

## Full Length Research Paper

# Yield and quality performance of some peach varieties grown under Sanliurfa ecological conditions

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Peach has a wide range of adaptation to tropical, subtropical and temperate climatic zones around the world, hence is spreading as a fruit species. This study was done in a semiarid climate in Sanliurfa. The phenological, pomological and yield characteristics of 11 peach cultivars (Maycrest, Springcrest, Earlyred, Cardinal, Redhaven, Glohaven, Dixired, Cresthaven, Maria Marta, Elegant Lady and Monroe), were determined. Early flowering in the peach cultivars started on 14th March and ended on 8th April. The first flowering and the last flowering took place between 9 and 17 days. The full bloom to harvest of the cultivars took place between 74 (Maycrest) and 151 (Monroe) days. Based on the long-term observations, the earliest fruit maturation in peach varieties (Maycrest) occurred on the 2nd of June and the last fruit maturation occurred in Monroe on the 24th of August. The weights of the fruit varieties are as follows: Cardinal, 78.19; Dixired, 218.73; for TSS: Earlyred, 14.06; Maria Marta, 17.28%; for titratable acid content: Dixired, 0.47; Redhaven, 1.07 %; and for flesh firmness: Springcrest, 1.82; Dixired, 4.72 kg cm<sup>-2</sup>. Between 2007 and 2011 years, cumulative yield values were found in Elegant Lady (166.87) and Earlyred (278.33 kg/tree).

**Key words:** Peach, *Prunus persica*, fruit yield, fruit quality, phenology, pomology, yield efficiency.

## INTRODUCTION

Peaches and nectarines, which are temperate climate fruits, can be grown in subtropical and even tropical climate regions. They have developed varieties with low chilling requirement. Peach and nectarine are cultivated commercially mostly between 25 and 45° latitudes in the Northern and Southern hemispheres (Özbek, 1978; Westwood, 1993).

The motherland of peach (*Prunus persica* L.) is East Asia and China; it is grown in more than 80 countries

around the world. Being the most important producer of peach-nectarine in the world, China ranks first with 12 423 700 tons of production, Spain is the second with 1 573 640 tons of production and Italy is the third with 3 379 428 tons of production. With 608 513 tons of peach-nectarine production, Turkey ranks 6th following Greece and the United States (FAO, 2014).

Peach and nectarine production in Turkey is limited due to the low winter and high summer temperatures, chilling

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requirement of the variety and late spring frosts. Having an important role in Turkey's agriculture and economy, the peach is widely grown in Marmara, Aegean, Mediterranean and Western Black Sea regions. In Turkey, 585 210 tons of peach are produced in 39 015 hectares of land. Mersin (103 595 tons), Çanakkale (91 558 tons), Bursa (77 941 tons), İzmir (74 311 tons) and Denizli (33 752 tons) are the leading peach producing cities of Turkey. Sanliurfa province has 49.2 hectares of area and 565 tons of peach production (TSI, 2016).

Breeding programs on peaches and nectarines have made it possible to grow peach-nectarine in subtropical and even tropical climatic regions. A number of studies have been carried out in many countries (Tsipouridis et al., 2002; Dumitru et al., 2003; Papanikolaou et al., 2005; Carter et al., 2006; Rakonjac and Živanović, 2008; Cline and Norton, 2012) and in Turkey (Kaşka and Küden, 1988; Kaşka et al., 1992; Önal and Ercan, 1992; Küden et al., 1995; Küden et al., 1997; Tosun et al., 2001; Ercan and Özkarakaş, 2003; Evliyaoğlu and Ferhatoğlu, 2003; Güven et al., 2007; Polat et al., 2010; Gür et al., 2011; Polat and Çalışkan, 2011; Gerçekçioglu et al., 2014) on the identification of the characteristics of various peach and nectarine varieties and their adaptation to various ecological conditions.

The aim of this study was to examine the performance of 11 peach varieties whose ripening period is between June and September under the conditions of Sanliurfa. It is expected that the findings of the study will guide the producers in Sanliurfa and Southeastern Anatolia Region on how to grow peach and contribute to the improvement of peach cultivation in the region.

