Akd. Üniv. Ziraat Fak. Derg., 12, 25-30, 1999

DETERMINATION OF GROWTH AND DEVELOPMENTAL PERFORMANCES OF SOME TABLE APRICOT CULTIVARS IN ANTALYA CONDITIONS

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Abstract:

This research was carried out at the Research Station of Agricultural Faculty, Akdeniz University between 1988-1996. Developing and growing performances of 20 foreign and domestic table apricot cultivars were searched. Foreign cultivars "Joubert Foulon, Precoce de Colomer and Canino ITA" and domestic cultivars "Sakıt 7, 07 K 14 and 01 K 11" were found to be promising in respect to yield and earliness in Antalya ecological conditions. Although 33 K 09 had less yield, it could be also considered because of its earliness. The canopy and fruit size of foreign apricot cultivars were found generally larger than domectic ones. Total soluble solid contents of domestic cultivars were found higher than the foreign ones

Key Words: Table Apricot, *Prunus armeniaca* L., Adaptation

Sofralık Bazı Kayısı Çeşitlerinin Antalya Koşullarında Büyüme ve Gelişme Özelliklerinin Saptanması

Özet:

Bu çalışma 1988-1996 yılları arasında Akdeniz Üniversitesi Ziraat Fakültesi Araştırma ve uygulama alanında yürütülmüştür. Denemede yerli ve yabancı orijinli 20 sofralık kayısı çeşidinin Antalya koşullarında büyüme ve gelişme özellikleri incelenmiştir. Yabancı orijinli çeşitlerden Joubert Foulon, Precoce de Colomer ve Canino İTA; yerli çeşitlerden Sakıt 7, 07 K 14, 07 K 09 ve 01 K 11 çeşitleri bölge için ümitvar bulunmuştur. Ayrıca, 33 K 09 çeşidinin veriminin az olması ve meyvelerinin küçük olmasına rağmen, erkenci oluşu tercih şansını artırmıştır. Yabancı orijinli kayısıların taç gelişimi ve meyve büyüklükleri genelde yerli çeşitlerden daha fazla olmuştur. Ancak, yerli çeşitlerde saptanan SÇKM miktarları daha fazla gerçekleşmiştir.

Anahtar Kelimeler: Sofralık Kayısı, *Prunus armeniaca* L, Adaptasyon.

1. Introduction

Turkey is one of the leading countries in apricot production with 378 000 tons/year in the world (Anonymous, 1993). Most of the production comes from drying type cultivars. Table apricot cultivars are mainly grown in the Mediterranean Region of Turkey including higher southern slopes where late frost damages on flowers and young fruits in early springs are rather seldom. Apricot plantations in the region have been rapidly increased in recent years. The region also has an advantage of earliness, which has great value for markets. Turkey can compete with the other Mediterranean countries for table apricot production in marketwise (Paydaş and et al., 1992). A large portion of exported apricot from Turkey goes to Northern and Central European countries.

Chilling requirement is an important drawback for apricot cultivars grown in coastal region of the Turkish Mediterranean basin where annual accumulative chilling is about 300-600

hrs (Küden, 1989). Howewer, the problem is almost overcome by finding and releasing new cultivars with low chilling requirements. A number of researches have been conducted with down stated cultivars in Turkey. Priana, Bellona and Feriana in Adana (Paydaş and Kaşka, 1993), Precoce de Tyrinthe, Bulida and Precoce de Colomer in Mersin (Ayanoğlu and *et al.*, 1993) and Fracasso, Sancastrese, Preccoce de Tyrinthe, Sakıt 2, Roguge de Rousillion, Palummella, Terdiff Bordencil and Joubert Foulon in İzmir (Önal and *et al.*, 1995).

The growth and developmental performances of some foreign and domestic table apricot cultivars in Antalya were determined in this research.

2. Materials and Methods

This research was carried out at the Research Station of Agricultural Faculty, Akdeniz University, Antalya between 1988-1996. Three years old and grafted both domestic and foreign table type apricot seedlings used in the research were provided by Alata Horticultural Research Station. Sakıt 2, Sakıt 7, 01 K 11, 07 K 02, 07 K 03, 07 K 09, 07 K 13, 07 K 14, 33 K 09 were selected domestic types and have not been regisreted yet except Sakıt 2 and Sakıt 7. Ambrosia, Baya, Bebeco, Cafona, Canino FRA, Canino ITA, Joubert Foulon, Labib, Precoce de Colomer, Sancastrese and Silistre Rona were searched as foreign ones. The seedlings were planted in mid May in 1988. The trees were regularly pruned and trimmed in winter and early spring periods to have obtained a modified shape.

