‘Eylul’: A New Late Ripening Apricot Cultivar for Fresh Market

Bayram Murat Asma
Faculty of Agriculture, Department of Horticulture, Inonu University, Battalgazi, Malatya 44210, Turkey
Zehra Tugba Murathan
Faculty of Engineering, Department of Food Engineering, Ardahan University, Ardahan 7500, Turkey
Tuncay Kan and Fırat Ege Karataş
Faculty of Agriculture, Department of Horticulture, Inonu University, Battalgazi, Malatya 44210, Turkey
Ogün Birhanlı
Faculty of Education, Department of Life Sciences, Inonu University, Malatya 44280, Turkey
Abdullah Erdoğan
Apricot Research Institute, Aşağıbağlar Mah. İsmetpaşa Cad. No: 163, Yeşilyurt, Malatya 44250, Turkey

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‘Eylul’ is the most recent apricot (Prunus armeniaca L.) cultivar bred in the Multi-Purpose Apricot Breeding Program of Inonu University, Malatya, Turkey, and released for propagation in 2017. ‘Eylul’ means September in Turkish which addresses its late ripening characteristics. The cultivar is self-compatible and capable of setting full crops without the presence of other cultivars. Besides, it successfully adapts Malatya, the main apricot production area in the world. ‘Eylul’ fruit ripens late, with a fruit development period of 149 d, and are suitable for fresh consumption with good fruit quality and productivity. Fruit are oblong shaped and are pleasant dull gold-yellow in skin color with red blush covering 5% to 10% of the fruit skin. From adequately thinned trees, the research plot at 5 m intervals with five replications. Reference cultivars: ‘Aprikoz’, ‘Levent’, and ‘Dilbay’ were also included for comparison purposes. Dilbay was the first apricot cultivar released from the Multi-Purpose Apricot Breeding Program of Inonu University, Malatya, Turkey (Asma, 2012). All apricot saplings were grafted on apricot seedlings and planted in the research plot at 5 × 5-m intervals with five replications. Reference cultivars: ‘Aprikoz’, ‘Levent’, and ‘Dilbay’.

Flowering characteristics. The flower buds of ‘Eylul’ are formed on both 1- and 2-year-old shoots with a very high flowering density. Flowers are of a diameter typical of commercial apricot and stamens are typically level with the anthers. Petals are oblate in shape and white. ‘Eylul’ is distinguished as the earliest blossoming cultivar among local cultivars. In 2012, winter was colder and longer than average in Malatya. For that reason, bloom of all cultivars was delayed for 15–20 d, and it was 5 Apr. when bloom began for ‘Eylul’. On the other hand, full bloom date was 10 Mar. in 2016 (Table 1). Long-term average for full bloom date across major apricot cultivars in Malatya is 20–30 Mar. (Asma, 2011). The chilling requirement of ‘Eylul’ has been calculated at 914 ± 45 h based on the standard method (hours below 7.2 °C) described by Byrne and Bacon (1992) in Malatya (lat. 38°28′ ‘N, long. 38°21′08″ ‘E, 730 m). The number of anthers and pollen grains per anther in ‘Eylul’ flowers were 29 and 2,200–2,850, respectively. According to triphenyltetrazolium chloride test, pollen viability is 69% to 75%. Pollen germination rate is 65% to 71% under in vitro tests performed on media having 1% agar and 15% sucrose at 20 °C. ‘Eylul’ flowers are self-compatible and produce high amount of release because of its combined performance in terms of adaptation to environmental conditions, fruit quality, yield, and late ripening.

Table 1. Four years of bloom and harvest ranges in Battalgazi region, Malatya, for new late-ripening apricot ‘Eylul’ and its parents (‘Aprikoz’ and ‘Levent’) and reference cultivar Dilbay.

| Year | Crop yr | Full bloom | Harvest | Full bloom | Harvest | Full bloom | Harvest | Full bloom | Harvest |
|------|---------|------------|---------|------------|---------|------------|---------|------------|---------|
| 2012 | 5 Apr.  | 2 Sept.    | 4 Apr.  | 6 July     | 5 Apr.  | 23 Sept.   | 8 Apr.  | 26 June    |
| 2013 | 15 Mar. | 23 Aug.    | 18 Mar. | 17 June    | 15 Mar. | 19 Sept.   | 20 Mar. | 8 June     |
| 2015 | 24 Mar. | 11 Aug.    | 28 Mar. | 26 June    | 25 Mar. | 5 Sept.    | 29 Mar. | 18 June    |
| 2016 | 10 Mar. | 13 Aug.    | 12 Mar. | 14 June    | 10 Mar. | 7 Sept.    | 13 Mar. | 4 June     |
pollen by the methods proposed by Burgos et al. (1993).

**Fruit characteristics.** The fruit of ‘Eylul’ are oblong in shape. The pit can easily be removed from the fruit, which is a benefit for the consumers. Kernels are sweet. The fruit skin is smooth and has a pleasant dull gold-yellow skin color (Fig. 1). Skin cracking and pit burning were not observed in any of the cultivars tested during the experimental period. Flesh color is cream and flesh texture is finely ground and firm. The fruit are juicy, with total soluble solid content averaging 17.9% and titratable acidity being 0.58%.

