

## 四季草莓新品种京滇红的选育

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**摘 要:**京滇红是由四季草莓 Charlotte 实生种子选出的四季草莓新品种。果实圆锥形, 纵横径比 1.02, 果个中等, 大小比较整齐, 果面较平整, 种子稀, 平于果面。果实红色、有光泽, 果肉橙黄, 髓心橙黄, 空洞中等大小, 有特殊香味, 酸多甜少。夏季平均单果质量 15.0 g, 果实可溶性固形物含量(w, 后同)8.3%, 硬度 0.40 kg·cm<sup>-2</sup>。京滇红抗性强, 具有四季开花结果特性, 夏季连续结果能力强。采用春栽方式时, 6 月份进入采收期, 有保温条件的可持续到 12 月份。适合在云南等夏季冷凉地区冷棚避雨栽培。

**关键词:**四季草莓; 新品种; 京滇红

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### Breeding report of a new ever-bearing strawberry cultivar Jingdianhong

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**Abstract:** Jingdianhong is a new ever-bearing strawberry cultivar selected from seedlings of a good-taste ever-bearing cultivar Charlotte. In 2014, 301 ever-bearing individual plants were retained after initial evaluation in open field in Yanqing District, Beijing and their daughter plants were planted in Yanqing and Longhua County, Hebei Province, respectively, for the second open-field evaluation in 2015. In 2016 and 2017, selection F500 was selected due to its outstanding characters of continuous flowering and fruit quality in high tunnels in Longhua. It was temporarily named Jingcheng 2 and tested in Longhua, and Kunming City, Yunnan Province, Huzhu County, Qinghai Province and Harbin City, Heilongjiang Province from 2018 to 2021. It showed elite and stable performance of continuous flowering, fruit quality, and disease resistance in summer. In 2021, this selection was authenticated as a new cultivar in Yunnan and named formally as Jingdianhong. Its spreading plants grow with medium vigor. The average plant height is 13.90 cm and the crown diameters are 25.31 cm and 24.94 cm. The leaves are dark green, oval, and in medium size with 5.14 cm in length and 5.34 cm in width. The petiole length is 6.45 cm. The hermaphrodite flowers are white with touching petals. The calyx and the corolla are almost of the same diameter. The red and glossy fruit is conical and the rate of its length and width is 1.02. The uniform fruits are in medium size with even surface. The seeds are thin and level with fruit surface. The flesh and the core are both oranges. The fruit tastes a little sour with some sweet and smells aromatic. The content of soluble solids, the fruit firmness and the average fruit weight in summer are 8.3%, 0.40

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kg·cm<sup>2</sup> and 15.0 g, respectively. In regional adaptability tests, Jingdianhong is resistant to powdery mildew, leaf spot and anthracnose and moderately resistant to root rot, gray mold, mites, thrips and aphids. It has the characteristics of continuous flowering in summer and is suitable for shelter cultivation in cool areas such as Yunnan. When Jingdianhong is planted in spring, harvest usually starts in June and lasts until December with cover at night.

**Key words:** Ever-bearing strawberry; New cultivar; Jingdianhong

我国草莓育种历史始于20世纪50年代,开展新品种选育的单位共有20余家,截至目前,已公开发表的新品种有118个<sup>[1-4]</sup>,其中以短日照类型的一季品种为主,占比90%以上,这些品种主要用于冬春促成栽培;而用于夏秋生产的四季品种选育较少,2000—2020年,国内共育成了5个四季品种<sup>[5]</sup>,但有一定栽培面积的仅有3个,生产上仍以引进的蒙特瑞等美国品种为主栽品种。近年来,国内四季草莓生产发展迅速,四季品种选育工作也日益受到育种单位的重视,北京市农林科学院林业果树研究所所以夏季结果能力强、高产、抗病、优质为育种目标,采用实生选种的方法,联合国内多家单位,选育出四季草莓新品种京滇红。

## 1 选育过程

2012年8月,由法国引进优质四季草莓品种Charlotte的实生种子1000余粒。经冷藏后在温室内播种,2013年底获得实生苗771株。2014年6月定植于北京市延庆区艾官营基地实生圃,经过露地初选,获得具有四季性的单株301个,采集每个单株的匍匐茎进行繁育。2015年分别在北京市延庆区艾官营基地和河北省隆化县承德市农林科学院科研基地进行露地复选,获得复选优株62个。2016—2017年在隆化基地内进行冷棚复选,其中初选号为F500的单株表现四季性明显、果实品质优良。2018—2021年暂定名为京承2号,在河北省隆化县、云南省昆明市、青海省互助县和黑龙江省哈尔滨市陆续开展品种对比试验和区域试验。多年多点区试结果表明,该品系表现夏季结果能力强、品质较好、抗病性好,其优良性状稳定,2021年7月通过云南省种子管理站组织的新品种鉴定,正式定名为京滇红(图1)。