The research station is situated three kilometers from the Mediterranean sea with 50 meter altitude. South of the research plot is open and soil is clay-loamy with low organic mater and pH 8.5.

Developing characters, canopy, fruit size, flowering, ripening time, yield per tree, seed weight and total soluble solid content were evaluated, respectively.

3. Result and Discussion

Trees size of domestic types were found to be smaller than the foreign ones. Labib is the tallest and 07 K 02 is the smallest.

In the first year Labib and Precoce de Colomer produced about 2 m annual shoots which were not common in apricots. The growth rate began to decrease as they reached transition phase in parallel to flower and fruit bearing.

As it was indicated by Küden (1989), the chilling requirement also appeared somewhat a limiting factor in flowering and fruit setting especially in Ambrosia. Although Labib, Silistre Rona and 33 K 09 scarely flowered in the second year, fruit setting did not occur. Most of the cultivars began to flower in the third year but the fruit setting began in the fifth year as in Precoce de Colomer, Joubert Foulon, Canino ITA and 07 K 09. Light alternate-bearing was also experienced in these cultivars following the heavy fruit bearing year.

Table 1. Blooming and Ripening Periods of Apricot Cultivars.

	February			March				April				May				June			July
Cultivars	14	21	28	1	7	14	21	28	1	7	21	28	1	7	14	21	28	1	7
Labib	a	-	-	-	-	b	-	-	-	-	c				d	-	-	-	-	-	-	-	-	e
Baya	a	-	-	-	-	b	-	-	-	-	c				d									
07 K 02				a	-	-	-	b	-	-	-	c			d	-	-	-	e					
07 K 03				a	-	-	-	b	-	-	-	c				d	-	-	-	e				
07 K 14				a	-	-	-	b	-	-	-	c				d	-	e						
Cafona				a	-	-	-	b	-	-	-	-	c				d	-	-	e				
Sancastrese				a	-	-	-	-	-	b	-	-	-	c			d	-	e					
07 K 09				a	-	-	-	-	-	b	-	-	-	c		d	-	e						
33 K 09				a	-	-	-	-	-	b	-	-	-	c		d	-	-	e					
Canino FRA				a	-	-	-	-	-	b	-	-	-	c			d	-	-	e				
Precoce de Colomer					a	-	-	-	-	b	-	-	-	c		d	-	-	e					
Silistre Rona					a	-	-	-	-	b	-	-	-	c		d	-	-	-	e				
Joubert Foulon					a	-	-	-	-	b	-	-	-	c			d	-	-	e				
Canino ITA					a	-	-	-	-	-	b	-	-	c			d	-	-	e				
Bebeco					a	-	-	-	-	-	b	-	-	c			d	-	-	-	e			
01 K 11					a	-	-	-	-	-	b	-	-	c			d	-	e					
Sakıt 7						a	-	-	-	-	-	b	-	-	c				d	-	-	e		
07 K 13						a	-	-	-	-	-	b	-	-	-	c			d	-	-	e		
Sakıt 2							a	-	-	-	-	-	b	-	-	-	c					d	-	-	e
Ambrosia											a	-	-	-	-	b	—	c						d

a: Begining of blooming, b: full blooming, c: end of blooming, d: first harvest, e: last harvest

It was found that there were statistically important differences among the cultivars in terms of yield. Most of the cultivars flowered between mid February and late March. No frost damage occured wherease heavy rainfalls and low temperatures inhibited pollination and fertilization especially in very early flowering cultivars such as Baya and Labib. Long period, 36 years, average temperatures showed that apricot could easly grow in the region without any serious damages (Yayıcı, 1991). Labib was the earliest flowering

cultivar, February 12, Ambrosia was the latest flowering one, March 29. Flowering period lasted from 10 to 17 days. The earliest ripened fruit was harvested on May 25 in Silistre Rona and 33 K 09, while Ambrosia gave the latest fruit on July 6 (Table 1).

Table 2. Some Fruit and Fruit Quality Parameters of Apricot Cultivars.

