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Sorbopyrus auricularis (Knoop) Schneider An Unusual Pear Relative

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Abstract

Sorbopyrus auricularis (Knoop) Schneider is a cross between *Pyrus communis* L. and *Sorbus aria* (L.) Crantz. This intergeneric hybrid is represented by a single clone in arboretums and botanic gardens of Europe and North America, but has not been widely grown for its fruit. The plant has been brought into the United States several times since 1920, from different countries and with different plant names. These introductions all appear to be identical. The tree is cold hardy and resistant to scab, and although a shy bearer of small pear-like fruit it has found favor as a novelty crop with amateur fruit growers.

Sorbopyrus is an intergeneric hybrid which originated sometime before 1620 (6, 8), probably in Europe, and has since been propagated as a clone. The name ***Sorbopyrus*** was derived from the two parents, mountain ash *(Sorbus)* and pear *(Pyrus)*. In his Manual of Cultivated Trees and Shrubs, Alfred Rehder (8) listed this plant as *X Sorbopyrus auricularis* (Knoop) Schneider, with the initial "X" indicating an intergeneric hybrid. Hillier (6) calls this plant the "Bolwyller Pear."

Sorbopyrus is a presumed hybrid between *Pyrus communis* L. and the simple leafed *Sorbus aria* (L.) Crantz., or European White Beam (1, 6, 8). It is not derived from a Mountain Ash with compound leaves like the widely planted *Sorbus aucuparia* L. *Sorbopyrus* is represented in various arboreta and botanic gardens around the world, but has not been widely cultivated for its fruit. Cuttings imported by the Arnold Arboretum around 1917 (PI 44048) were from a specimen "originally grown in Paris in 1834, where it formed a tree more than 30 feet high with a rounded bushy head" (3). Scions were also introduced from the Paris Museum of Natural History in 1920 (PI 51702) to the US Plant Introduction Station in Glenn Dale, Maryland (4). A more recent introduction from Belgrade, Yugoslavia in 1959 (PI 260199) was listed as pear cultivar 'Shipova' (5), but is identical to the Paris *Sorbopyrus*. 'Shipova' was said to be a fall ripening pear with small fruit and apple-like leaves (5). *Sorbopyrus* scions (PI 318839) were also received from the Pomology Research Institute in Skierniewice, Poland in 1967 (7). The "pear" cultivar 'Smokvarka' (PI 502176) imported from Skopje, Macedonia and two "pear" hybrids (PI 506381 and PI 506382) collected at a research station in Baciu, Romania in 1980, also appear to be *Sorbopyrus* clones, but have not yet fruited in the United States (R. Bell, personal communication).

Trees of *Sorbopyrus* (PI 318839) and 'Shipova' (PI 260199) have been growing at the National Clonal Germplasm Repository (NCGR) in Corvallis, Oregon since 1983 These two clones are indistinguishable in growth habit, foliage form, fruit characteristics and phenology. *Sorbopyrus* is slow to begin bearing, and has never been extremely productive in Corvallis. Fruits (Figure 1) are turbinate, 4-5 cm long and wide, and ripen in mid-August. They are about the size of a plum or large apricot, slightly pear shaped, and ripen to a deep yellow with an attractive orange-red blush when exposed to the sun. Fruit texture is coarser than that of a pear, sweet and pleasant tasting. The lack of viable seeds, which appear as shriveled up seed coats, attest to a

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hybrid origin. Decaisne (2) obtained only 14 fully formed seeds from 273 fruit, and these produced very dissimilar seedlings. Tree habit is strikingly different from that of *Pyrus communis*. The crown of the tree is open, and secondary branches are almost at right angles to the primary scaffold limbs. It has been described as "having the habit of an apple, but with smooth bark like that of mountain ash" (2). The simple leaves are apple-like in their pubescence, and are coarsely serrate, especially near the tips. A color plate of *Pyrus malifolia* Spach. [=*X Sorbopyrus auricularis* (Knoop) C. Schneider] growing at the Paris Museum of Natural History (2) exactly matches the fruit and foliage of trees growing at NCGR, Corvallis. The tree flowers about 15 days later than the majority of cultivated pears (2).

Like the *Sorbus* parent, *Sorbopyrus* is quite hardy. Rehder (8) lists it as zone 5. It seems to be quite resistant to pear scab (*Venturia pirina* Aderh.). In years when unsprayed 'Bartlett' pears were completely covered with scab in Corvallis, nearby *Sorbopyrus* fruit had only a few scattered spots. The 'Shipova' clone succumbed to fire blight, however, in West Virginia (R. Bell, personal communication).

