

# 大果早熟杏新品种‘陇杏2号’的选育

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**摘要:** ‘陇杏2号’是以‘金太阳’为母本、‘兰州大接杏’为父本, 通过人工杂交选育的早熟、大果新品种。果实近圆形, 平均单果质量 86.9 g, 最大单果质量 107.5 g。果皮底色为黄色, 成熟时阳面着红晕, 果面有茸毛, 果皮中厚。果肉橙黄色, 肉质细, 纤维少, 汁液多, 味酸甜适度。可溶性固形物含量(w, 后同)为 12.2%, 可溶性总糖含量 5.02%, 总酸含量 1.67%, 维生素 C 含量 2.90 mg · 100 g<sup>-1</sup>, 品质风味优良。果核卵圆形, 褐色, 离核, 甜仁。兰州地区 4 月上旬开花, 6 月中旬果实成熟, 10 月中旬落叶。树势较强, 易成花, 以短果枝和花束状果枝结果为主。该品种早熟, 大果, 丰产稳产, 外形美观, 适应性强, 适宜甘肃及周边杏栽培区发展。

**关键词:** 杏; 新品种; ‘陇杏2号’; 早熟; 大果

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## A new early maturing and big fruit apricot cultivar ‘Longxing No.2’

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**Abstract:** ‘Longxing No.2’ apricot is an early-maturing and big fruit apricot hybrid developed by crossing two apricot varieties. ‘Golden-sun’ apricot is the female parent, which is an early-maturing apricot, with slightly acidic taste and nice shape. ‘Lanzhoudajixing’ apricot is the male parent, which is a mid-maturing apricot, with strong aromas and big fruit. The fruits of ‘Longxing No.2’ apricot are approach globose with an average per fruit weight of 86.9 g, and the heaviest one is 107.5 g. The fruit peel is yellow, covered by slight red in the sunny side when it ripens. The surface of the fruit is fluffy and the fruit peel is medium thick. The fruit of ‘Longxing No.2’ apricot has orange flesh with delicate flesh texture and less fiber. ‘Longxing No.2’ apricot is an attractive and excellent fruit, has excellent flavor and quality, which has abundant juice, intense fruity aromas, pleasant sweetness and sourness, with soluble solids content of 12.2%, total soluble sugar content of 5.02%, total acid content of 1.67%, and vitamin C content of 2.90 mg · 100 g<sup>-1</sup>. The fruit stone of ‘Longxing No.2’ apricot is oval, brown and detached from the flesh, and kernel is sweet. The flower is showy and the anther is light yellow with a lot of pollen. In Lanzhou, northwest China, the flower bud of ‘Longxing No.2’ apricot starts activities in the last ten-day of March, the first flower comes into blossom mostly appears in early April, the full-blossom stage mostly appears in the first ten-day of April and the flowering period can last about 8-9 days. The ovary gradually bulged after the flowers had fallen, the fruit matures in mid-June, about 70 days after blooming. The leaf buds germinate in mid-April and expand in the last ten-day of April. The leaves start falling in mid-October and completely fallen in the first ten-day of November, and the vegetative growth of the tree was about 215d. The trees potential of ‘Longxing No.2’ apricot shows strong vigorous, semi-opening in canopy and easy initiation of floral bud. The results of self-pollination at

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flowering stage showed that the self-pollination rate for ‘Longxing No.2’ apricot was low and it was suggested to be self-incompatible cultivars. Only by planting suitable pollenizers can it set fruits, ‘Golden-sun’ apricot, ‘Katy’ apricot and ‘Zhanggongyuan’ apricot are suitable pollinating varieties for ‘Longxing No.2’ apricot. The rate of pollen germination increases along with the temperature rising at 10-25 °C. Pollen will begin to germinate in 4-8 hours at 15 °C. The ‘Longxing No.2’ apricot mainly bore on the short and cluster branches in the fields, although various types of branches can produce fruits. It has characteristics including early ripening, high yielding and good quality, it can be stored in 6-7 days in normal temperature. It is suitable to be cultivated in both protected field and open field. The new early-maturing breed, has early maturing date, strong suitability to adverse circumstance, high and stable output, high quality fruit which has nice appearance. It is suitable to be cultivated and developed in Gansu and surrounding plains, hills and mountains, and potential to the other apricot suitable planting areas of China.

