of 1.21 hectares. Setting system is linear block, 4 repetitions in each block with 5 trees in each repetition. At the end of the row 1 tree was used as isolation. Trees were grafted in 1996 on apricot rootstock Franc (Poroschia local selection) with branch graft ELISA tested, harvested from the microculture where was selected the most valuable phenotypes. After planting, the axis was shortened to 60 cm from ground level. In May and June cuts of crown formation were performed. The crown shape was chosen as vessel improved. Between 2 and 3 correction angles were made at planting, mechanical cultivation 3-4. Intervals between rows alternating with grass husbandry were black. During the first 3 years irrigation 3-4 and 4-5 treatments were applied in the furrow, which allowed organic chemicals with diseases and pests. The research methods used on this purpose were the following: observations and determinations of flowering stages (beginning flowering, the end, durata and intensitatea), and the need for active temperature to browse the flowering phenophase.

The calculation of the assets above the threshold temperature of 6.5°C was obtained biologically by adding the average temperature at the exit of obligatory rest (biological) and early December until the beginning of the flowering time.

In this paper I referred to phenophase flowering (early, late, intensity and duration), and the amount of active degrees of temperature at the end of biological recovery by early flowering, which may be conclusive to differentiate genotypes. The data were recorded in 2001-2005. For an interpretation as objective research results, the data were statistically processed phenotypes are grouped by age of fruit ripening.

RESULTS AND DISCUSSION

In the 36 studied phenotypes, flowering time was different, ranging from 5.8 days at Atractive phenotypes (late maturing) and Bucovina (maturation medium) to 6.6 days at phenotypes Valeria, Rares (extra early) and Viorica, Carmela, 82.12.2 BIV and 82.12.91 BIV (early maturing) (Figure 1). The Adina phenotype is observed with late maturation has a thriving period of 6.4 days earlier phenotypes identical to Dacia, Siret, 82.28.62 BIV and those environments (Excelsior). Also placing another apparent phenotype late 82.16.7 BIV (6.2 days) with medium maturing phenotypes, in response to better adapt to climate conditions specific to the new apricot varieties obtained.

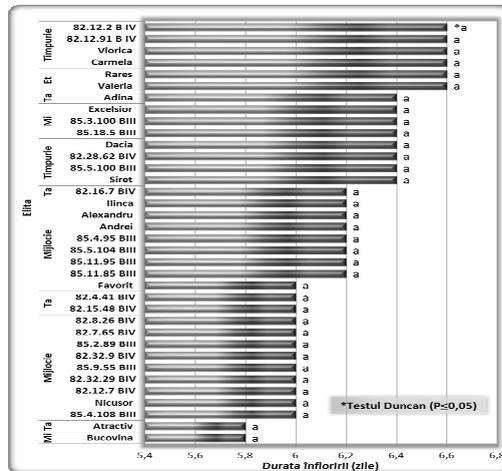


Fig.1. Genotype influence on flowering time depending on age group of elites after fruit maturation

In the 36 apricot phenotypes studied in 2001-2005, the highest average duration of flowering was in 2002 when it recorded 8.8 days, average 2003-2005 was between 5.2 (2003) and 5.5 days (2004 and 2005) (Figure 2). An intermediate duration of flowering was recorded in 2001 to 6.6 days. It follows that, when the trigger earlier flowering and climatic conditions are favorable, the acceptable minimum and maximum temperatures not too high, the duration of flowering may be higher.

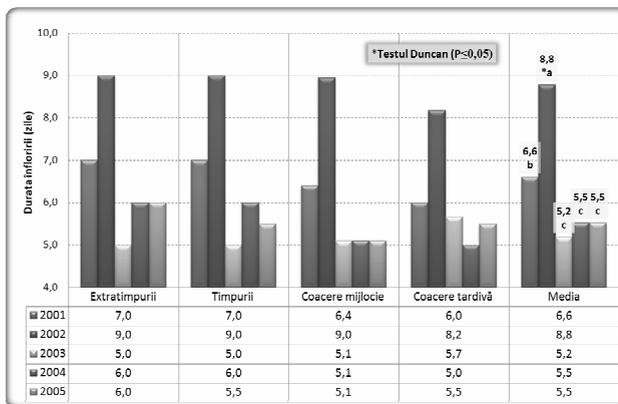


Fig. 2. Influence on duration of study group according flowering apricot phenotypes after fruit maturation period

Grouping phenotypes after fruit maturation times show that the aging phenotypes are most extra early period of blooming, in correlation with specific climatic conditions each year. One can say that during the flowering period decreased proportionally with aging, such as average maturing phenotypes have shorter days. It noted, however, that phenotypes with late maturation can have a flowering period of at least equal to the average maturing phenotypes (Figure 3). The mean period is 2003-2005, when it started flowering in mid-February. This is explained by obtaining phenotypes with late blooming as with longer duration of flowering, due to better adapt to environmental conditions and varieties for pollination.

