‘Vergina’ Pear

Georgios Syrigiannidis1 and Thomas Sotiropoulos2

Pomology Institute (N.A.G.RE.F.), P.O. Box 122, Naoussa, 59200, Greece

Antonios Petridis

School of Agriculture, Aristotle University of Thessaloniki, Thessaloniki, 54124, Greece

Ioannis Theros

Laboratory of Pomology, School of Agriculture, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece

Additional index words. cultivar description, fruit breeding, Pyrus communis

‘Vergina’ is a late July-maturing pear (Pyrus communis L.) cultivar originating from a cross between the pear cultivars Kristali and Santa Maria. Annual fruit production per tree of ‘Vergina’ grafted on quince BA 29 rootstock averaged 53 kg and was higher than ‘Kalliopi’ (Table 1). The experimental trees of both cultivars were of the same age, planted at distances 4 × 2 m apart and trained as a palmette. Bark color of 1- to 2-year-old shoots is gray. Branch lenticels are oval, 0.4 to 0.6 mm in diameter, and gray–white. Mixed buds are on 1-year-old shoots and spurs generally are found on 2-year-old or older shoots.

Leaves. The leaves are oval with the following dimensions: length of 80 mm, width of 67 mm, leaf area of 4000 mm², and leaf perimeter of 257 mm. Leaf measurements were made with a portable leaf area meter, AM 300 (ADC Bioscientific Ltd., Hertfordshire, U.K.). Leaf surfaces are smooth, the dorsal surface is shiny, and there is no pubescence. The petiole is yellow–green, 40 mm long, and 1.7 mm wide (Fig. 1). Leaf fall occurs in late November.

Flowers. The trees require cross-pollination. Flowering period starts in the last 2 d of March (mean of 10 years) and has good overlap with that of ‘Coscia’, ‘Gentile Bianca’, and ‘Collecte’, although compatibility with these has not been tested. Flowering of the cultivars Santa Maria and Kristali starts at 6 Apr. and 28 Mar., respectively. Cross-compatibility studies showed that suitable pollinizers of ‘Vergina’ include the Greek cultivars Syrigiannidis (Syrigiannidis et al., 2010) and Kalliopi (Sotiropoulos et al., 2009). Full bloom of ‘Vergina’ is 2 d later than the cultivars Syrigiannidis and Kalliopi. Flowers have white oval petals and pink anthers. Stamens are white and 4 to 5 mm long. The pistils are 4 to 5 mm in length, rounded, fused at the base, and they are at the same height as the stamens. The pollen is yellow.

Diseases. The trees are not tolerant of fire blight incited by Erwinia amylovora (Burr.) Winslow et al. (Syrigianidis, 1992).

Fruits. Fruits are pyriform with a mean equatorial diameter of 44 mm, mean length of 64 mm, and mean fruit weight of 135 g (Table 1; Fig. 2). Fruit weight and fruit length of ‘Vergina’ was higher than ‘Kalliopi’, whereas fruit diameter was lower. The flesh is yellow–white, juicy, flavorful, aromatic, and with very few stone cells. The diameter of the core is 2.2 cm. The skin is smooth, free of russetting, and has no tendency to become waxy in storage. The pedicel of the fruit is green and has no tendency to become waxy in storage. The pedicel of the fruit is green and has no tendency to become waxy in storage.
Table 1. Productivity, fruit weight, fruit equatorial diameter, and fruit length of the pear cultivars Vergina and Kalliopi over a period of 4 years.

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Productivity (kg/tree)</th>
<th>Fruit wt (g)</th>
<th>Fruit diam (mm)</th>
<th>Fruit length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vergina</td>
<td>53 a&lt;sup&gt;x&lt;/sup&gt;</td>
<td>135 a</td>
<td>44 b</td>
<td>64 a</td>
</tr>
<tr>
<td>Kalliopi</td>
<td>45 b</td>
<td>121 b</td>
<td>50 a</td>
<td>45 b</td>
</tr>
</tbody>
</table>

<sup>x</sup>Means followed by the same letter in the same column are not significantly different (Fisher’s F; P < 0.05).