**Key words:** Apricot; New cultivar; ‘Longxing No.2’; Early maturing; Big fruit

杏是原产我国的古老树种之一,已有4 000多年的栽培历史。杏树抗寒、抗旱、抗风沙、耐瘠薄,是我国“三北”地区经济林的首选树种,也是脱贫致富的高效益树种<sup>[1]</sup>。杏风味浓郁、营养丰富,既可鲜食,又宜加工。是人们喜爱的“时令、功能营养型”水果。常食鲜杏、杏仁等,对润肺止咳、延缓衰老、防癌治癌等具有积极疗效<sup>[1]</sup>。

目前,国内外杏育种工作者以满足市场需求为主要育种目标,从“熟期、风味、色泽”等方面开展新品种选育工作。近二十年来,我国杏育种工作者通过不懈努力,已选育了一批优良杏新品种<sup>[2-3]</sup>。主要针对甘肃寒旱栽培环境及高原栽培特点,笔者将口感好、抗性强、耐贮运、早熟、丰产、质优作为主要育种目标,持续开展杏新品种选育工作。

‘陇杏2号’杏是甘肃省农业科学院林果花卉研究所通过人工杂交选育的杏新品种,具有果个大、成熟早、风味浓、丰产稳产、抗性强等优点,经过区域试验,该品种植物学性状表现稳定,经济性状良好,对优化甘肃省杏品种结构具有积极作用。

## 1 选育经过

2006年4月以‘金太阳’为母本、‘兰州大接杏’为父本进行杂交,当年6月采收获得284粒杂交种子,通过胚培养技术获得杂种苗224株。利用温室炼苗,第二年5月上旬苗木生长到70 cm,移栽大田202株,进行精细管理。同时,利用拉枝、摘心等技术措施,2009年杂种苗开始结果,连续3 a(年)对结果单株果实经济性状,植物学特征,生物学特性等进行

观察鉴定,其中编号为‘JL-6’的杂交单株综合性状优异且表现稳定,具体表现为:果形美观,果个大,果肉较对称;果面底色为黄色,成熟时阳面有红晕;果肉橙黄色,肉质厚细,纤维少,汁液多,酸甜适口,成熟较早,可溶性固形物含量12.2%,初选为优良单株。

2010年,通过3 a生砧木建园和8 a生大树多头高接,在甘肃省杏主产区天水麦积、平凉静宁、白银平川、兰州榆中和酒泉肃州进行区试。2012年,高接树和定植苗均开始结果,综合表现良好。2013—2015年,连续3 a对各试点‘JL-6’高接和嫁接树的生长情况进行观察,结果后各株间没有表现出明显的差异,品质和性状稳定。2016年2月通过甘肃省农作物品种审定委员会认定,命名为‘陇杏2号’(品种编号:甘认果2016003)(图1)。

## 2 主要性状

### 2.1 果实主要经济性状

从表1可知,‘陇杏2号’杏果实近圆形,平均单果质量86.9 g,最大果质量107.5 g;果实纵径6.13 cm,横径5.90 cm,侧径5.89 cm。果顶平,缝合线浅,片肉对称,梗洼中深。果皮底色黄色,阳面着红晕;果皮中厚,果面有茸毛。果肉橙黄色,肉质厚细,纤维少,汁液多,味酸甜适度。经测定,‘陇杏2号’杏可溶性固形物含量为12.2%,可溶性总糖含量5.02%,总酸含量1.67%,维生素C含量2.90 mg·100 g<sup>-1</sup>。核卵圆形,核表面较细,网纹较浅;鲜核平均质量2.6 g。种仁较饱满,甜仁;可食率96.7%;常温下可贮藏6~7 d。



图1 杏新品种‘陇杏2号’

Fig. 1 A new apricot cultivar ‘Longxing No.2’

表1 ‘陇杏2号’与对照品种果实经济性状比较

Table 1 Comparison of fruit economic characters between ‘Longxing No.2’ and control cultivar