## MATERIALS AND METHODS

This study was carried out between 2008 and 2011 at Harran University, Faculty of Agricultural, Stone Fruits and Pome Fruits Research and Application Orchard on 11 peach varieties. They were budded on GF 677 rootstock and planted at 5x5 m planting distance.

In the research, Maycrest, Springcrest, Earlyred, Cardinal, Redhaven, Glohaven, Dixired, Cresthaven, Maria Marta, Elegant Lady and Monroe varieties were examined. The coordinates of the peach garden in which the research was conducted are 37°19' N, 38°96' E and the elevation is 515 m above sea level. The trees were pruned as "central leader tree"; the orchard was irrigated by drip irrigation system between May and October each year. Technical and cultural processes such as fertilization, disease and pest control were carried out regularly based on standards.

The soil (0 to 40 cm) of the orchard in which the study was done was moderate and fertile. The composition of the soil was determined as 40% clay, 33.2% silt, 21.4% sand, 0.82% organic matter and pH of 7.85 to 8.20. The content of organic matter, N, and P is low whereas the content of K is high (Anonymous, 2011).

The study was done in a Complete Randomized Block Design with 11 varieties, at 3 replications (3 trees in each replication). The phenological properties of the varieties such as bud swell, bud break, first bloom, full bloom, post bloom and harvesting period were observed.

The yield values were determined cumulatively for each tree by weighing the fruits harvested from the peach trees since 2008. The

trunk diameters of the trees were measured at 15 cm over the graft point, and the yield values by unit trunk cross-sectional area ( $\text{kg}/\text{cm}^2$ ) were determined.

Fruit weight (g), fruit height (mm), fruit width (mm), stone weight (g), hardness of the fruit ( $\text{kg}/\text{cm}^2$ ), the brix (%), pH and titratable acidity (%) were determined by measuring 25 randomly selected fruits from each variety.

Angular transformation was applied to determine the percent values before statistical analysis. The findings of the research were designed and analyzed in a Randomized Complete Block Design using Duncan test for multiple comparison.

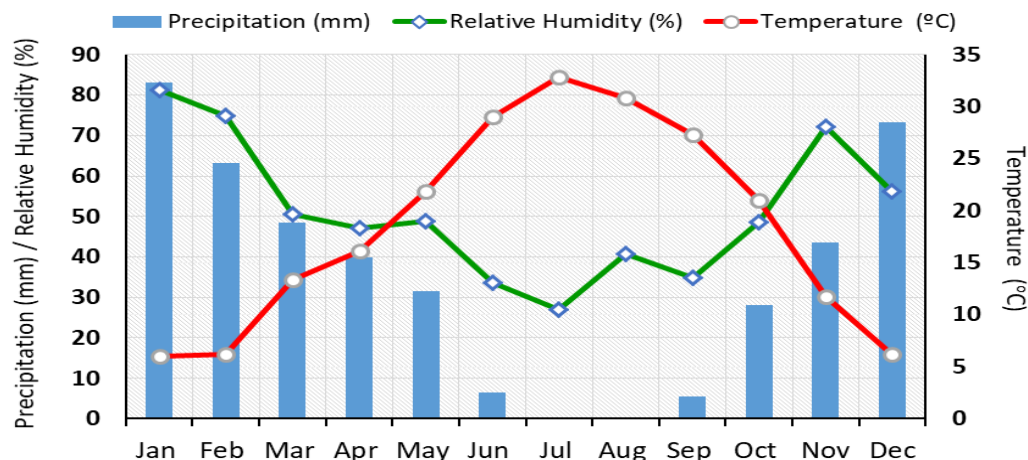
## RESULTS AND DISCUSSION

Average temperature, average relative humidity, and annual total precipitation were measured as 18.5°C, 51.3% and 423 mm, respectively between 2008 and 2011 during the study. Most of the rainfall precipitates between November and April in Sanliurfa province. There is scarcely any rainfall in the hottest months of the year (June-September). The highest temperature was measured as 43.3°C in July and the lowest temperature was -4.2°C in February during the study period (Figure 1).

