

‘Meishuo’: An Early-maturing Apricot Cultivar with Large Fruit from ZFRI-CAAS

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Native to China, apricots (*Prunus armeniaca* L.) have a long cultivation history, rich germplasm resources, and various resource types (Zhao et al., 2005). Apricots have an attractive appearance, unique flavor, pronounced nutritional value, and relatively early maturity, making them important to the early summer fruit markets (Chen et al., 2015; Wang et al., 2003). Local apricot cultivars in China usually have good flavor, but the fruit is small in size, which causes poor, unstable yield, while introduced apricot cultivars like ‘Gold Sun’ and ‘Katy’ are highly productive, but lack the sweetness and aroma of Chinese traditional cultivars, which cannot meet the needs of the market (Zhao et al., 2016).

‘Meishuo’ is a newly selected, early-maturing apricot cultivar suitable for fresh consumption. The fruit matures in late May in Zhengzhou and the fruit development period is about 63 d. The chilling requirement is about 637 h in Zhengzhou. The fruits are near globose in shape and have a pleasant golden-yellow peel color with a rosy red blush on the sunny side. The flavor is sweet-sour with a strong aroma, and the soluble solid content and total acid content are $15.1 \pm 0.6\%$ and $1.59 \pm 0.21\%$, respectively. The average fruit weight of ‘Meishuo’ apricot is 117.6 ± 9.6 g and the maximum fruit weight is 184.3 g, making it highly productive.

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Origin

‘Meishuo’ was selected from hybrids of the cross between the sweet ‘Mixiang’ apricot cultivar (female parent) and the large-fruit ‘Katy’ apricot cultivar (male parent). ‘Mixiang’ apricot is a volunteer seedling discovered in Xinmi City, Henan Province, China, and is characterized as sweet and fragrant. ‘Katy’ apricot was introduced into China from California, United States, in 1991 by Shandong Institute of Pomology. It features large fruit size, early maturation, and high productivity.

These parental apricots were hybridized in 2005 at the apricot germplasm repository of ZFRI-CAAS. Initially 137 hybrid seeds were harvested from the cross, with 68 seedlings surviving after germination and

Description

Tree. The tree of ‘Meishuo’ has considerable vigor with a semicircle canopy and semiopening gesture. The trunk is thick and grey-brown in color. Perennial shoots are grey in color, and 1-year-old shoots are thick and strong, red brown in color, with smooth surfaces and no pubescence. The internode is about 1.9 ± 0.2 cm long. The lenticels are great in number, medium in size, grey in color, and nearly round in shape. The vegetative growth of the tree lasts about 220 d. The chilling requirement is about 637 h in Zhengzhou.

Leaf. The leaves are glossy, deep green in color, nearly round in shape, with heart-shaped bases, short and acuminate apex,



Fig. 1. Fruits of ‘Meishuo’ apricot.

Table 1. Comparison of fruit economic traits between 'Meishuo' and 'Katy' apricot.

Cultivar	Sampling years	Ripening date	Avg fruit wt (g)	Fruit shape	Soluble solid content (°Brix)	Total soluble sugar content (%)	Reducing sugar content (%)	Titrateable acid content (%)	Vitamin C content (mg/100 g)	Pectin content (%)	Chilling requirement (h)
Meishuo	2012–16	24–31 May	117.6 ± 9.6	Near globose	15.1 ± 0.6	7.35 ± 0.19	2.84 ± 0.07	1.59 ± 0.21	11.5 ± 1.3	1.46 ± 0.15	637
Katy	2012–16	3–12 June	95.5 ± 6.3	Oblong globose	12.7 ± 0.4	6.82 ± 0.15	2.71 ± 0.11	1.04 ± 0.09	7.73 ± 1.0	1.26 ± 0.14	706

Data were obtained from three replicates and each replicates comprised three uniform fruits, and was expressed in mean ± standard deviation.

and crenate margins. They are 8.3 ± 0.3 cm in length, 6.2 ± 0.3 cm in width, and 0.03 ± 0.01 cm in thickness. The main vein is yellow, while the lateral veins are yellow-green in color. The petioles are dark red in color and 1.8 ± 0.2 cm in length. There are 3–4 nectaries, medium in size and round in shape. In Zhengzhou, Henan Province, China, the leaf buds begin to push in late March and leaves start expanding in early April. The leaves start falling in early November and defoliation ends in mid-November.