Cultivars	Yield (kg)	Fuit weight (g)	Fruit length cm)	Fruit width (cm)	Seed weight (g)	Soluble solid content
Joubert Foulon	*63.50 a	42.08 c**	3.94 bc	3.79 bc	3.24 bc	13.00 fg
Pre. de Colomer	56.42 b	44.77 b	4.29 a	3.77 bc	2.96 bc	12.63 g
Cafona	29.12 c	46.26 a	1.07 ab	3.92 ab	3.29 b	13.28 f
Sakıt 7	26.14 d	42.80 c	4.13 ab	3:83 b	2.76 cd	16.88 bc
Canino İTA	20.15 e	41.98 cd	3.87 c	3.80 bc	3.38 b	15.14 d
07 K 14	18.12 ef	31.45 f	3.46 de	3.63 c	2.35 de	15.84 cd
01 K 11	17.98 f	22.18 hı	3.10 fg	3.01 ef	1.76 g	18.28 a
07 K 09	17.13 f	32.42 f	3.55 d	3.51 cd	2.71 cd	17.29 b
Sakıt 2	16.65 fg	28.38 g	3.45 de	3.25 d	2.24 e	17.55 b
33 K 09	16.34 g	19.21 ı	2.87 g	2.95 f	2.19 ef	16.44 e
07 K 03	12.82 h	27.18 gh	3.56 d	3.43 d	2.04 f	12.20 b
Canino FRA	10.48 ı	23.61 h	4.02 b	3.90 b	2.83 c	15.46 de
Bebeco	9.84 ı	30.56 fg	3.66 ed	3.05 c	2.49 d	1.42 gh
07 K 13	6.22 j	31.19 f	3.42 e	3.47 cd	3.13 bc	14.04 ef
Sancastrese	5.89 jk	35.05 e	3.75 cd	3.60 c	3.44 ab	13.18 f
Silistre Rona	2.29 l	23.61 b	3.17 f	3.17 de	2.50 d	15.73 d
Labib	1.64 lm	39.95 d	3.91 c	3.87 b	2.71 cd	18.13 a
07 K 02	0.74 m	28.16 g	3.32 ef	3.22 d	1.77 g	17.79 ab
Ambrosia	0.51 mn	35.78 e	3.19 f	3.10 e	2.57 d	12.63 g
Baya	0.32 n	33.10 ef	4.16 a	4.00 a	3.57 a	14.75 e

* : Average yield of cultivars calculated during the full fruiting periods.
**: Statiscally important at 5 % level

Differences among the fruit size, seed weight, fruit weight and soluble solid content were found statiscally important at the 5 % level. The highest fruit weight was obtained from Cafona with 46.26 g and followed by Precoce de Colomer with 44.77 g, Sakıt 7 with 42.80 g and Joubert Foulon with 42.08 g, respectively. The lowest fruit weight was obtained from 33 K 09 with 19.21g. Average fruit weight of cultivars changed between 25.00-40.00 g. The longest fruit lenght was found in the Precoce de Colomer with 4.29 cm and the smallest fruit lenght was found in the 33 K 09 with 2.87 cm. Average fruit length varied between 3.30-4.00 cm. The highest fruit width was seen in Baya with 4.00 cm and the smallest fruit width in 33 K 09 with 2.95 cm. Average fruit width changed between 3.20-3.80 cm. The highest seed weight was obtained in Baya with 3.57 g and the lowest seed weight was obtained in 01 K 11 cultivar with 1.76 g. The highest total soluble solid content was determined in 01 K 11 with 18.28 and followed by Labib with 18.13, 07 K 02 with 17.79 and Sakıt 2 with 17.55, respectively. Soluble solid contents of domestic apricot cultivars were generally found higher than foreign apricot cultivars (Table 2).

According to the results table apricot cultivars ripened between late May and early June in Antalya climatic conditions. Occarso (1977) indicated that Scillato apricot cultivar fruits were ripened in the late May in Scilly. Precoce de Colomer was ripened on 9-10 June in Antalya while it was ripened on June 20-30 in Italy (Anonymous, 1986). Priana was ripened on June 15-25 and Belliana was ripened on June 20 in France (Anon-ymous, 1986) while Priana was ripened on June 8 in Adana (Paydaş and Kaşka, 1995). These results showed that apricot fruit ripening in Turkey is approximately 20-30 days earlier than Italy and France.

It was found that Joubert Foulon, Precoce de Colomer, Canino ITA, Sakıt 7, 07 K 14, 07 K 09 and 01 K 11 cultivars seemed more promising in earliness and yield for Antalya conditions. In addition, 33 K 09 gave less yield and small fruit despite its earliness.

Disease problems have not been experienced during the experiment but, *Capnodis* and Mediterranean fruit fly (*Ceratitis capitata*) had some damage to the trees. One or two trees were seriously damaged due to *capnodis* every year. Mediterranean fruit fly had some damages by mid June, almost every year.

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