The phenological observations were made for the varieties included in the study between 2008 and 2011. The data about the earliest and latest occurrences of the observed phenological characteristic are shown in Table 1. The earliest bud swell was observed in Elegant Lady and Maycrest varieties on the 28th of February and the latest was observed in Cresthaven, Dixired and Glohaven varieties on the 13rd of March. The earliest bud break was observed in Maycrest variety on 9th of March, whereas the latest bud break was observed in Maria Marta variety on the 24th of March. The earliest first bloom in the peach varieties was observed in Maria Marta, Maycrest and Springcrest varieties on the 14th of March, whereas the latest first bloom was observed in Dixired variety on the 28th of March. The full bloom in the peach varieties (Dixired) occurred between 18th of March (Springcrest) and 3rd of April. While Maycrest variety (2nd of June) was the first to ripe harvest, while Monroe variety (11th of September) was the last; all the others were harvested between the time of these two varieties (Table 1).

The average time between bud swell and first bloom of the varieties was 14 days, the average time between first bloom and post bloom was 12 days, and the average time between full bloom and harvest was 108 days based on the calculations of the varieties' phenological results shown in Table 1.

In a research made in 1990 by GAP Koruklu Agricultural Research Station in Sanliurfa, it has been reported that all the peach and nectarine varieties had full bloom period between 19 and 23 March; Early Red's own was on the 21st of June; Armking (20th of June) from the nectarine varieties were the earliest to before harvest (Küden et al., 1997). During the second phase of the



**Figure 1.** The average temperature, average relative humidity and average monthly rainfall data detected in the research garden (average of the years 2008-2011).

**Table 1.** Phenological observation results of peach cultivars between 2008 and 2011

Cultivar		Bud swelling	Bud burst	First bloom	Full bloom	End of flowering	Harvest date
Maycrest	Earliest	28.02	09.03	14.03	20.03	27.03	02.06
	Latest	10.03	17.03	22.03	27.03	02.04	11.06
Springcrest	Earliest	02.03	11.03	14.03	18.03	25.03	10.06
	Latest	11.03	19.03	25.03	29.03	04.04	22.06
Earlyred	Earliest	01.03	12.03	18.03	23.03	01.04	10.06
	Latest	11.03	18.03	22.03	27.03	03.04	24.07
Cardinal	Earliest	03.03	10.03	16.03	23.03	30.03	18.06
	Latest	10.03	20.03	25.03	30.03	05.04	03.07
Redhaven	Earliest	05.03	12.03	16.03	21.03	28.03	11.07
	Latest	11.03	21.03	27.03	31.03	05.04	04.08
Glohaven	Earliest	01.03	11.03	15.03	21.03	29.03	13.07
	Latest	13.03	22.03	27.03	31.03	05.04	26.06
Dixired	Earliest	05.03	16.03	20.03	25.03	03.04	16.07
	Latest	13.03	22.03	28.03	03.04	09.04	25.07
Cresthaven	Earliest	05.03	14.03	17.03	23.03	01.04	17.07
	Latest	13.03	23.03	27.03	31.03	05.04	18.08
Maria Marta	Earliest	02.03	11.03	14.03	19.03	26.03	22.07
	Latest	12.03	24.03	28.03	02.04	08.04	08.08
Elegant Lady	Earliest	28.02	10.03	16.03	21.03	28.03	07.08
	Latest	07.03	15.03	19.03	24.03	31.03	22.08
Monroe	Earliest	03.03	11.03	16.03	22.03	02.04	14.08
	Latest	10.03	17.03	22.03	27.03	02.04	11.09

research carried out in the same station between 1993 and 1997, it was determined that the average blooming dates of the peach and nectarine varieties in this period were between 7 and 27 March and the ripening period was between 10<sup>th</sup> of June and 22<sup>nd</sup> of August (Küden et al., 1997).

The adaptation of 20 peach-nectarine varieties was examined in Greece's Kos Island which has a chilling time of 150 h under 7.2°C and the city of Naoussa, Greece, which has a chilling time of 1000 h. Desert Gold (30<sup>th</sup> of January) was the earliest to bloom and Cardinal (6<sup>th</sup> of April) was the last to bloom in Kos Island. In the city of Naoussa, Desert Gold variety (7<sup>th</sup> of March) was the earliest to bloom while Morettini No. 1 variety (2<sup>nd</sup> of April) was the last to bloom (Papanikolaou et al., 2005).