Flower. The flowers comprise five pink-white petals, one pistil, and 32–41 stamens. Floral bud formation ability is strong for the 'Meishuo' apricot. The self-pollination rate of 'Meishuo' is very low and it is suggested to be a self-incompatible cultivar. The floral buds break out in early March, start flowering in late March, full bloom at the end of March, and flowering lasts 5–7 d.

Fruit. The fruit development period of 'Meishuo' apricot is about 63 d, and the maturity date is around the end of May. The fruit shape is near globose and is beautiful in appearance (Fig. 1). The fruit of 'Meishuo' is extremely large in size: the average fruit weight is 117.6 ± 9.6 g, and the maximum fruit weight is 184.3 g (Table 1). The fruit ground color is golden yellow and is rosy red on the sunny side, and the percentage of fruit blush is about 35% to 60%. The peel is of medium thickness and covered with pubescence. The peel can be easily separated from pulp. The flesh is yellow in color, thick and delicate in texture, with low fiber content, and the edible rate can reach up to 95.3%. 'Meishuo' apricot is an attractive fruit with

abundant juice, pleasant sweetness and sourness, and an intense fruity aroma. The content of soluble solids is about 15.1 ± 0.6%, the total soluble sugar content is 7.35 ± 0.19%, the reducing sugar content is 2.84 ± 0.07%, the total acid content is 1.59 ± 0.21%, the pectin content is 1.46 ± 0.15%, and the vitamin C content is 11.5 ± 1.3 mg/100 g. The 'Meishuo' apricot is a freestone variety, and the stone is oblong in shape. The average dry stone weight is ≈3.3 ± 0.5 g. The vertical diameter, transverse diameter and lateral diameter of the stone are 3.4 ± 0.4 cm, 2.6 ± 0.3 cm, and 1.1 ± 0.1 cm, respectively. The kernel is bitter in flavor, flat in shape, and the average dry kernel weight is about 0.4 ± 0.2 g. The fruits can be stored at room temperature for about 5–7 d.

Growth and fruiting habits. In Zhengzhou, 10-year-old trees are about 3.6 m in height, with a 3.3 m canopy diameter and a 65.8 cm trunk circumference. The average length and diameter of annual shoots are 53.6 cm and 0.76 cm, respectively. The fruits are mainly borne on bouquet spurs and short fruiting branches. For grafted seedlings of 'Meishuo' apricot, flowering starts at the second year and high yield period comes at the fourth year after grafting. The yield of 5-year-old tree is more than 40 kg per tree. The average yield is estimated to be 33,000 kg per hectare at full fruit period. Suitable pollinizers like 'Zaojinyan' and 'Gold Sun' apricots are needed with a ratio 1:4 to 6 between pollinizers and the 'Meishuo' apricot.

In conclusion, the 'Meishuo' apricot is an early-maturing cultivar with large fruit. It

exhibits strong suitability to adverse circumstances. It is highly and stably productive, yielding high-quality fruits, which would take a strong place in the early summer fruit market. It can be cultivated in the Yellow and Huaihe River basins, and in the areas north of Qinling Mountain.

Availability

'Meishuo' is the property of Zhengzhou Fruit Research Institute, Chinese Academy of Agricultural Sciences (ZFRI-CAAS), and has been approved by the Approval Committee for Improved Varieties of Forest Tree of Henan Province (No. Henan S-SV-AV-010-2017). Limited quantities of budwood are available upon request for all trial and research purposes and for commercial propagation.

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