

# 梨新品种‘新梨11号’的选育

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**摘要:** ‘新梨11号’是‘库尔勒香梨’做母本、‘鸭梨’做父本培育的梨新品种。果实葫芦形, 脱萼, 单果质量181.2 g, 果实底色绿黄, 阳面着红晕, 果面光滑, 果皮薄, 果点中小、不明显。果肉乳白色、松脆, 质地极细, 果汁极多, 风味甜酸适口, 有香气, 内在品质极上。可溶性固形物含量13.42%, 可溶性糖含量10.41%, 可滴定酸含量0.108%, 维生素C含量41.9 mg·kg<sup>-1</sup>, 果肉硬度4.66 kg·cm<sup>-2</sup>。‘新梨11号’树势稳健, 萌芽力强, 成枝力中等, 主要以短果枝结果, 占64.0%。‘新梨11号’在自然状态下极易成花, 早果丰产能力强, 花序坐果率在86.2%以上, 前期产量是‘库尔勒香梨’的2~3倍。新疆库尔勒地区成熟期为9月10日前后, 年生育期210 d左右。冷藏条件下可贮藏至翌年的3—4月份。抗寒性强, 能抵御-28℃的低温, 适应性强。

**关键词:** ‘库尔勒香梨’; 新品种; ‘新梨11号’

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## Breeding of a new pear cultivar ‘Xinli No.11’

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**Abstract:** ‘Xinli No.11’ is a new pear cultivar, which was bred by crossing ‘Kuerlexiangli pear’ as the female parent and ‘Yali’ as the male parent. Five single plant was initially selected in 1989 for their strong adaptability, good quality and different maturity characteristics, and then a single plant number ‘75-4-1’ was finally selected for its better comprehensive quality, early fruiting, high yield, strong cold resistance and stable agronomic traits characteristics. After regional adaptability testing at three sites (including Korla area, Tarim area and Yanqi area) over five years from 2014 to 2018, it was finally selected in 2018. We applied for the registration as a new cultivar in April 2018 and got identification certificate from Trees Variety Approval Committee of Xinjiang Uygur Autonomous Region in November 2019 and named ‘Xinli No.11’. The canopy was conical under natural conditions, the young trees growth potential was flourishing. Leaves were ovoid and eiiipse with average 11.30 cm length and 9.08 cm width, petiole was 3.95 cm in length. Leaf color was dark green. Flowers were pale pink, the relative position of petals was separated. The petal shape was oval, pollen was abundant. It was mainly on the short branch in the fields with ratio of 64%. The average setting rate of single flower was 35.4% and the setting rate of single inflorescence was 86.2% under the condition of natural pollination. The fruit was gourd shape and regular, shed calyx. The average single fruit weights was 181.2 g. The ground color of fruit skin was green yellow. The fruit skin was smooth and shining, the peel was thin, the fruit dot was middle-small and was not obvious. The fruit flesh was creamy white, fine and crisp. It was juicy, sour-sweet flavor and tasted delicious along with aromas. The fruit quality was excellent. The content of

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soluble solid, soluble sugar, titratable acid and vitamin C was 13.42%, 10.41%, 0.108% and 41.9 mg · kg<sup>-1</sup> fresh, respectively. The sarcocarp hardness was 4.66 kg · cm<sup>-2</sup>. The vigor of growth of ‘Xinli No.11’ was middle, germinating capability was high, branch development capability was middle. The fruit development period was about 140 to 150 days, the growth period per year was 210 days, and the fruit was ripening in early or middle of September in Korla, China. It can be stored in cold storage conditions for 5 to 6 months. It has the characters of early fruiting and high yield, the production of 3-4 year old tree was 2-3 times compared to ‘Kuerlexiangli pear’. It began flowering after 2 years of planting and the average yield of individual plant was 9.7 kg at 4 years after planting, and it had better adaptability and strong cold resistance (can survive minus 28 °C low temperature). The orchard should with mild saline-alkaline and well drained soil. The suitable planting space in the rows and plants are (4-5) m × (3-4) m and 4 m × 1.5 m, respectively. The suitable tree shape was evacuation and thin-long spindle. ‘Xinli No.11’ has high rate of fruit setting under natural conditions, fruit thinning should be carried out within three weeks after fallen petal with a standard of leaving fruit with good shape and bright color without any diseases and pests and mechanical injuries. The fertilizer should be provided properly according to the period of growth and development and the tree age, and the water should be provided properly according to the soil moisture, both drip irrigation and flood irrigation are available. *Grapholitha molesta*, *Cydia pomonella* and *Valsa* canker should be regard as the most important pests and diseases and controled by scientific using physical and chemical technology according to their occurrence rule.