Carter et al. (2006) examined the performances of 29 peach varieties in a study carried out in the Arkansas State of the US. The first bloom period, full bloom period, and optimum harvest period of the varieties examined in 2003 were determined as 09 to 15 March, 16 to 22 March, and 09 June to 02 August, respectively. In the study, the first bloom dates for Cresthaven, Glohaven and Rehaven varieties were March 13, 14 and 13, respectively, the full bloom date for them was determined as March 22 and harvest dates were determined as 22 July, 14 July and 30 June, respectively.

'EarlyRed', 'Redhaven', 'Dixired', 'Washington', and 'J. H. Hale' peach varieties were examined in a research between 2002 and 2006 in Hatay province of Turkey. In this research, it was determined that the Earlyred variety bloomed (March 21) and ripened (June 6) earlier than the other peach varieties (Polat et al., 2010).

In a study conducted in the ecological conditions of Tokat province in Turkey between 2011 and 2012, the first bloom period of Elegant Lady, Monroe and Redhaven varieties of peach was between 28 March and 10 April, full bloom period was between 06 and 13 April, post bloom period was between 12 and 17 April and harvest period was 30 July to 9 September (Gerçekçioglu et al., 2014).

The chilling time (under +7.2°C) is 150 to 200 h for the examined peach varieties under Sanliurfa conditions and they were determined to bloom and ripe about 40 to 60 days later than those in Kos (Papanikolaou et al., 2005) and Rhodes (Tsipouridis et al., 2002); 30 days later than those in Cukurova region (Adana) (Son et al., 1995), 15 days later than those in Arkansas (USA) (Carter et al., 2006) and Hatay province (Polat et al., 2010), and 4 to 7 days later than those in Ceylanpınar District of Sanliurfa (Tosun et al., 2001) and Koruklu Research Station (Küden et al., 1997). However, they bloom and ripe about 4 to 7 days earlier than the varieties under Eğirdir's (Güven et al., 2007) and Tokat's (Gerçekçioglu et al., 2014) conditions, and 7 to 15 days earlier than the ones under Yalova's (Demiroren and Ufuk., 1996) conditions.

Yield per tree (kg/tree), cumulative yield (kg/tree), trunk cross-sectional area (cm<sup>2</sup>) and its effect on cumulative

yield (g cm<sup>-2</sup>) values for peach varieties are as shown in Figures 2 and 3. Significant differences were determined between the varieties' yield per tree and cumulative yield values ( $p < 0.01$  and  $p < 0.001$ ).

Among the peach varieties studied, Earlyred variety had the highest yield per tree between 2008 and 2009; while for Maycrest, it was 2010; Earlyred, Redhaven, Maycrest, Dixired and Springcrest were determined to have the highest yield per tree in 2011.

Among the peach varieties, the highest cumulative yield between 2008 and 2011 (5 to 8 year-old trees) was 248.19 kg tree<sup>-1</sup> from Earlyred variety, followed by Maycrest variety with 235.56 kg tree<sup>-1</sup> (Figure 2). The Elegant Lady was determined to have the lowest cumulative yield (153.96 kg tree<sup>-1</sup>).

The trunk cross-sectional areas range from 84.05 (Glohaven) to 146.52 cm<sup>2</sup> (Earlyred) and the cumulative yield-effect values range from 1.45 (Elegant Lady) to 3.03 kg cm<sup>-2</sup> (Dixired) in 8-year-old peach trees under Sanliurfa's conditions (Figure 3).

Kaşka et al. (1992) examined 42 peach and 14 nectarine varieties' adaptation to the Mediterranean region in Alata Horticultural Research Institute between 1982 and 1990. The peach varieties' yields per tree range between 80 kg (Springtime) and 148 kg (Flordasun).