品种 Cultivar	成熟期 Maturity period	平均单果质量 Average fruit mass/g	果形 Fruit shape	果肉 Flesh texture	汁液 Juice content	风味 Flavor	品质 Quality	w(可溶性固形物) Soluble solids content/%
陇杏2号 Longxing No.2	6月中旬 Mid. June	86.9	近圆形 Approach globose	厚细 Thick and less fiber	多 Many	酸甜 Sour-sweet	上 Superior	12.2
金太阳 Golden-sun	6月下旬 Last ten days of June	66.2	近圆形 Approach globose	厚细 Thick and less fiber	多 Many	甜微酸 Sweet with slightly sour	中上 Medium superior	10.2

## 2.2 植物学特征

‘陇杏2号’嫁接在山杏砧木上,树势强,树姿半开张,主干较平滑、紫褐色;1 a 生新梢斜生、粗壮、光滑,表皮红褐色,皮孔白色、长圆形、中等大小,中密;叶片近圆形,浓绿色,急尖,叶片浓绿,叶面平展、光滑。叶柄红色,平均长 3.8 cm。叶腺圆形,1~2 个;节间短,平均长 2.0 cm;花 5 瓣,浅粉红色,每朵花有雌蕊 1 枚,雄蕊 23~28 枚,完全花的雌蕊与雄蕊等高,花药黄色。

## 2.3 物候期

在兰州安宁,‘陇杏2号’3月中旬花芽开始萌动,3月底至4月初始花,花期 8~9 d,6月中旬果实成熟,果实发育期 70 d 左右。4月中旬开始展叶,10月中旬开始落叶,11月上旬完全落叶,营养生长期 215 d 左右。

## 2.4 生长结果习性

‘陇杏2号’杏树势较强,在兰州地区调查表明,5 a 生树高 3.0 m,冠径 2.1 m×2.3 m,干周 20.10 cm,平均新梢长度 115 cm,平均枝条粗度为 0.51 cm。该品种短果枝、中果枝和长果枝的比率分别为 46.2%、

25.8%和 19.6%,徒长性枝占 8.4%,以短果枝和花束状果枝结果为最佳。该品种早果、丰产,当年高接在 3 a 生山杏上,第 2 年开花见果,第 3 年大量结果,每 666.7 m<sup>2</sup> 平均产量 571.2 kg;第 4 年每 666.7 m<sup>2</sup> 平均产量 1 204 kg;第 5 年进入丰产期,平均株产近 30 kg,每 666.7 m<sup>2</sup> 产量在 1 600 kg 以上,成龄大树平均株产 50 kg。经对比试验,‘陇杏2号’杏产量高于‘金太阳’(表 2)。

## 3 繁殖方法及栽培技术要点

### 3.1 繁育方法

选择抗性强的山杏作为砧木,春季采用带木质芽接、劈接等方法进行嫁接。嫁接后对砧木抹芽 3~4 次,并适时解绑。前期加强水肥管理,促进生长。秋后注意控水,促进枝条成熟。重点加强蚜虫防治,全年喷杀虫剂 2~3 次。当年落叶后出圃或第二年春季出圃。

采用高接换优对多年生山杏或老品种进行劈接或插皮接,可实现提前结果。

### 3.2 园址选择

选择土壤肥沃、土质疏松、灌溉和排水条件良



表2 ‘陇杏2号’杏与对照品种产量比较  
Table 2 Comparison of yield between ‘Longxing No.2’ and control cultivar

品种 Cultivar	3 a 生 3-year-old tree		4 a 生 4-year-old tree		5 a 生 5-year-old tree	
	666.7 m <sup>2</sup> 产量 666.7 m <sup>2</sup> yield/kg	平均株产量 The average mass per plant/kg	666.7 m <sup>2</sup> 产量 666.7 m <sup>2</sup> yield/kg	平均株产量 The average mass per plant/kg	666.7 m <sup>2</sup> 产量 666.7 m <sup>2</sup> yield/kg	平均株产量 The average mass per plant/kg
陇杏2号 Longxing No.2	571.2	10.2	1 204.0	21.5	1 646.4	29.4
金太阳 Golden-sun	425.6	7.6	924.0	16.5	1 388.8	24.8

