果 树 学 报 2026,43(8):2282-2285
Journal of Fruit Science

DOI:10.13925/j.cnki.gsxb.20260035

早熟砂梨新品种沪晓的选育

王晓庆,骆 军*,施春晖,蒋 爽,张学英

(上海市农业科学院林木果树研究所·上海市设施园艺技术重点实验室,上海 201403)

摘 要:沪晓是以早生新水为母本、黄花为父本杂交选育出的早熟砂梨新品种。果实圆形或扁圆形,平均单果质量250 g;果皮褐色,套袋后呈黄褐色,外观美;果心大小中等,果肉脆、酸甜适口,肉质中细,汁液多,石细胞含量少,可溶性固形物含量(*w*)12.2%~13.1%,品质上等。在上海地区,该品种盛花期为3月下旬,花期约10 d,花期早于早生新水,与黄花、翠冠相近;花粉量大,花粉萌发率约85%,是翠冠良好的授粉品种,坐果率高。果实7月中下旬成熟,果实发育期约115 d;果实挂树期可持续至8月中旬。幼树生长旺盛,成龄树树势中强;短果枝花芽易形成。6年生树每666.7 m^2产量可达1550 kg,适应性好,抗病性较强,注意适当防治病虫害。

关键词:梨;新品种;沪晓;早熟

中图分类号:S661.2 **文献标志码**:A **文章编号**:1009-9980(2026)08-2282-04

A new early-ripening pear cultivar Huxiao

Wang Xiaoqing, Luo Jun*, Shi Chunhui, Jiang Shuang, Zhang Xueying

(Forest and Fruit Tree Research Institute, Shanghai Academy of Agricultural Sciences/Shanghai Key Lab of Protected Horticultural Technology, Shanghai 201403, China)

Abstract: Huxiao is a new early-ripening sand pear cultivar selected from the cross of Zaosheng Xinshui × Huanghua. The hybridization was carried out in 2006, followed by bowl seedling cultivation and transplantation in 2007. A total of 246 hybrid plants were obtained and planted in 2009 at the Jinshan Fruit Tree Experimental Station of the Shanghai Academy of Agricultural Sciences. The plant with the number pz16-13 had been selected as superior individual plant since 2014, and regional adaptability trials were conducted at three sites including Jinshan, Fengxian and Chongming district in Shanghai from 2015 to 2020. This cultivar was characterized by early maturity, beautiful fruit appearance, good quality, good adaptability, large numbers of pollen grains per anther, and high pollen germination rate. It was named Huxiao in 2021 and applied for national plant variety rights. In 2024, it passed the field investigation of the variety and granted national plant variety rights authorization in 2025 with variety right No.: CNA20211008812 as well as certification by the Shanghai Forest Tree Fine Variety Approval Committee with the variety No.: S-SV-PP-002-2024. Huxiao young trees exhibit vigorous growth, while adult trees show moderate to strong vigor with the semi-open posture. It has moderate branching ability and strong germination rate. One-year-old shoots are upright with an average internode length of 4.31 cm and a dark brown color on the sun-facing side. Vegetative buds are sharp-tipped and appressed to the shoot. The flower buds are distributed as axillary flower buds and short fruiting flower buds, with a length of 12.76 mm and a long elliptical shape. The young shoots and leaves are light red, and the mature leaves are distinguishable by their sharp serrated leaf margins, rounded leaf bases, and acuminate leaf tips. In Shanghai area, flower buds sprout in early March, and the peak flowering period is in late March, with a flowering period of about 10 days. There are mostly 5 petals of flowers, with pink red an-

收稿日期:2026-01-14 **接受日期**:2026-02-09

基金项目:上海市农业科学院卓越团队新兴学科项目沪农科卓[(2025)024]

