UNIVERSITATEA DIN CRAIOVA
UNIVERSITY OF CRAIOVA

Seria: ✔*Biologie*
✔*Horticultură*
✔*Tehnologia prelucrării produselor agricole*
✔*Ingineria mediului*

Vol. XVI (LII) - 2011

EVALUATION OF SWEET CHERRY CULTIVARS INTRODUCED IN GREECE

Konstantinos Kazantzis[1], Ioannis Chatzicharissis[1], Alexandros Papachatzis[2], Thomas Sotiropoulos[1], Helen Kalorizou[2] and Nikolaos Koutinas[3]

KEY WORDS*: Prunus avium, sweet cherry, fruit ripening period, Bakirtzeika, Bigarreau Burlat*

ABSTRACT

Eight sweet cherry cultivars were evaluated for their plant growth characteristics, blossom and ripening period. All cultivars had moderate to vigorous growth. The cvs Bigarreau Burlat, Lapins and Adriana blossomed at the first days of April while cvs Ferrovia, Regina, Kordia, Bakirtzeika and Germersdorfer 5-10 days after Bigarreau Burlat. The ripening period ranged from early May to early June according to variety. Cultivar Bigarreau Burlat ripened earliest than the other cultivars, while cvs Germersdorfer and Bakirtzeika ripened 20 days after Bigarreau Burlat.All cultivars produced very large fruits, with good quality characteristics and high to moderate yield.

INTRODUCTION

Sweet cherry (*Prunus avium* L *)*is a vigoroustree of the family *Rosaceae.* It is cultivated throughout Greece, however the 70% of the cherry orchardsare established in the area of Central Macedonia. The local annual production for the year 2009 was 48,000 tones that ranked Greece in the 14 positionamong sweet cherry producing countries (FAO, 2011). A number of new cherry varieties with cold hardiness, good fruit quality characteristics, moderate or compact growth habit and early to late ripening period have been bred. However, the trees growth and productions is depended by climatic conditions like chilling hours (Mahmood *et al.* 2000), light intensity (Hisamatsu *et al.*, 2001), rain and temperature during blossom (Roversi and Ughini, 1996) etc. The last year's farmers in Greece have shown increased interest for new high quality marketable cherry cultivars.The replacement of old cherry cultivars with new productive and high quality cultivars has very slow progress as the evaluation of the new cultivars under local conditions is limited. The aim of this work was to provide information about trees growth, blossom and ripening period, andfruit quality characteristics under local climatic conditions of a number of new promising cherry cultivars.

MATERIALS AND METHODS

Eight sweet cherry cultivars (table 1) were established in the experimental orchardof the Pomology Institute located in Naoussa(Central Macedonia) in 2000. The Bigarreau Burlat, an old, productive and well adapted to local conditions cultivar was used as control.

[1]Pomology Institute, N.AG.RE.F., R.R. Station 38, 59200, Naoussa, Greece.
[2]Department of Plant Production, Technological Education Institute of Larissa, 41110 Larissa, Greece.
[3]Department of Plant Production, Alexandreio Technological Education Institute of Thessaloniki, Greece.

The trial comprised two tree per cultivar grafted on wild cherry seedlingrootstock *(Prunusavium*L). The planting distances were 6.5 x 6.5 m, while trees trained to vase-shaped canopy. Observations concerning plant growth characteristics, blossom and ripeningperiod were takenin accordanceto internationalstandards and compared with commercial new cherry cultivars promoted by plant nurseries in Greece.

Table 1

Sweet cherry cultivars evaluated in the Pomology Institute of Naoussa

Sweet cherry cultivars	
Bigarreau Burlat	Kordia
Adriana	Regina
Lapins*	Germersdorfer
Ferrovia	Bakirtzeika

*Self fertile cultivars

RESULTS AND DISCUSSION

Significant differences in the growth characteristics of the studied sweet cherry cultivars were not detected. All cultivars had moderate to vigorous growth with dense and very upright growth habit(cvs. Germersdorfer, Bakirtzeika and Lapins) or semi-erect crown (cvs. Adriana and Regina). The vigorous and upright growth habit of the cvs Germersdorfer and Bakirtzeika have also been reported by Chatzicharissis *et al*. (2011).