**Key words:** ‘Kuerlexiangli pear’; New cultivar; ‘Xinli No.11’

多年来梨育种家利用‘库尔勒香梨’作为亲本,杂交选育出了‘新梨7号’<sup>[1]</sup>、‘红香酥’<sup>[2]</sup>、‘玉露香’<sup>[3]</sup>、‘红香蜜’<sup>[4]</sup>等许多优良新品种。随着‘库尔勒香梨’市场不断扩大、种植面积和产量不断增加,其存在的问题也日益凸显,主要表现在抗寒性较差、果小心大、果形不正等,且成熟期集中、品种单一缺点,影响到了‘库尔勒香梨’种植区域、果实品质和产业的发展。因此,加快培育抗寒性、抗病力强的中大果型‘库尔勒香梨’系列新品种(系),形成以‘库尔勒香梨’为龙头的系列产品,以适应不断拓展的生产和国内外市场需要,是促进当地梨产业可持续健康发展不可或缺的技术手段。鉴于此,新疆生产建设兵团第二师农业科学研究所从1974年以来致力于以‘库尔勒香梨’为亲本的杂交育种工作,选育出综合品质优良、早果、丰产、抗寒、适应性强的‘库尔勒香梨’新品种‘新梨11号’,克服了‘库尔勒香梨’果个小、果心大、果形不整齐、抗逆性较弱等缺点,该品种遗传了‘库尔勒香梨’优良的品质和‘鸭梨’的香味以及较强的抗寒力,可在‘库尔勒香梨’冻害区和次适生区进行推广种植,也可作为‘库尔勒香梨’的授粉品种,其经济价值远高于现在的主要授粉品种‘鸭梨’和‘贡梨’,对扩大种植区域,丰富梨品种,促进‘库尔勒香梨’产业健康可持续发展有较大作用。

## 1 选育过程

1981年选用‘库尔勒香梨’做母本、‘鸭梨’做父本开展人工授粉杂交,获得杂交种子345粒。当年12月中旬对种子进行低温沙藏层积,1982年开春播种,繁育出杂种实生苗236株。1984年定植杂种实生苗,1989年杂种实生苗开始结果,初选出适应性强、品质优良、不同成熟期的杂交优株5株。入选优株后,于1990年春季在中试园高接复选,1992年嫁接株结果,通过持续跟踪调查,其中编号为‘75-4-1’的单株表现为果实内在品质极上、早果丰产、抗寒能力强、农艺性状稳定等特性。2014年至2015年在塔里木垦区、库尔勒垦区和焉耆垦区进行区域试验,2016年开始结果,通过在以上不同区域种植,对该品种的生物学特性、结果习性、丰产性、果实综合品质、抗逆性等评定,该品种相比‘库尔勒香梨’具有结实早、坐果性强、抗寒力强、果实内在品质极上等特性,与原始母株表现一致,具有稳定的遗传特性。同时,还可与‘库尔勒香梨’互作授粉品种,且由于‘新梨11号’继承了‘库尔勒香梨’优良的内在品质,其商品价值远高于目前生产中‘库尔勒香梨’的主要授粉品种‘鸭梨’和‘贡梨’。2019年1月通过新疆维吾尔自治区林木品种审定委员会认定,并命名为‘新梨

11号’(良种编号:新R-SV-PS-001-2018)(图1)。



图1 梨新品种‘新梨11号’

Fig. 1 A new pear cultivar ‘Xinli No.11’

## 2 主要性状

### 2.1 植物学特征

‘新梨11号’树冠呈圆锥形。树势稳健,2 a生以上枝呈灰褐色,1 a生枝条颜色为绿黄色,呈平斜着生;皮孔少、中大,卵圆形,节间中长,平均为3.53 cm。叶片为圆形,中大,叶片长度为11.30 cm,宽度为9.08 cm,叶形指数1.24,叶尖为钝尖,叶基为圆