作者简介:王晓庆,女,副研究员,硕士,主要从事梨树育种与栽培研究。Tel:021-52235473,E-mail:wxqshirley666@163.com

*通信作者 Author for correspondence. Tel:021-52235473,E-mail:luojun@saas.sh.cn

thers and higher stigma than anthers. The flowering period of Huxiao was earlier than that of Zaosheng xinshui, similar to that of Huanghua, Cuiguan. Numbers of pollen grains per anther was large, and the pollen germination rate was high with about 85%. The fruit setting rate of reciprocal crosses between Huxiao and Cuiguan exceeded was 86%. Under natural pollination, the fruit set rate is high, reaching 98.8% for the inflorescence fruit setting rate and 84.3% for the flower fruit setting rate. The mature period of Huxiao is in mid-late July. The fruit shape is globose or oblate with an average weight of 250 g per fruit, a longitudinal diameter of 6.93 cm, and a transverse diameter of 7.89 cm. The skin is brown and has a nice appearance; the fruit core is medium-sized, and the flesh is crisp, sour and sweet, with abundant juice and few stone cells. The fruit contains 12.2%−13.1% soluble solids content, 42.93 $mg \cdot g^{-1}$ sucrose content, 13.61 $mg \cdot g^{-1}$ glucose content, 28.13 $mg \cdot g^{-1}$ fructose content, 26.92 $mg \cdot g^{-1}$ sorbitol content, and 2.45 $mg \cdot g^{-1}$ malic acid content. The fruit development period is about 115 days, from blooming in early April to maturity in mid-late July in Shanghai. The fruit hanging period on tree can last until mid-August, holding good quality, and defoliation period is in late November. Compared with Zaosheng xinshui, Huxiao has a similar maturity period. It features an attractive appearance, a long shelf life, excellent storage and transport durability, strong adaptability, high and stable yields, and robust disease resistance. Compared to Huanghua, it matures earlier and offers superior quality. It is a good pollination variety for Cuiguan, producing abundant pollens and achieving a high fruit-set rate. Huxiao also readily develops short fruiting buds. Regional experiments have shown that the yield of 6-year-old Huxiao trees can reach 1550 kg per 666.7 m^2, with an average soluble solids content of 12.8%. For many years, the trees have grown well, with strong disease resistance and good adaptability. This variety is suitable for cultivation in regions where sand pears thrive, such as the Yangtze River Basin. Orchards should be selected in flat terrain with high organic matter content, free from sources of air and water pollution. The recommended planting density is 80−160 trees per 666.7 m^2, and the tree shape is mainly composed of dispersed layered or central leader with fruit branches directly. The recommended plant spacing is 1−2 m, and the row distance is 4 m. Huanghua and Cuiguan are suitable pollination varieties. Conventional cultivation involves cultivating a reasonable skeleton for young trees, quickly forming a crown, allowing the production tree to open its corners for light transmission, configuring strong and stable fruiting branches, and balancing the tree's vigour by supporting the weak and suppressing overly vigorous shoots. The intensive planting cultivation mode emphasize early-stage management, which promotes the rapid formation of the main stem in the current year, and promotes lateral branches sprouting by carving buds during the germination period in the following year, cultivating a compact tree shape for central leader with fruit branches directly. Huxiao is a medium-sized pear variety that offers high economic returns and serves as an excellent pollinator for the Cuiguan variety, effectively replacing Huanghua. However, failure to thin the fruit in a timely manner often results in undersized fruit; therefore, timely blossom and fruit thinning is essential. During critical stages of fruit development, adequate water and fertilizer must be supplied to promote fruit expansion and enhance quality. Additionally, attention should be paid to ensuring good ventilation and light exposure to prevent the formation of blemishes on the fruit surface.

Key words: Pear; New cultivar; Huxiao; Early-mature

梨是全球性主栽果树，我国为梨果第一生产大国[1]，其产量在国内果树中仅次于苹果与柑橘，位列第三[2]。上海地区，梨树栽培历史悠久，是四大主栽果树之一。梨普遍存在自交不亲和性，在生产上需配置授粉树[3]。在上海及周边地区主栽品种翠冠主要以清香、黄花、早生新水作为授粉品种。清香、黄花成熟期晚，错失市场早期优势，经济效益欠佳；早生新水虽成熟较早，但花粉量少、萌发率低，授粉效

果不理想。因此，培育早熟、优质且适合作为翠冠授粉品种的砂梨新品种，对提升产区经济效益具有重要意义。为此，上海市农业科学院通过杂交育种途径，经过连续多年的选育，成功培育出7月中下旬成熟的砂梨新品种沪晓（图1）。

图1 早熟砂梨新品种沪晓

Fig. 1 A new early-ripening pear cultivar Huxiao

1 选育过程

沪晓母本为早生新水（新水实生后代，7月下旬成熟，褐皮，肉质脆嫩，品质好），父本为黄花（黄蜜与三花的杂交后代，8月下旬成熟，褐皮，大果型）。2006年配置杂交组合，2007年进行营养钵育苗并移栽，2009年定植于上海市农业科学院金山果树试验站，共获得246株杂种苗。2014年，编号pz16-13的单株被选为优系；2015年，该优系陆续在上海市金山区、奉贤区、崇明区等地开展区域试验。该优系表现出早熟、外观美、品质优、适应性强、花粉量大、花粉萌发率高等优良特性。2021年正式命名为沪晓，并申请国家植物新品种权；2024年通过现场考察；2025年获国家植物新品种权（品种权号：CNA20211008812），同年通过上海市林木良种审定委员会审定（良种编号：沪S-SV-PP-002-2024）。