In conclusion, ‘Vergina’ is a promising summer pear cultivar.

**Availability**

‘Vergina’ pear has been registered in the official list of the Greek Ministry of Agriculture in 1991. We have not yet applied for a protection according to UPOV (International Union for the Protection of New Varieties of Plants) guidelines.

**Literature Cited**


**Table 2. Total soluble solids, flesh firmness, ascorbic acid, total titratable acidity, total antioxidant capacity, and total phenols in fruits of the pear cultivars Vergina and Kalliopi over a period of 4 years.**

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Total soluble solids (%)</th>
<th>Firmness&lt;sup&gt;y&lt;/sup&gt; (kg/cm&lt;sup&gt;2&lt;/sup&gt;)</th>
<th>Ascorbic acid&lt;sup&gt;y&lt;/sup&gt; (mg·g&lt;sup&gt;-1&lt;/sup&gt; FW)</th>
<th>Total titratable acidity&lt;sup&gt;y&lt;/sup&gt; (%)</th>
<th>Total antioxidant capacity&lt;sup&gt;y&lt;/sup&gt; (µmol AAE/g FW)</th>
<th>Total phenols&lt;sup&gt;y&lt;/sup&gt; (mg GAE/g FW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vergina</td>
<td>13.90 a&lt;sup&gt;x&lt;/sup&gt;</td>
<td>4.74 a</td>
<td>0.054 b</td>
<td>0.91 a</td>
<td>8 b</td>
<td>0.475 b</td>
</tr>
<tr>
<td>Kalliopi</td>
<td>14.50 a</td>
<td>4.85 a</td>
<td>0.114 a</td>
<td>0.93 a</td>
<td>11 a</td>
<td>0.555 a</td>
</tr>
</tbody>
</table>

<sup>x</sup>Means followed by the same letter in the same column are not significantly different (Fisher’s F; P < 0.05).

and ‘Tosca’ because from our data it is concluded that they do not differ in terms of fruit size, storage life, or several quality parameters such as firmness, total soluble solids, and acidity. Two harvests are required under moderately cropped conditions with a 1-week interval. Measurements reported were from samples taken at the first harvest. When harvested, the skin is green with red blush where exposed to sunlight. With regard to harvest maturity indices, the most commonly used by the growers are the total soluble solids content and the change of ground color from green to light yellow. Mature fruits of the cultivars Kalliopi and Vergina were evaluated immediately after harvest. Total soluble solids (measured with the Atago PR-1 electronic refractometer; Atago Co. Ltd., Tokyo, Japan), flesh firmness (as measured by an Effegi penetrometer using an 8-mm probe; Effegi, Milan, Italy), and total titratable acidity (expressed as malic acid) of the juiced flesh as described by Koukourikou-Petridou et al. (2007) were not different among cultivars (Table 2). However, ascorbic acid content (measured by oxalic acid 1%), total antioxidant capacity, and total phenols (Singleton et al., 1999) of ‘Vergina’ were lower than ‘Kalliopi’ (Table 2). Total phenols were expressed as milligrams gallic acid equivalents per gram fresh weight (FW). Sample extracts were analyzed for their antioxidant activity by the ferric-reducing antioxidant power (FRAP) assay (Benzie and Strain, 1996) using a Camspec M106 spectrophotometer (Camspec Analytical Instruments Ltd., Leeds, U.K.) at 593 nm. The FRAP values of the samples were expressed as µmol L-ascorbic acid equivalents per gram FW. After harvest, fruits can be kept at room temperature for ≈2 weeks or they can be stored successfully for up to 2 months in air at 1 °C (Syrgiannidis, 1992).

In conclusion, ‘Vergina’ is a promising summer pear cultivar.