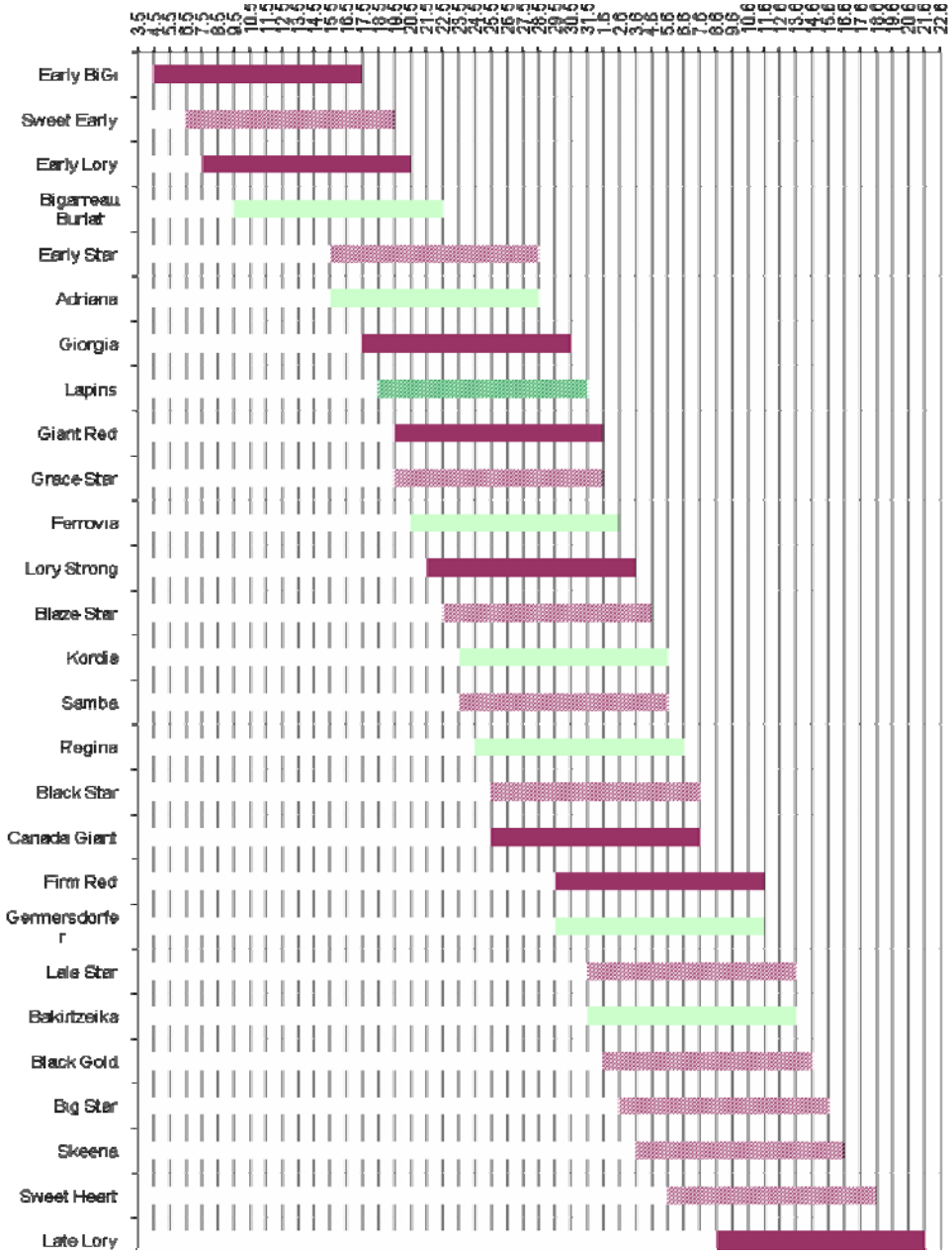
Concerning blossom period,the sweet cherry cultivars growing in Greece occurred from late March to middle April (Chatzicharissis and Kazantzis, 2007, 2010). In this study the cultivars Bigarreau Burlat, Lapins and Adriana blossomed relatively early (the first 10^{th} days of April) while the cultivars Ferrovia, Regina, Kordia, Bakirtzeika and Germersdorfer very late (5-10 days after Bigarreau Burlat), (Fig 1).The ripening period ranged from early May to early June according to variety. Cultivar Bigarreau Burlat ripened earliest than the other cultivars. CultivarsGermersdorfer and Bakirtzeika ripened latest of all and 20 days after Bigarreau Burlat.