2 主要性状

2.1 植物学特征

幼树生长旺盛，成龄树树势中强，树姿半开张。1年生枝直立，节间长4.30 cm，阳面暗褐色，皮孔密到极密。叶芽顶端锐尖、贴生；花芽包括腋花芽和短果枝花芽，短果枝花芽长12.76 mm，长椭圆形。嫩梢及嫩叶淡红色，成熟叶片叶缘锐锯齿状，叶基圆形，叶尖渐尖。花多为5瓣，花药粉红色，柱头高于花药。

2.2 果实经济性状

果实圆形或扁圆形，平均单果质量250 g，纵径6.93 cm、横径7.89 cm；果皮褐色，外观美；果心大小中等，果肉脆、酸甜适口，汁液多，石细胞含量少，可溶性固形物含量（w，后同）12.2%~13.1%（表1），蔗糖含量42.93 mg·g^{-1}，葡萄糖含量13.61 mg·g^{-1}，果糖含量28.13 mg·g^{-1}，山梨醇含量26.92 mg·g^{-1}，苹果酸含量2.45 mg·g^{-1}。与早生新水相比，二者成熟期相近，但沪晓果实外观美，货架期更长，耐贮运性更好，且适应性强，丰产稳产，抗病性更强。与黄花比，沪晓成熟早，果实品质优，花粉量大，坐果率高，是翠冠的优良授粉品种。

2.3 生长结果习性

成枝力中等，萌芽力强。花芽较易形成，坐果率高，花序坐果率98.8%，花朵坐果率84.3%。区域试验表明，6年生树每666.7 m^{2}产量可达1550 kg，树体生长良好，抗病力较强，适应性好。

2.4 物候期

在上海地区，该品种于3月初花芽萌动，3月下旬为盛花期，花期约10 d，早于早生新水，与黄花、翠冠相近；花粉量大，花粉萌发率约85%，与翠冠正反交坐果率达86%以上。果实于7月中下旬成熟，果实发育期约115 d，属早熟品种。果实挂树期可持续到8月中旬，11月中旬开始落叶。

3 栽培技术要点

3.1 建园与栽植

宜选择地势平坦、有机质含量高、无空气及水源污染的园地建园。栽培密度以每666.7 m^{2}栽植80~160株为宜，树形以疏散分层形、主干形为主，株行距（1~2）m×4 m。可选用黄花、翠冠作为授粉品种。

3.2 树体管理

常规栽培模式下，幼树期应重点培养合理的树体骨架，促进树冠迅速形成；结果期应注重开角透光，配置健壮稳定的结果枝组，扶弱抑强，均衡树势。采用主干形密植栽培时，应重视前期管理，定植当年促使主干迅速形成，翌年萌芽期通过刻芽促进侧枝抽生，培养紧凑树形。