Taxonomists have reassigned *Sorbopyrus* many times during the past 400 years. Synonyms cited by Wiersema (9) are listed in Table 1. A type reputed to be more pear-like, with fruit to 4 cm across is listed by Rehder as *Sorbopyrus auricularis* var. *bulbiformis* (Tatar) C. Schneider (8). We have measured a few fruits over 6 cm across at NCGR. The plants introduced from Paris were labeled *X Pyrus malifolia* Spach (3, 4) which Wiersema (9) notes is "a dubious synonym of *X Sorbopyrus auricularis* var. bulbiformis." Hillier (6) suggests that the "Bulbiformis" variety was probably a seedling of *X Sorbopyrus auricularis* which originated in Paris before 1834, and has larger leaves, flowers and fruit than the type species. Darrow (1) indicates that *S. auricularis* is a triploid.

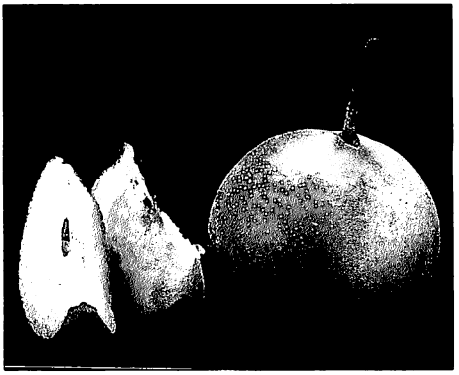

Figure 1. Fruit of *X Sorbopyrus auricularis*. Photo by Scott Bauer, courtesy of USDA Agricultural Research Service.

At the USDA-ARS-NCGR-Corvallis, we have grown *Sorbopyrus* on pear rootstock (OHxF 333), and are investigating the effect on pear cultivars when it is used as an interstock. Several mail order nurseries are offering this unusual fruit as a novelty crop for home orchards.

Table 1. Synonyms for *X Sorbopyrus auricularis* (Knoop) C. Schneider.

Azarolus pollvilleriana Borkh.	Pyrus pollveria L.
Lazarolus pollveria Medikus	*Pyrus pollvilla* C. Gmelin
Pyrus bollwylleriana DC.	*Pyrus pollwilleriana* J. Bauhin ex Decne.
Pyrus bollwylleriana DC. ex Hausskn.	*Pyrus tomentosa* Moench
Pyrus irregularis Muenchh.	*X Sorbopyrus auricularis* var. *bulbiformis* (Tatar.) C. Schneider
Pyrus malifolia Spach	*X Sorbopyrus malifolia* (Spach) C. Schneider ex Bean

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Nursery Treatments Affect Outplanting Performance

One year old sweet cherry seedlings and hardwood cuttings of 'Colt' were lined out in a nursery and given supplementary nitrogen fertilizer and/or irrigation. Irrigation increased leaf conductance and leaf water potential in both genotypes but nitrogen did not affect these variables. In the following year, after outplanting, the residual effect of irrigation reduced leaf conductance compared with plants that had received no previous irrigation. Leaf conduct-ance was greater and water potential was lower in the seedlings compared to 'Colt' each year. The greater leaf conductance for seedlings led to greater water use per unit leaf area in this genotype. However, on a whole plant basis, water use was approximately equivalent for each genotype due to a larger total leaf area on 'Colt.' Water availability was the dominant factor in establishing early growth in these genotypes.

From Higgs et al. 1995. J. Hort. Sci. 70(2):235-243.

Relationship of Ca Sprays and Fruit Size

The firmness of small 'Golden Delicious' fruit was higher than average (6-7.5 cm dia.) sized fruit. Application of Ca sprays resulted in higher flesh firmness at the time of harvest in average fruits but showed no significant changes in small ones. However, after 3 weeks of storage, both average and small fruits were showing better retention of firmness by Ca treatment. Thus, preharvest treatment of Ca may not necessarily always lead to firmer fruits at the time of harvest but may result in better retention of firmness during storage. The differences in behavior of average and small fruits to Ca applications seem to be associated with the Ca content of covalently bound pectin fraction of the walls.

From Siddiqui and Bangerth. 1995. J. Hort. Sci. 70(92):263-269.