In a research conducted to determine the peach-nectarine varieties that could be grown under Harran Plain's conditions, it was reported that the Redhaven variety (39.19 kg tree<sup>-1</sup>) ranked first, followed by Washington (38.69 kg tree<sup>-1</sup>), Independence (37.81 kg tree<sup>-1</sup>), J. H. Hale (36.72 kg tree<sup>-1</sup>), Earlyred (36.01 kg tree<sup>-1</sup>), Cresthaven (33.41 kg tree<sup>-1</sup>), Nectared (33.36 kg tree<sup>-1</sup>), Morettini (31.64 kg tree<sup>-1</sup>), Red Globe (33.41 kg tree<sup>-1</sup>) and Monroe (22.97 kg tree<sup>-1</sup>) in terms of yield values (Evliyaoğlu and Ferhatoğlu, 2003).

Güven et al. (2007) examined 6-year old peach varieties (Cardinal, Cresthaven, Dixired, Earlyred, Elegant Lady, Glohaven, Maycrest, Monroe, Redhaven and Springcrest) and also examined in this study and obtained yield per tree ranging from 7.38 (Springcrest) to 39.81 kg (Elegant Lady) and cumulative yield values ranging from 29.13 (Dixired) to 96.56 kg tree<sup>-1</sup> (Cresthaven). 7-year-old peach varieties ('Early Red', 'Redhaven', 'J. H. Hale', 'Washington' and 'Dixired') were studied under Dörtöl's (Hatay) conditions and yield per tree values were obtained ranging from 17.38 (J. H. Hale) to 41.51 kg tree<sup>-1</sup> (Dixired) (Polat and Çalışkan, 2011). The researchers stated that the low yield per tree value is due to the fact that the rainfall in the region occurred in March and April, which is the varieties' blooming period, and also the low temperatures in the same period affected the fruit set negatively.

The cumulative yields between 2006 and 2010 of the 15 peach varieties planted in Southern Ontario (Canada) in 2004 ranged from 35.6 (V85384) to 332.6 kg ('Redhaven'), and the trunk cross-sectional area of the