3.3 花果管理

沪晓短果枝花芽易形成，需及时疏花疏果以控制负载量。冬季修剪时，疏除过多花芽；花前疏除花

表1　沪晓和早生新水果实品质比较

Table 1　Comparison of fruit characters between Huxiao and Zaosheng Xinshui

品种 Cultivar	年份 Year	果形 Fruit shape	平均单果质量 Average single fruit mass/g	肉质 Flesh texture	w（平均可溶性固形物） Average soluble solid content/%	成熟期 Ripening date
沪晓 Huxiao	2020	圆形或扁圆形 Globose or oblate	269	脆、中细、酸甜、汁多 Crisp, fine, sour and sweet, rich juice	12.8	7月下旬 Late July
	2021	圆形或扁圆形 Globose or oblate	251	脆、中细、甜酸、汁多 Crisp, fine, sweet and sour, rich juice	12.5	7月中下旬 Mid-late July
	2022	圆形或扁圆形 Globose or oblate	234	脆、中、甜酸、汁多 Crisp, fine, sweet and sour, rich juice	13.1	7月中下旬 Mid-late July
	2023	圆形或扁圆形 Globose or oblate	251	脆、中细、酸甜、汁多 Crisp, fine, sour and sweet, rich juice	12.8	7月下旬 Late July
	2024	圆形或扁圆形 Globose or oblate	252	脆、中细、甜、淡酸、汁多 Crisp, fine, sweet and sour, rich juice	12.4	7月中下旬 Mid-late July
	2025	圆形或扁圆形 Globose or oblate	270	脆、中、甜酸、汁多 Crisp, fine, sweet and sour, rich juice	12.2	7月中下旬 Mid-late July
早生新水 Zaosheng Xinshui	2020	扁圆形 Oblate	230	松脆、中细、甜、汁多 Soft and crisp, fine, sweet, rich juice	11.9	7月下旬 Late July
	2021	扁圆形 Oblate	260	松脆、细、甜、汁多 Soft and crisp, fine, sweet, rich juice	12.1	7月下旬 Late July
	2022	扁圆形 Oblate	222	松脆、中细、甜、汁多 Soft and crisp, fine, sweet, rich juice	12.3	7月下旬 Late July
	2023	扁圆形 Oblate	248	松脆、中、甜、汁多 Soft and crisp, fine, sweet, rich juice	12.0	7月下旬 Late July
	2024	扁圆形 Oblate	248	松脆、中细、甜、汁多 Soft and crisp, fine, sweet, rich juice	12.8	7月下旬 Late July
	2025	扁圆形 Oblate	243	松脆、中、甜、汁多 Soft and crisp, fine, sweet, rich juice	11.8	7月下旬 Late July

蕾，花后2周疏果，保持适宜的叶果比，以促进果实增大，提高品质。适宜套袋时间为谢花后21~35 d，套袋有利于改善果实外观品质，减少果面污染。

3.4　肥水管理

施肥以腐熟有机肥为主，配施适量化肥。生长前期追施速效肥，氮、磷、钾质量比为1∶0.5∶1，氮肥用量150 kg·hm^{-2}。

3.5　病虫害防治

沪晓适应性好，抗病性较强，注意适当防治病虫害。主要病害：黑星病、梨锈病、黑斑病、褐斑病、轮纹病、炭疽病；主要虫害：梨木虱、梨蚜虫、梨瘿蚊、梨小食心虫、蝽类、螨类、金龟子、刺蛾。应注意药剂的交替使用，避免产生抗药性。采收后需加强病虫害管理，防止早期落叶及二次开花。

3.6　适宜种植区域及注意事项

沪晓适宜在长江流域等砂梨适栽区种植。该品种果个中等，坐果率高，若疏果不及时容易导致果个偏小。生产上应严格疏花疏果，保持适宜叶果比，并在果实生长发育关键期保证肥水充足。同时，注意果园通风透光，避免果面产生斑点。

参考文献 References：

[1] 王文明，贾兵，朱立武，刘文琴，张均明，童秋云，吴宗政，鲍利平 . 砂梨新品种金花早的选育[J]. 果树学报，2024，41(3)：547-551.
Wang Wenming，Jia Bing，Zhu Liwu，Liu Wenqin，Zhang Junming，Tong Qiuyun，Wu Zongzheng，Bao Liping. Breeding of a new sand pear cultivar Jinhuazao[J]. Journal of Fruit Science，2024，41(3)：547-551.

[2] 王文辉，王国平，田路明，李秀根，吕晓兰，张玉星，张江红，曹玉芬 . 新中国果树科学研究 70 年：梨[J]. 果树学报，2019，36(10)：1273-1282.
Wang Wenhui，Wang Guoping，Tian Luming，Li Xiugen，Lü Xiaolan，Zhang Yuxing，Zhang Jianghong，Cao Yufen. Fruit scientific research in New China in the past 70 years：Pear[J]. Journal of Fruit Science，2019，36(10)：1273-1282.

[3] 谢智华，齐开杰，吴俊，吴巨友，殷豪，陶书田，谷超，吴华清，黄小三，张虎平，王鹏，张绍铃 . 自花结实性早熟梨新品种‘宁酥蜜’的选育[J]. 果树学报，2019，36(12)：1780-1782.
Xie Zhihua，Qi Kaijie，Wu Jun，Wu Juyou，Yin Hao，Tao Shutian，Gu Chao，Wu Huaqing，Huang Xiaosan，Zhang Huping，Wang Peng，Zhang Shaoling. Breeding report of a new self-fruitful pear cultivar ‘Ningsumi’ (*Pyrus pyrifolia*) [J]. Journal of Fruit Science，2019，36(12)：1780-1782.