These values result in a Brix/acid ratio of 30.9 for ‘Eylul’, whereas the ratio is just 19.9 for reference cultivar Dilbay (Table 2). Brix/acid ratio is an important factor for consumer acceptance with higher ratios, denoting higher eating quality (Jayasena and Cameron, 2008). This ratio is 31.6 for ‘Aprikoz’, 35.3 for ‘Levent’, 19.86 for ‘Dilbay’, 86.6 for ‘Hacibaliloglu’, 7.4 for ‘Ninfa’, and 12.4 for ‘Stark Early Orange’ (Asma, 2011).

**Maturation time.** The maturation periods of Eylul, its parents, and reference cultivars were determined in a 4-year study (Table 1). During the observation period, the latest harvest was carried out on 2 Sept. in 2012, and the earliest was in 2015 (11 Aug.).

Harvest date varied 20–25 d between the years. Full bloom and harvest were both earlier in warmer and arid years. The average number of days from full bloom to harvest (fruit development period) was 149 d for ‘Eylul’, 91 d for ‘Aprikoz’, 176 d for ‘Levent’, and 81 d for reference cultivar Dilbay.

**Fruit size, color, and flesh firmness.** The average fruit weights of ‘Eylul’ and its parents ‘Levent’ and ‘Aprikoz’ are 32.5, 21.4, and 68.7 g, respectively. Flesh firmness is 2.7 kg·cm⁻² in ‘Eylul’, 2.4 kg·cm⁻² in ‘Aprikoz’, and 2.8 kg·cm⁻² in ‘Levent’ (Table 2). The skin color of ‘Eylul’ is yellow, with a red blush encompassing only 5% to 10% of the fruit surface area. Red blush was not observed on ‘Aprikoz’, whereas ‘Levent’ typically exhibits only 15%. However, on the fruit of the reference cultivar Dilbay, more than 30% of the fruit surface is covered in red blush. Skin ground color of ‘Eylul’, as measured with a Minolta CR-300 Chroma Meter, was observed in “L,” “a,” and “b” values averaging 73.61, 10.26, and 41.87, respectively, with associated hue angle being 76.23°, whereas these same average values for flesh color were 86.40, 5.74, and 36.61, respectively, with an associated hue angle of 81.09°.

**Availability**

‘Eylul’ is available for propagation and the cultivar has been registered by the Cultivar Registration and Seed Certification Center of Turkish Ministry of Food, Agriculture and Livestock on 3 Nov. 2017. The mother tree of ‘Eylul’ is located on the Battalgazi Campus of Inonu University in Malatya, Turkey. Limited quantities of budwood are usually available on request for all trial or research purposes, including the breeding of new cultivars.

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Table 2. Comparative results of tree and fruit characteristics of ‘Eylul’, its parents ‘Aprikoz’ and ‘Levent’, and the new early-ripening Turkish cultivar Dilbay.

| Characteristics       | Eylul   | Aprikoz | Levent | Dilbay |
|-----------------------|---------|---------|--------|--------|
| Tree                  | Vigorous| Very high| Vigorous| Vigorous |
| Flower density        | High    | Self-compatible | Medium | Self-compatible |
| Fruit set (1–9)       | 7       | 9       | 6      | 8      |
| Yield (1–9)           | 6       | 9       | 5      | 7      |
| Fruit                 | Days from full bloom to maturity | 149 ± 3.54 | 91 ± 1.25 | 176 ± 5.30 | 81 ± 0.82 |
| Fruit size (g)        | 32.5 ± 1.47 | 68.7 ± 3.92 | 21.4 ± 0.88 | 59.2 ± 3.12 |
| Firmness (kg·cm⁻²)    | 2.7 ± 0.25 | 2.4 ± 0.53 | 2.8 ± 0.25 | 2.7 ± 0.75 |
| Skin color            | Yellow  | Light yellow | Yellow | Light orange |
| Flesh color           | Cream   | Light yellow | Yellow | Light orange |
| Percent red blush     | 10 ± 3.55 | — | 15 ± 5.81 | 30 ± 12.45 |
| Total soluble solid (%) | 17.9 ± 0.96 | 15.5 ± 1.22 | 20.5 ± 2.35 | 15.1 ± 1.47 |
| Titratable acidity²   | 0.58 ± 0.07 | 0.49 ± 0.09 | 0.58 ± 0.08 | 0.76 ± 0.07 |
| Kernel bitterness     | Sweet   | Sweet     | Sweet  | Sweet  |
| PPV resistance alleles| Not detected | Not detected | Not detected | Not detected |

²1 = the least and 9 = the most.
31 = the least and 9 = the most.

PPV = Plum pox virus.

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Fig. 1. Fruit of ‘Eylul’ apricot (each square edge represents 10 mm in length).