Fruit size is an important characteristic for commercial market value (Vittrup Christensen, 1995; Kappel *et al.,* 1996). In this study all cultivars produced very large fruits, with good quality characteristics and high (cultivars Bigarreau Burlat, Adriana, Lapins,Regina, Kordia and Bakirtzeika) to moderate yield (Ferrovia and Germersdorfer).

Apart from the cultivars evaluated there are a number of sweet cherries cultivars promoted by Greek plant nurseries. The time of ripening of these varieties according to literature ranging from early May to mid - late June (Fig. 1). The use of these cultivars could expand the harvesting period and consequently increasing the availability of fresh cherry fruits for longer period.

CONCLUSION

From the sweet cherry cultivars evaluatedFerovia, Kordia,Regina, Lapins and Bakirtzeika are the most promising cultivars. They produced large fruit with good quality characteristics that could easily absorbed by market. Concerning the new sweet cherry cultivars promoted by plant nurseries in Greece they have to be evaluated for their adaptability in local conditions before released to farmers.



Evaluated cultivars by the Pomology Institute of Naoussa
: Self fertile cultivars evaluated by the Pomology Institute of Naoussa
: New cultivars promoted by Greek plant nurseries
: Self fertile cultivars promoted by Greek plant nurseries

Figure 1. Blossom period of the sweet cherry cultivars evaluated in the Pomology Institute of Naoussa and new cultivars promoted by Greek plant nurseries.

REFERENCES

Chatzicharissis I., Kazantzis K. Evaluation and description of 24 sweet cherry and 5 sour cherry cultivars. Proceedings of the Pomology Institute, Naoussa, Greece. 2007.

Chatzicharissis I., Kazantzis K. Evaluation and description of 8 sweet cherry and 1 sour cherry cultivars. Proceedings of the Pomology Institute, Naoussa, Greece. 2010

Chatzicharissis I., Kazantzis K., Sotiropoulos Th., Bakirtzeika: A Greek Sweet Cherry Cultivar. HortScience, 46(7): 1052–1053. 2011.

FAO (Food and Agricultural Organization),. http://faostat.fao.org. 2011

Hisamatsu T., Sugiyama Y., Kubota S., Koshioka M,. Delaying anthesis by dark treatment in *Phalaenopsis.*Journal of the Japanese Society for Horticultural Science, *70*: 264–266. 2001.

Kappel, F., Fisher-Fleming, B. and Hoghe E., Fruit characteristics and sensory attributes of an ideal sweet cherry. HortScience, 31(3): 443–446. 1996.

Mahmood K., Carew J.G., Hadley P., Battey N.H., The effect of chilling and post-chilling temperatures on growth and flowering of sweet cherry (*Prunus avium* L.). The Journal of Horticulural Science and Biotechnology, *75*: 598–601. 2000.

Roversi A., Ughini V., Influence of weather conditions of the flowering period on sweet cherry fruit set. Acta Horticulturae, *410*: 427–433. 1996.

Vittrup Christensen, J., Evaluation of fruit characteristics of 20 sweet cherry cultivars. Fruit Varieties Journal, 49(2):113–117. 1995.