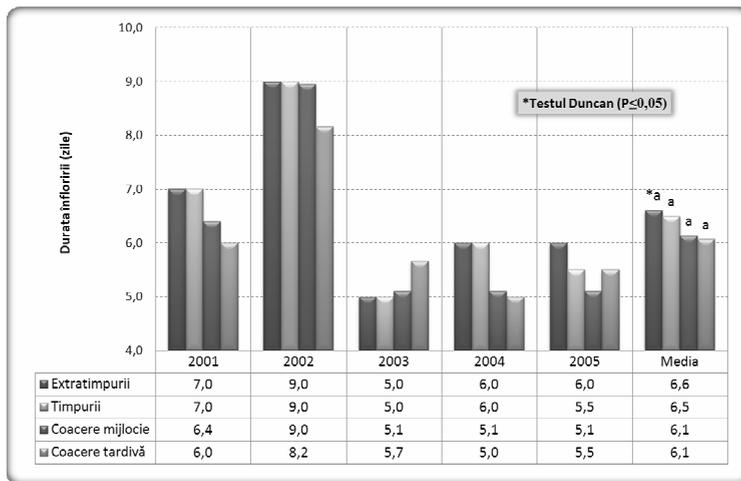


Fig. 3. Influence of fruit ripening period on flowering time in the year of study

It was found that between phenophases: early flowering, late flowering and flowering intensity, the correlation coefficients are 0.377** and 0.412** respectively, which evokes a strong connection between the two biological indicators. There is a significant correlation at a level of 0.05% between the early, late, flowering duration and amounts of active degrees of temperature above the biological threshold. Positive correlation coefficient is 0.100, 0.154* and 0.136 (Table 1, Figure 4).

Flowering duration shows significant negative correlation to the beginning and end of flowering, with correlation coefficients -0.921** and -0.883**. Flowering intensity also shows a negative correlation (-0.038) than the sum of active temperatures above the biological threshold (Table 1, Figure 4).

Table 1

Simple correlation coefficient values between various phenophases of flowering

Biological indicator	Blooming start	Blooming end	Flowering time (days)	Flowering intensity (notes 1-5)	Σ° temp. until the beginning of blooming
Blooming start	1	0.996**	-0.921**	0.377**	0.100
Blooming end	0.996**	1	-0.883**	0.412**	0.154*
Flowering time (days)	-0.921**	-0.883**	1	-0.192*	0.136
Flowering intensity (notes 1-5)	0.377**	0.412**	-0.192*	1	-0.038
Σ° temp. until the beginning of blooming	0.100	0.154*	0.136	-0.038	1

** correlation is significant at the 0.01 level

* correlation is significant at the 0.05 level

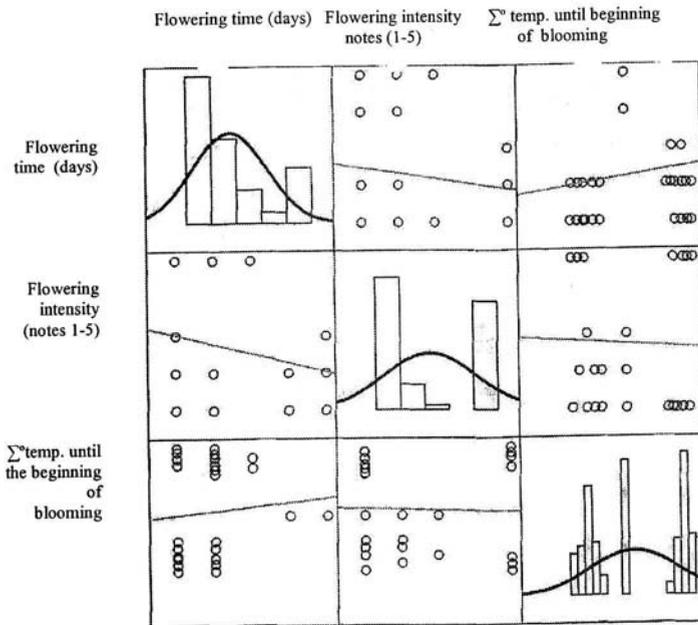


Fig. 4. Simple correlation coefficient values between various phenophases of flowering

CONCLUSIONS

1. The influence of genotype in terms of the later flowering varies earlier than 2-4 days, with the same period of flowering with extra early and early varieties (Adina).
2. Significant correlation was established between phenophases: early flowering and flowering intensity (0.377**) and between late flowering and flowering intensity (0.412**).
3. There are significant negative correlation between flowering time and its beginning (-0.921**), and between duration of flowering and late flowering (-0.883**).

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