

优质中熟桃新品种紫金玉脆的选育

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摘要: 紫金玉脆是硬质桃有明白桃×霞脆杂交选育出的耐贮运白肉桃新品种。该品种果实圆形, 平均单果质量 273.3 g, 果个大小均匀, 果皮底色白色, 果面着红色或浅红色, 着色面积 70% 以上。果肉白色, 皮下、近核处均无红色素, 肉质硬脆, 纤维少, 风味甜, 可溶性固形物含量(w, 后同) 12.6%, 可滴定酸含量 0.19%, 黏核。花蔷薇型, 有花粉。树体生长健壮, 萌芽率与成枝力中等。南京地区 7 月中旬成熟, 果实发育期 119 d 左右。在江苏徐州、泗阳、常州、南京等地生长结果良好, 适应能力强, 适宜这些地区以及气候条件相似地区种植。一般定植后第 2 年可少量开花, 第 3 年结果, 第 5 年进入盛果期, 丰产性好。

关键词: 桃; 新品种; 紫金玉脆; 硬质; 白肉

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Breeding of a new high-quality and mid-ripening peach cultivar Zijinyucui

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Abstract: Zijinyucui is a new white-fleshed peach variety with storable transportation and high qualities, developed through the hybridization between the firm peach varieties Yumyeoung and Xiacui in 2008. Yumyeoung is a storable, middle-ripening and white fleshed peach cultivar introduced from Korea and Xiacui is an early-July peach cultivar bred by Institute of Pomology, Jiangsu Academy of Agricultural Sciences. The parents are Stony hard. In March, the anthers of Xiacui were collected before open and dried under 25 °C on a peice of clean white paper. Before blooming, the female's corollas were removed and pollinated immediately. The fruits were harvested in early August, and then matured seeds were taken out and disinfected. The seeds were placed in petri dishes and treated in cold storage at (3±2) °C. When the seeds germinated, they were transferred to the culture for cultivation, and transplanted to the hole tray after 1 month. 65 seedlings were obtained finally. In late April, the seedlings were planted in the field. The trees began to bear fruits in the third year, with second year flowering. They entered the full fruiting period in the fifth year, with good yield. The numbered C18-3-3-16 was eventually selected. With the method of identification and tests, it was named as Zijinyucui when released. The tree of Zijinyucui is spread. The budbreak rate and branching ability are medium. The aver-

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age internode length is 2.6 cm. The green leaves are usually elliptic-lanceolate and middle-sized. The average leaf length and width are 19.6 cm and 4.3 cm, respectively. The length of petioles is 1.1 cm, with 2–4 reniform glands. In Nanjing, Zijinyucui begins to bloom in mid to late March and lasts for about 1 week. The flower is showy with 5 wide-elliptical petals and a diameter of 4.9 cm. The fruit is round. The white skin is mostly covered by rose-red color. The average fruit weight is 273.3 g and the largest is up to 366 g. It is cling and the stone is oval. The flesh is white. It has a soluble solids content of 12.6% and titratable acidity of 0.19%. The fruit has high storage resistance, and is generally stored at room temperature for 7 days and at 4 °C for more than 15 days. The growth vigor of Zijinyucui is moderate. In the Nanjing test orchard, 5-year-old trees had a 100% fruiting branch ratio, with proportions of long, medium, short and bouquet branches being 44.3:27.7:20.8:7.2. All types of fruiting branches can flower and bear fruits normally. The average flower bud initiation occurs at the 2.1st node, with flower buds being 1.62 times more than leaf buds. The compound flower buds are 8.02 times more than single flower buds. Under normal weather conditions, the natural pollination fruit set rate remains stable above 60%, indicating good fruiting performance. Watering should follow each fertilizer application, while irrigation should be controlled within 10 days before harvest. The tree grows vigorously and the young trees can train a shape quickly. So far, no special diseases and insects have been found, no shrinkage leaf disease occurs, no anthrax and brown rot have been found to harm the fruit, and aphids have a negligible attack, showing moderate resistance. However, with the increase of tree age, the gum disease gradually aggravates. Zijinyucui is selected and cultivated in Jiangsu Province, which is suitable for cultivation in Jiangsu area and other areas with similar ecological conditions.