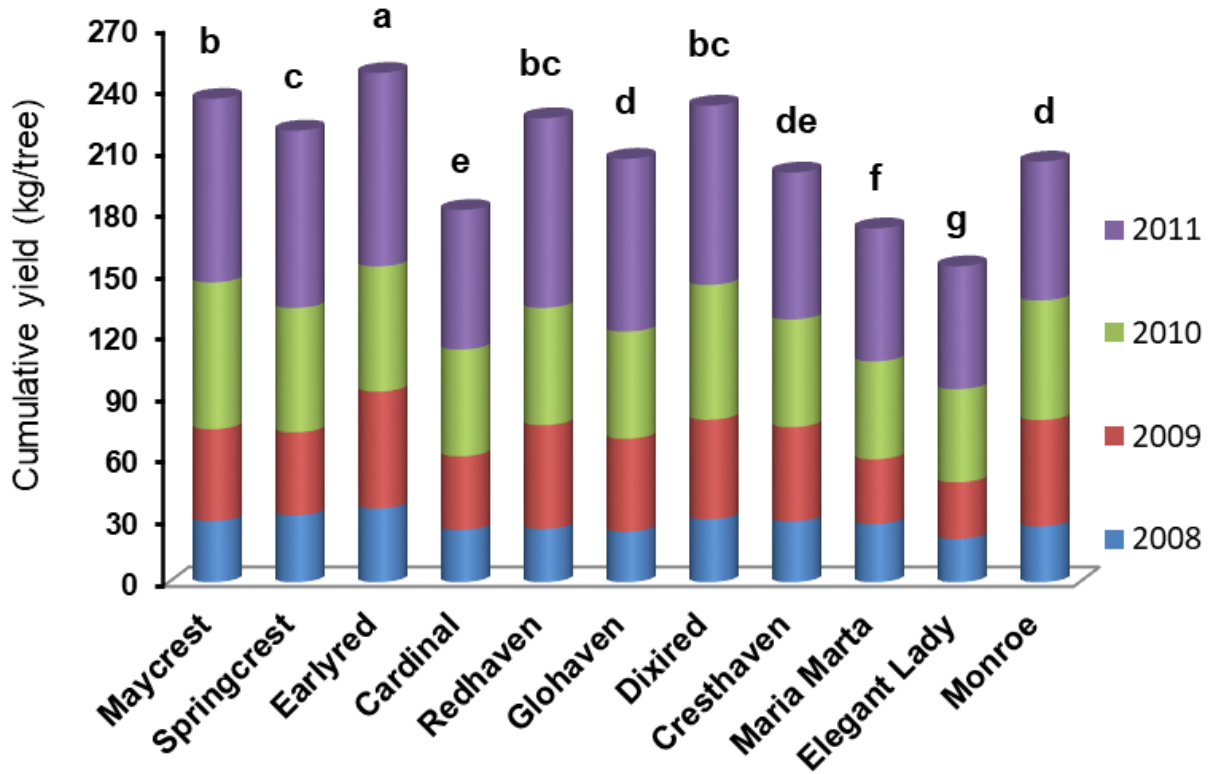


Figure 2. The cumulative yield per tree of peach varieties between the years of 2008 and 2011.

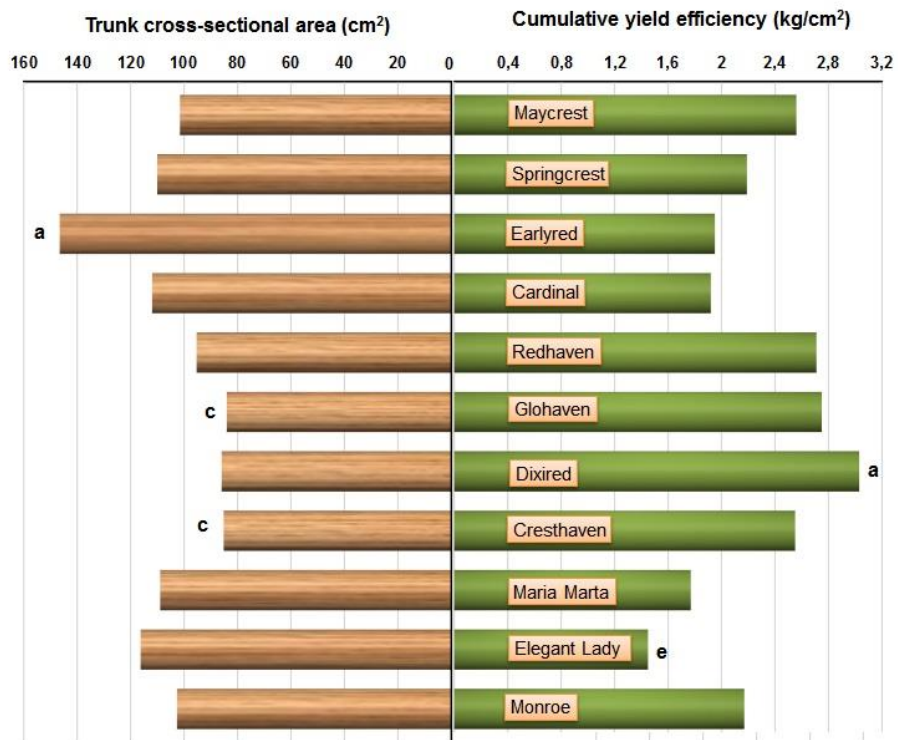


Figure 3. Trunk cross-sectional area and cumulative yield efficiency values of peach varieties in 2011.