## 2 主要性状

### 2.1 植物学特征

植株长势中,夏季避雨栽培条件下,株高13.90 cm,株态较开张,冠径25.31 cm×24.94 cm;叶片深绿色,



图1 四季草莓新品种京滇红

Fig. 1 A new ever-bearing strawberry cultivar Jingdianhong

光泽弱,表面泡状凸起程度中等,中心小叶长宽相等,椭圆形,大小中等,叶片纵径5.14 cm、横径5.34 cm,叶柄长6.45 cm;二歧聚伞花序,平于或低于叶片,每序花朵数5~7个,花萼大小与花冠大小相等,花白色,两性花,花瓣相接、长度等于宽度。匍匐茎抽生能力较弱。

### 2.2 果实性状

果实橙红色至红色,有光泽,圆锥形,纵横径比1.02,中型果,大小比较整齐,果面较平整,无种子带窄,种子稀,黄色、红色兼有,平于果面,萼片稍反卷,果肉橙黄,髓心橙黄,空洞大小中等。果实有特殊香味,汁液中等,风味酸多甜少,可溶性固形物含量(w)8.3%,硬度中等,约0.40 kg·cm<sup>2</sup>,夏季平均单果质量15.0 g。京滇红与主栽品种蒙特瑞的主要果实性状及产量、抗性对比见表1。

### 2.3 物候期

具有四季开花结果特性,果实发育期30 d左右。生产中主要采用春栽方式,3月份前后在冷棚

表1 京滇红与蒙特瑞主要果实性状及产量、抗性比较

Table 1 Comparison of main fruit characteristics, yield and resistance between Jingdianhong and Monterey

品种 Cultivar	果形 Fruit shape	果实颜色 Fruit color	平均单果质量 Average fruit weight/g	w(可溶性固形物) Soluble solids content/%	果实硬度 Fruit firmness/ (kg·cm <sup>2</sup> )	7-8月每666.7 m <sup>2</sup> 产量 Yield per 666.7 m <sup>2</sup> from Jul. to Aug./kg	叶斑病抗性 Resistance to leaf spot	耐热性 Thermo-tolerance
京滇红 Jingdianhong	圆锥形 Conical	橙红色至红色 Orange to red	15.0	8.3	0.40	536	抗病 Resistant	强 Strong
蒙特瑞 Monterey	长圆锥形 Long conical	红色 Red	16.0	8.2	0.48	519	中抗 Moderate resistant	中 Moderate

内定植冷冻苗,由于花芽分化已完成,植株成活后会很快抽生花序,一般60 d后陆续有果实成熟,6月份进入采收期,秋冬季节具备保温条件的,果实采收可持续到12月份。京滇红夏季连续结果能力强,6—9月产量可达17 t·hm<sup>-2</sup>。

#### 2.4 适应性

多年多点区域试验结果表明,京滇红对各地栽培环境适应性良好,适合在云南等夏季冷凉地区避雨栽培。区试期间,通过田间观察,发现京滇红抗白粉病、叶斑病、炭疽病,中抗根腐病、灰霉病、蚜虫、蓟马、蚜虫。植株耐热性强,耐寒性较强,耐旱性中等。总的来说,京滇红抗性优于蒙特瑞。

### 3 栽培技术要点

#### 3.1 定植

在云南等夏季冷凉地区,选择土层较深厚、土质疏松、土壤偏酸性、排灌方便的未重茬地块建园,采用大拱棚避雨栽培。可选择根系发达的冷冻苗,3月份前后定植;或者选择当年生壮苗,10月份前后定植。采用高垄双行定植,垄高40 cm、宽40 cm,垄沟宽20~30 cm。起垄前施用有机肥60 000~75 000 kg·hm<sup>-2</sup>。种植密度75 000~90 000 株·hm<sup>-2</sup>,株距25~30 cm,小行距15~25 cm。定植时注意植株方向,根茎部弓背朝向垄沟,做到“深不埋心、浅不露根”。定植后要及时灌透水,以保持土壤湿润,提高植株成活率。

#### 3.2 定植后管理

植株成活后,及时中耕除草,去除老叶、病叶、匍匐茎和抽生过早、过弱的花序,并覆盖地膜。植株花序多、结果期长,应加强肥水管理,在顶花序显蕾时、顶花序果实膨大时、顶花序果实采收前期、采收后期,及时追肥;以后每隔15~20 d追肥1次。在整个生长季,应及时摘除匍匐茎、老叶、病叶、畸形果、病虫果、高级次的无效花果和结果后残留花序;顶花序抽生后,每个植株选留2~4个方位好且粗壮的新芽,多余小芽及时去除,减少植株营养浪费。注意改善

植株通风透光条件,有助于果实着色和病虫害防治。结合植株长势,春季注意保留适宜数量的早期花序,有利于控制植株长势,以增加夏季成花数量。连续高温时应注意采取遮阴、通风等降温措施,减少畸形果的形成。

#### 3.3 病虫害防治

京滇红对草莓常见病虫害的抗性好,常规防治应以预防为主,首选农业防治、物理防治和生态防治。育苗和果品生产尽量选用脱毒种苗及其后代繁育的生产苗,可有效地预防、减少根茎部病害的发生;培育、定植健壮苗木,加强肥水管理,提高植株抵抗力;采用悬挂黄、蓝板等物理措施诱杀蚜虫、蓟马;防治药剂优先选用低残留农药或生物农药,花果期严禁农药的施用。

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