形,叶缘锐锯齿;叶柄中长,平均长度3.95 cm;叶片肥厚;叶色浓绿;叶面平展。叶芽顶端钝,贴生;花芽大,卵圆形,贴生,每花序花数7.9朵,花蕾粉红色,花粉量中;花瓣卵圆形,相对位置分离;柱头位置低于花药;花药淡紫色。

### 2.2 生物学特性

‘新梨11号’属晚熟品种,在新疆库尔勒地区,3月下旬花芽开始萌动,4月上中旬进入开花盛期(与亲本‘库尔勒香梨’花期相遇),初花后6~9 d进入落花始期。9月上中旬果实开始成熟,9月中下旬为适宜采摘期,11月初进入落叶期,年生育期210 d左右。

### 2.3 生长结果习性

‘新梨11号’生长势较强,萌芽率57.1%,成枝力中等,短果枝结果率占64.0%,腋花芽结果率占18.3%,长果枝结果率占5.9%,中果枝结果率占11.8%,成花力强,自然授粉条件下花序坐果率在86.2%以上,平均每个花序坐果2.8个。‘新梨11号’花粉量中,花期与‘库尔勒香梨’相遇,可以相互授粉,根据近3 a人工点授调查结果,花序坐果率达到91.7%。该品种产量高,前期平均株产是‘库尔勒香梨’的2~3倍,表现出早果、丰产的优良性状(表1)。

表1 ‘新梨11号’与‘库尔勒香梨’盛果期树生长结果习性的对比

Table 1 Characters of growth and fruit Comparison between ‘Xinli No.11’ and ‘Kuerlexiangli pear’

品种 Cultivar	萌芽率 Germination rate/%	成枝力/条 Branch development capability/No	长枝比例 Ratio of long branch/%	中枝比例 Ratio of middle branch/%	短枝比例 Ratio of short branch/%	花序坐果率 Fruit setting percentage of inflorescence/%	花朵坐果率 Fruit setting percentage of flower/%
新梨11号 Xinli No.11	57.1	3.1	5.9	11.8	82.3	86.2	35.4
库尔勒香梨 Korlaxiangli pear	63.0	4.8	23.8	12.4	63.8	34.8	6.7

‘新梨11号’盛果期树短果枝比率为82.3%、花序坐果率为86.2%、花朵坐果率为35.4%,分别比‘库尔勒香梨’提高了29.0%、147.7%、428.3%,其萌芽率为57.1%、成枝力3.1条,分别比‘库尔勒香梨’降低了9.4%、35.4%。

嫁接后的‘新梨11号’,夏季采用开角、拉枝等控势促花修剪方式,当年即可形成花芽,第2年开花株率达35.1%;第3年全部开花结果,平均株产3.7 kg,最高株产6.7 kg;第4年株产9.7 kg。近年来持续在塔里木垦区、库尔勒垦区和焉耆垦区种植结果表明,‘新梨11号’的早果丰产能力显著高于‘库尔勒香梨’。

### 2.4 果实经济性状

果实葫芦形,脱萼,萼洼皱状,平均单果质量

181.2 g。果实底色绿黄,果面光洁,果皮薄,果点中小、不明显。果肉乳白色、质地极细,肉质松脆,果汁极多,风味甜酸适口,有香气,内在品质极上。可溶性固形物含量13.42%,可溶性糖含量10.41%,可滴定酸含量0.108%,维生素C含量41.9 mg·kg<sup>-1</sup>。果实贮藏性中强,在贮藏条件较好的气调库中,可贮藏至翌年3—4月份。

‘新梨11号’与‘库尔勒香梨’相比,果实底色和着色类型与‘库尔勒香梨’相似,平均单果质量、可滴定酸含量、维生素C含量显著高于‘库尔勒香梨’,分别提高了59.6%、116%和65%,可溶性糖含量和可溶性固形物含量与‘库尔勒香梨’相近,而果肉硬度低于‘库尔勒香梨’的38.7%(表2)。