**Table 2.** Some pomological properties of peach varieties.

Cultivar	Fruit weight (g)	Fruit width (mm)	Fruit length (mm)	Kernel weight (g)	Fruit flesh/Core ratio (%)	Fruit firmness (kg/cm <sup>2</sup> )	TSS (%)	pH	Titrateable acidity (%)
Maycrest	111.14 <sup>bcd</sup>	63.15 <sup>bc</sup>	58.94 <sup>b</sup>	9.29 <sup>ab</sup>	12.11 <sup>cd</sup>	2.76 <sup>de</sup>	16.64 <sup>abc</sup>	3.73 <sup>bc</sup>	0.58 <sup>cde</sup>
Springcrest	87.00 <sup>def</sup>	62.70 <sup>bc</sup>	59.00 <sup>b</sup>	4.36 <sup>d</sup>	20.53 <sup>ab</sup>	1.82 <sup>f</sup>	15.71 <sup>a-d</sup>	3.48 <sup>de</sup>	0.52 <sup>de</sup>
Earlyred	103.72 <sup>b-e</sup>	58.71 <sup>c</sup>	57.20 <sup>bc</sup>	7.37 <sup>c</sup>	14.16 <sup>c</sup>	2.21 <sup>ef</sup>	14.06 <sup>d</sup>	3.47 <sup>de</sup>	0.74 <sup>bcd</sup>
Cardinal	78.19 <sup>fy</sup>	50.73 <sup>d</sup>	48.48 <sup>c</sup>	5.06 <sup>d</sup>	15.89 <sup>bc</sup>	3.26 <sup>bcd</sup>	15.13 <sup>cd</sup>	3.78 <sup>bc</sup>	0.82 <sup>abc</sup>
Redhaven	125.81 <sup>bc</sup>	59.14 <sup>bc</sup>	60.75 <sup>ab</sup>	10.23 <sup>a</sup>	12.50 <sup>cd</sup>	2.19 <sup>ef</sup>	15.16 <sup>cd</sup>	3.82 <sup>b</sup>	1.07 <sup>a</sup>
Glohaven	115.15 <sup>bc</sup>	59.88 <sup>bc</sup>	55.27 <sup>bc</sup>	8.51 <sup>bc</sup>	13.71 <sup>c</sup>	3.59 <sup>bc</sup>	17.28 <sup>a</sup>	4.27 <sup>a</sup>	0.54 <sup>de</sup>
Dixired	218.73 <sup>a</sup>	74.37 <sup>a</sup>	76.70 <sup>a</sup>	8.24 <sup>bc</sup>	26.61 <sup>a</sup>	4.72 <sup>a</sup>	16.51 <sup>abc</sup>	3.36 <sup>ef</sup>	0.47 <sup>e</sup>
Cresthaven	129.58 <sup>b</sup>	61.69 <sup>bc</sup>	59.56 <sup>b</sup>	8.31 <sup>bc</sup>	15.67 <sup>bc</sup>	3.88 <sup>ab</sup>	17.13 <sup>ab</sup>	4.09 <sup>a</sup>	0.52 <sup>de</sup>
Maria Marta	102.29 <sup>c-f</sup>	64.08 <sup>b</sup>	58.88 <sup>b</sup>	8.27 <sup>bc</sup>	12.30 <sup>cd</sup>	3.81 <sup>b</sup>	14.58 <sup>d</sup>	3.60 <sup>cd</sup>	0.87 <sup>ab</sup>
ElegantLady	80.67 <sup>ef</sup>	60.47 <sup>bc</sup>	58.40 <sup>b</sup>	8.97 <sup>ab</sup>	9.00 <sup>d</sup>	3.87 <sup>ab</sup>	14.34 <sup>d</sup>	3.70 <sup>bc</sup>	0.82 <sup>abc</sup>
Monroe	102.31 <sup>c-f</sup>	59.15 <sup>bc</sup>	57.48 <sup>bc</sup>	7.60 <sup>c</sup>	13.55 <sup>cd</sup>	2.87 <sup>cde</sup>	15.38 <sup>bcd</sup>	3.24 <sup>f</sup>	0.48 <sup>de</sup>
P	**	**	***	**	***	***	***	***	***

<sup>y</sup>There is no statistical difference between the averages marked with the same letter ( $p < 0.05$ ). \*\*, \*\*\* Significant at  $P < 0.01$  or  $P < 0.001$ , respectively.

trees in 2010 range from 44.6 (Virgil) to 72.1 cm<sup>2</sup> (Harrow Dawn). Their effects on cumulative yield were identified ranging from 0.60 (Venture) to 2.73 kg cm<sup>-2</sup> (Redhaven) (Cline and Norton, 2012).

The pomological characteristics of the fruits of the peach varieties examined in the research are shown in Table 2. The differences between the examined varieties regarding the pomological characteristics were statistically significant. In terms of fruit weight, fruit width and fruit height, Dixired variety (218.73 g, 74.37 mm and 76.70 mm, respectively) was ranked first among the varieties, whereas the Cardinal variety (78.19 g, 50.73 mm and 48.48 mm, respectively) was ranked last in terms of the same characteristics.