Key words: Peach; New cultivar; Zijinyucui; Stony hard; White flesh

桃是我国适宜种植的大众水果之一,由于桃果肉风味鲜美,营养价值丰富,深得消费者的喜爱。目前,我国新选育的如七月肥^[1]、夏之脆^[2]等品种均为硬溶质,溶质桃属于呼吸跃变型,采后伴随较强的呼吸作用^[3],释放大量乙烯,促使果实较快软化^[4],不能长时间贮存运输,如霞晖6号^[5]。硬质桃成熟后几乎无乙烯释放,果实树上挂果期和贮藏时间得到延长^[6],如霞脆^[7]。

在物流业不发达情况下,桃生产主要以供应产区周边市场为主,对桃肉质没有太多要求。随着近些年物流业的快速发展,鲜食桃市场从周边销售扩大到全国乃至世界,传统水蜜桃生产越来越暴露出不耐贮运、产销过程损耗大、商品果率低、市场竞争力弱等弊端。通常情况下,水蜜桃成熟后采摘常温仅能存放2~3 d,即使降低成熟度提前采收,也仅能存放5 d左右。欧美等地区的国家鲜食桃品种以慢软型溶质桃和硬质桃为主,机械化采收、分级方便,存放时间延长,同时减少运输途中的损耗,进而扩大销售区域。所以果实硬度高、留树时间长、耐贮运的品种越来越受到生产者和销售商的欢迎。

1 选育过程

为培育优质耐贮桃新品种,2008年以有明白桃为母本,霞脆为父本,进行有目的的人工授粉。母本成熟后采收果实,将种子取出进行消毒处理,后置于4 °C低温环境中培养,其间保持种子湿润,待种子发芽后进行播种,温室培养越冬。2009年春定植于江苏省农业科学院桃选种圃,最终获得田间杂种实生苗65株。株行距1.0 m×5.0 m,单行种植,按照田间常规管理模式进行日常管理。

2010年春后代单株陆续开花,2011年开始结果,其中包含C18-3-3-16。调查结果显示,花为蔷薇型,粉色,花药橘红色,花粉量大,花瓣卵圆形,中等大小;果实7月中旬成熟,果实对称、圆形,果顶圆,无果尖,果皮底色白色,果面70%着浅红色,肉质细腻硬脆、风味甜,黏核。2013年秋季进行高接试验,高接后第2年开始开花结果,经连续几年的观察比较,该品种生物学特性稳定,果实综合经济性状优良。随后在江苏不同产区进行区域试验和生产试验,包括徐州、泗阳等苏北地区,常州、南京等苏南地

区,试验品种均嫁接在毛桃砧木上。不同产区采用不同的种植密度,株行距为(2~4)m×(4~5)m。经连续13 a(年)的调查,表明该品种果形圆正,风味甜,肉质硬脆,挂树时间长,耐贮性强,外观美丽,商品性好。2020年定名为紫金玉脆(图1),2024年获得农业农村部植物新品种权授权(CNA20211000023)。



图1 桃新品种紫金玉脆

Fig. 1 A new peach cultivar Zijinyucui

2 主要性状

2.1 植物学特征

树体大小中等,生长健壮,树势中等,树姿开张。1年生枝红褐色,5年生树花密度 $51.4 \text{朵} \cdot \text{m}^{-1}$,果枝节间长度2.6 cm。叶片绿色、长椭圆披针形,长宽比为4.5,叶柄长1.1 cm;叶腺2~4个,均为肾形;叶缘钝锯齿状。花蔷薇型,花瓣粉色、卵圆形。雌蕊高于雄蕊,萼筒内壁绿黄色,花粉量大,橘红色,子房有茸毛。

2.2 果实主要经济性状

果实圆形,果顶圆;缝合线浅,两边较对称。平均单果质量273.3 g,大小较为均匀(表1)。果实套白色果袋果面着浅红色,不套果袋果面着红色,着色面积70%以上。果皮与果肉难剥离,果肉白色,肉质细腻、硬脆,果实采收期长超过10 d,汁液中,风味甜,可溶性固形物含量(w,后同)12.6%,可滴定酸含量0.19%,黏核。果核大小中等。九成熟时,紫金玉脆果实带皮硬度(56.85 N)较对照品种湖景蜜露(26.48 N)硬,耐贮性较湖景蜜露强。

表1 紫金玉脆与湖景蜜露主要性状比较

Table 1 Comparisons of main characters of Zijinyucui and Hujingmilu

地点 Place	品种 Cultivar	年份 Year	果实形状 Fruit shape	平均单果质量 Mean fruit mass/g	肉质 Flesh texture	w(可溶性固形物) Soluble solids content/%	硬度 Flesh firmness/N	耐贮性 Storage
南京 Nanjing	紫金玉脆 Zijinyucui	2024	圆形 Round	262.2	硬质 Stony hard	13.2	55.4	强 Good
	湖景蜜露 Hujingmilu	2024	圆形 Round	232.1	溶质型 Melting	12.8	27.8	中 Fair
	紫金玉脆 Zijinyucui	2023	圆形 Round	282.6	硬质 Stony hard	12.4	57.0	强 Good
	湖景蜜露 Hujingmilu	2023	圆形 Round	243.4	溶质型 Melting	12.5	20.1	中 Fair
徐州 Xuzhou	紫金玉脆 Zijinyucui	2024	圆形 Round	272.2	硬质 Stony hard	12.6	56.1	强 Good
	湖景蜜露 Hujingmilu	2024	圆形 Round	263.3	溶质型 Melting	12.2	29.2	中 Fair
	紫金玉脆 Zijinyucui	2023	圆形 Round	276.1	硬质 Stony hard	12.3	58.9	强 Good
	湖景蜜露 Hujingmilu	2023	圆形 Round	269.2	溶质型 Melting	12.2	28.8	中 Fair