表2 ‘新梨11号’与‘库尔勒香梨’主要果实经济性状比较

Table 2 Comparison of main fruit characters of ‘Xinli No.11’ and ‘Kuerlexiangli pear’

品种 Cultivar	果形 Fruit shape	单果质量 Single fruit weight/g	果实底色 Fruit ground color	果实盖色 Fruit covercolor	果肉颜色 Flesh color	w(可溶性固形物) Soluble solid content/%	w(可滴定酸) Titratable acidity content/%	w(维生素C) Vitamin C content/(mg·kg <sup>-1</sup> )	w(可溶性糖) Soluble sugar content/%	果肉硬度 Flesh firmness/(kg·cm <sup>-2</sup> )
新梨11号 Xinli No.11	葫芦形 Gourd	181.2	绿黄 Lime	条红 Striped red	乳白色 Creamy white	13.42	0.108	41.9	10.41	4.66
库尔勒香梨 Korlaxiangli pear	纺锤形或椭圆形 Spindle or ellipse	113.5	绿色 Green	条红 Striped red	绿白色 Green-white	13.50	0.05	25.4	10.18	7.60

### 2.5 适应性及抗逆性

2014年以来,‘新梨11号’在库尔勒地区的壤土、塔里木地区的沙壤土和焉耆地区的黏壤土进行种植区试的结果表明,该品种均表现出适应性好、早果丰产、品质优良、抗寒等特点。2002年12月至2019年1月,新疆巴州地区接连发生6次大的低温冻害,造成‘库尔勒香梨’树严重冻害,减产严重,其中初果期‘库尔勒香梨’树冻害率达到68.7%;‘新梨11号’盛果期树未发生冻害,树体完整,生长结果正常,而4年生初果期树在历经2018年12月至2019年1月持续低温后主干阴面韧皮部呈现绿褐色可恢复性冻害,同龄‘库尔勒香梨’树主干阴面韧皮部呈现黑褐色,发生严重冻害。

## 3 栽培技术要点

### 3.1 园地准备和苗木选择

选择盐碱较轻、排水良好的壤土或沙壤土。土壤有机质含量在1.0%以上,总盐含量在0.3%以下,平整土地,高差控制在0.3%之内达待植状态。选择2年生茎粗1.0 cm以上的一级杜梨砧苗。实行大苗浅栽,栽后立即灌水(水量要小,10 d后再灌1次透水),保证成活率在95%以上。

### 3.2 肥水管理

调控灌溉:原则上“前促后控”,前期促新梢生长、幼果发育,花芽分化临界期(5月中旬-6月中旬)50 d左右控水,8月20日后严格控水,11月15日冬灌结束。

科学施肥:坚持前期氮肥,中后期磷、钾、钙、镁肥,硼肥花前施入,施肥深度0.3 m;10月上中旬秋施腐熟有机肥,施肥坑深度0.5~0.6 m,每kg果实1.5 kg有机肥。盛果期梨树氮、磷、钾施入比例为1:0.75:1,初果期梨树氮、磷、钾施入比例为1:0.75:1,幼龄梨树(1~5 a生)追肥以磷、钾为主,不追施氮肥,磷、钾比例为1:1。

### 3.3 花果管理

‘新11号’具有花序坐果率高、丰产性强的特点,注意做好疏花疏果工作,防止果实小、树势早衰。(1)疏花序:从花序分离到开花前进行。树冠内每15~20 cm空间留1.5~2.0个花芽,留强壮果枝上的花序。(2)疏果:落花期1周开始,3周内结束,疏除畸形果(霜环、冻伤果)、小果、虫果、碰伤和划伤的残次果。

### 3.4 树形选择

栽植行株距为(4~5)m×(3~4)m,树形宜采用“3+1”树形(改进疏散分层形),并需适当加大层间距至1.5~2 m;栽植行株距为4 m×1.5 m,树形宜采用细长纺锤形。

### 3.5 病虫害防治

早春发芽前,喷1次5 mg·kg<sup>-1</sup>石硫合剂,消灭越冬病虫;重点加强梨小食心虫、苹果蠹蛾和腐烂病的防治,利用杀虫灯、诱虫带、粘虫版、性诱剂等诱杀害虫,保护天敌。

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