好的砂壤土为宜。山地建园选择背风向阳、有田间道路的南坡;平地建园选择交通便利、远离工业区的开阔通风地带。建园避免与桃、李、杏等核果类重茬。

### 3.3 科学建园

选择以山杏为砧木的1 a 生优质壮苗建园。株行距一般为(3~4)m×(4~6)m,666.7 m<sup>2</sup>栽植28~56株。定植前挖深80 cm、宽60 cm的定植穴,底部填入20 cm厚杂草,表土混合优质腐熟的农家肥4 500 kg·hm<sup>-2</sup>、磷、钾复合肥1 000 kg·hm<sup>-2</sup>填至和地面齐平,灌水沉实后定植。一般在3月底4月初定植,定植后每穴灌水15~20 kg,水下渗后树盘覆盖黑色地膜1 m<sup>2</sup>。配置‘张公园’‘金太阳’‘凯特’等杏品种作为授粉树,授粉:主栽品种为1:5。

### 3.4 土肥水管理

1~3 年幼树期可间作矮秆作物,以豌豆、大豆等豆科作物为好,但需留营养带1.5 m以上,及时中耕除草。进入盛果期后,选择毛叶苕子、三叶草等进行全园人工生草或自然生草,定期进行刈割。施肥幼树以农家肥为主,并在生长前期追施适量氮肥;进入盛果期后,于坐果后每株追施氮磷钾复合肥1.0~1.5 kg,转色期追施硫酸钾0.5~1.0 kg,采果后追施优质腐熟农家肥40~50 kg。灌区结合施肥,主要在萌芽前、幼果膨大期、转色期和土壤封冻前灌水。山地果园采用垄膜保墒集雨、穴贮水肥等旱作技术,促进丰产稳产。

### 3.5 整形修剪

为便于管理和机械化操作,‘陇杏2号’杏主要采用疏散分层形,干高80 cm左右,树高3.5 m左右,有中央领导干。第一层3~4个主枝,第二层2~3个主枝,第三层1~2个主枝。层间距80~100 cm,层

内距20~30 cm。主枝上着生侧枝,侧枝上着生结果枝组。

### 3.6 病虫害防控

以防治梨小食心虫、蚜虫、杏疗病、杏芽癭等病虫害为主,萌芽前全园喷5 Be°石硫合剂,花后15 d利用“生物+化学”方法重点防治梨小食心虫,主要采用人工及时清除病组织、病叶、枝等防治杏疗病、杏芽癭等。

## 4 应用前景

‘陇杏2号’杏继承了金太阳杏的丰产性和兰州大接杏的浓郁风味,表现为早熟、大果、丰产,具有果形美观、酸甜适度、适应性强、丰产稳产等优良品质,适合设施促早和露地栽培,是具有良好发展潜力的早熟、大果优良杏新品种。

### 参考文献 References:

- [1] 张加延. 李杏飘香[M]. 北京:中国林业出版社,2013.  
ZHANG Jiayan. Fragrance of plum and apricot[M]. Beijing: China Forestry Publishing House, 2013.
- [2] 夏乐晗,陈玉玲,冯义彬,黄振宇,回经涛,陈龙,李玉峰. 早熟硬肉杏新品种‘红艳’的选育[J]. 果树学报,2019,36(1):122-125.  
XIA Lehan, CHEN Yuling, FENG Yibin, HUANG Zhenyu, HUI Jingtao, CHEN Long, LI Yufeng. A new early maturing and firmness flesh apricot cultivar ‘Hongyan’ [J]. Journal of Fruit Science, 2019, 36(1): 122-125.
- [3] 王玉安,赵秀梅,陈建军,刘红星,王发林. 中晚熟杏新品种‘陇杏1号’的选育[J]. 果树学报,2016,33(2):241-244.  
WANG Yu'an, ZHAO Xiumei, CHEN Jianjun, LIU Hongxing, WANG Falin. Breeding of a new mid- late- maturing apricot cultivar ‘Longxing No. 1’ [J]. Journal of Fruit Science, 2016, 33(2): 241-244.