Şeker et al. (2007) examined the Early Red, J. H. Hale and Redhaven peach varieties grown in Çanakkale region and determined the fruit weight between 145.76 and 185.13 g, the fruit width between 67.13 and 70.23 mm, the fruit height between 58.43 and 69.64 mm, and the fruit hardness between 2.54 and 4.24 kg cm<sup>-2</sup>, stone weight between 7.97 and 8.64 g, brix between 10.74 and 14.65% and total acidity between 0.28 and 0.49%. According to the pomological analysis results of 16 peach varieties examined in Eğirdir ecological conditions in 2006n to 2007, fruit weights ranged from 133.4 to 258 g, fruit width ranged from 59.7 to 88.0 mm, fruit height ranged from 59.7 to 82.6 mm, fruit hardness ranged from 0.74 to 2.6 kg cm<sup>-2</sup>, pH ranged from 3.45 to 4.12, titrateable acidity value ranged from 0.46 to 0.74% and brix ranged from 10.68 to 16.60% (Gür and Pırlak, 2011).

According to the average values of Elegant Lady, Monroe and Redhaven peach varieties that were grafted on GF 677 rootstock under Tokat's ecological conditions in 2011 to 2012, average fruit diameter was found to

range between 54.89 (Elegant Lady) and 74.33 mm (Monroe) and average fruit height between 51.51 (Elegant Lady) and 71.79 mm (Monroe) (Gerçekçioglu et al., 2014). In the same research, the fruit hardness of Elegant Lady, Monroe and Redhaven peach varieties were determined as 7.05, 5.60 and 4.84 kg cm<sup>-2</sup>, respectively, the brix values as 12.77, 12.30 and 13.08% respectively, pH as 3.92, 3.65 and 4.06 and titrateable acidity as 1.20, 1.22 and 0.70, respectively (Gerçekçioglu et al., 2014).

The average fruit weight obtained in this study is approximately 25% higher than the ones obtained in Kos Island and Rhodes Island, Greece (Tsipouridis et al., 2002; Papanikolaou et al., 2005), whereas they are 25 to 40% lower compared to the results obtained in the studies conducted in some of the major peach cultivating centers in Turkey such as Adana (Son et al., 1995), Isparta-Eğirdir (Güven et al., 2007), Yalova (Demiroren and Ufuk, 1996). The obtained results of the research carried out under ecological conditions of Sanliurfa in terms of fruit size, fruit height and width of some peach varieties were similar with the ones obtained in Koruklu/Sanliurfa (Küden et al., 1997), Ceylanpınar (Tosun et al., 2001), Hatay (Polat et al., 2010), and Tokat (Gerçekçioglu et al., 2014).

The stone weight of the peach varieties studied in this research ranged from 4.36 (Springcrest) to 10.23 g (Redhaven), the flesh/stone ratio ranged from 9.00 (Elegant Lady) to 26.61% (Dixired) and the hardness of the fruit flesh ranged from 1.72 to 4.72 kg cm<sup>-2</sup> (Table 2).

The brix values of the peach varieties ranged from 14.06 (Earlyred) to 17.28% (Glohaven) (Table 2). On the other hand, the differences in pH values and titrateable acidity of the fruits between the peach varieties were

statistically significant.

The brix values of the varieties grown in Sanliurfa are higher than those grown in other regions of Turkey. It has also been found that the results obtained from this research are consistent with the results of the other pomological analyses tested under Eğirdir and Tokat conditions (Güven et al., 2007; Gür and Pırlak, 2011; Gerçekçioglu et al., 2014).

## Conclusion

It is seen that the commercial peach orchard under ecological conditions of Sanliurfa can hardly be expected to have fruit quality to compete with important peach growing regions in Turkey. The high average temperature of over 35°C and the daily evaporation of over 20 mm/m<sup>2</sup> during summer in the region slow down the growth of peach fruits and cause quality loss such as fibrousness and shrivel due to evapotranspiration on the fruit walls. In this study, particularly the early peach varieties provided better results in terms of both yield and quality under Sanliurfa's (Southeastern Anatolian Region) conditions. Also, the brix value of the peach fruits grown under Sanliurfa's conditions has been found to be 30 to 40% higher than that of the peach fruits grown in other areas. From this perspective, it observed that the future potential of Sanliurfa province will be high in terms of peach and nectarine production for the fruit juice industry.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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