2.3 物候期

对紫金玉脆物候期进行调查,在不同年份和产区之间存在差异(表2)。南京地区3月初萌芽,3月中下旬始花、盛花,7月中旬果实成熟;徐州地区3月中旬萌芽,3月下旬或4月初始花、盛花,7月下旬果实成熟采收。花期均持续7 d左右,果实从盛花初期到成熟期119 d左右。由于春季回温情况不同,紫金玉脆2023年物候期较2024年提早8~12 d,成熟期相差2~4 d。气温变化对落叶期有一定影响,综合几年调查结果,一般落叶期从10月底开始,11月下旬结束。从叶芽萌动至落叶终止,全年生育期278 d左右。

2.4 生长结果习性

紫金玉脆树势中庸,南京试验园5年生树果枝比例为100%,未调查到徒长性果枝,长果枝、中果枝、短果枝、花束枝比例为44.3:27.7:20.8:7.2,各类果枝均能正常开花结果。花芽起始节位平均2.1节,花芽是叶芽的1.62倍,复花芽是单花芽的8.02倍,正常天气条件下,自然授粉坐果率稳定在60%以上,结果性能好。

为保持树势,定植后第2年即使少量开花也未留果,第3年普遍开花结果,每株树产量控制在10 kg以下,第5年进入盛果期,666.7 m²产量1500 kg,最高达1750 kg。

表2 紫金玉脆与湖景蜜露主要物候期比较

Table 2 Comparisons of main phenological periods of Zijinyucui and Hujingmilu

地点 Place	品种 Cultivar	年份 Year	始花期 First blooming date	盛花期 Full bloom date	末花期 Ending bloom date	果实成熟期 Harvest date	果实发育期 Fruit development period/d
南京 Nanjing	紫金玉脆 Zijinyucui	2024	03-26	03-27	04-03	07-19	114
	湖景蜜露 Hujingmilu	2024	03-25	03-26	04-02	07-18	114
	紫金玉脆 Zijinyucui	2023	03-14	03-15	03-21	07-17	124
	湖景蜜露 Hujingmilu	2023	03-13	03-14	03-20	07-16	124
徐州 Xuzhou	紫金玉脆 Zijinyucui	2024	04-01	04-02	04-09	07-27	116
	湖景蜜露 Hujingmilu	2024	03-31	04-01	04-09	07-28	118
	紫金玉脆 Zijinyucui	2023	03-23	03-24	03-31	07-24	122
	湖景蜜露 Hujingmilu	2023	03-21	03-22	03-29	07-24	124

3 栽培技术要点

3.1 定植

缓坡平地、地下水位高的地区采用起垄降渍栽培, 垄高30~50 cm, 垄宽1.5 m; 丘陵岗地、地下水位低的地区采用常规栽培。有冻害的地区建议春季栽植, 其他地区落叶至春季发芽前均可定植。为适应机械操作建议采用5 m以上宽行种植。

3.2 肥水管理

定植前施足基肥, 基肥以有机肥为主, 最晚不迟于11月底完成; 花后肥以施氮素为主; 硬核后以钾为主。果实发育后期水分均匀提供, 采收前控水。夏天雨季注意排水, 防涝。

3.3 整形修剪

幼树以整形为主, 定干高度60 cm, 两主枝Y形可以插杆固定角度, 重点培养主枝两侧小型枝组。三主枝自然开心形, 幼树注意拉枝控制开张角度, 以防旺长, 促进早结果。加强夏季管理, 保持树体通风透光。

3.4 果实管理

分批疏果, 首先疏除畸形果、病虫果; 其次疏除位置不佳方向朝天的果; 最后根据树势进行定果。疏果时按照长果枝留不多于3个果实, 中果枝不多于2个果实, 短果枝和花束状果枝不留或留1个果。不套袋果面着红色, 套白袋果面红色变淡为浅粉色, 果面清洁, 适宜免套袋栽培。为保证果实品质, 盛果期每666.7 m²产量控制在1500 kg左右。果实硬度高, 挂树时间长达15 d, 可分批采收。

3.5 病虫害防治

修剪完做好冬春季清园以及春季蚜虫、缩叶病等的防治, 果实套袋前喷施杀虫杀菌剂, 且喷药与套

袋间隔时间不宜过长。建议多用物理方法进行防控, 如性诱剂、杀虫灯等。为保证果实的安全性, 成熟前忌喷施农药。特别注意春季蚜虫、缩叶病, 夏季红蜘蛛、穿孔病、梨小食心虫等的防控。

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