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甜瓜新品种兰白946的选育

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摘 要:兰白946为杂交一代厚皮甜瓜新品种,植株长势强,株型疏散。叶片五角形,缺刻浅,叶色黄绿。雄花两性花同株。该品种为中熟品种,在甘肃省兰州市皋兰县春大棚种植全生育期110 d,果实发育期45 d。果实短椭圆形,果皮灰白色,有不规则稀网。果肉翠绿,肉厚5.0 cm,果肉中心可溶性固形物含量(*w*)16.8%,肉质软糯多汁,风味浓郁,具有兰州白兰瓜的原始风味。平均单果质量2.0 kg。中抗白粉病、霜霉病,适宜甘肃省中、西部地区保护地及露地覆膜栽培。

关键词:厚皮甜瓜;新品种;兰白946;白兰瓜

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Breeding report of a new muskmelon cultivar Lanbai 946

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Abstract: Lanbai 946 is a new muskmelon cultivar bred by heterosis. Its parents were the monophyletic materials 20G5 and 20G25. The female parent 20G5 was selected from C56 that was introduced from Gansu Branch of the National Germplasm Bank in 2015. The male parent 20G25 was selected from PI 618819 that was introduced from the Plant Introduction Station in North-central America in 2015. The parent lines were purified by successive generations. The 29 hybrid combinations of muskmelon were selected in a greenhouse in the spring of 2020, and preliminarily assessed in the autumn of 2020 at Lanzhou. The combinations were assessed again in the spring of 2021 and 2022, and the combination C61 was selected for its excellent comprehensive characteristics. The varietal yield test was performed for two years in the spring from 2021 to 2022, and the combination C61 was selected for its excellent comprehensive characteristics. The regional adaptability testing was carried out at five sites of the Gansu Province over two years from 2022 to 2023, and it was finally selected and named Lanbai 946. It is a medium-maturity variety, the whole growth period is about 110 days and the fruit development period is about 45 days in the plastic greenhouse in Gaolan County, Lanzhou City of Gansu Province. The plant grows strongly and the plant shape is sparse. The leaf shape is pentagonal with shallow-incised leaf and the color is yellowish to green. The male flowers and the bisexual flowers grow on the same plant. The fruit shape is oval with the fruit shape index of 1.1. The pericarp is greyish-white with irregular fine lines. The flesh is green with the thickness is 5.0 cm, the soluble solids content is about 16.8% and the Vc content is about 15.6 mg per 100 g. The flesh is crisp and juicy with the original flavor of Lanzhou Bailan melon. The average fruit weight is about 2.0 kg. The average yield per 666.7 m^2 is up to 2501 kg. In vertical cultivation, the best density is 1500−1600 plants per 666.7 m^2, with 1−2 vines, and the secondary vine bears fruits. In crawl cultivation, the best density is 1200−1300 plants per 666.7 m^2, the

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stem tips are pinched in the period of 7−8 leaves with 3−4 secondary vines, and the tertiary vine bears fruits, one fruit for each plant. The seeds have yellowish-brown coat and the thousand-grain weight is about 36 g. It is moderate resistant to powdery mildew and mildew. It is suitable for protected cultivation in central and western regions of Gansu Province. The soil water content must be strictly controlled during flowering, and irrigation should be stopped before harvest. The carpopodium is easy to shed after full maturity, and by this time the storage and transportation capacities were reduced, so it is recommended to be harvested timely. Attention should be paid to prevent the occurrence of diseases and pests during maturity. It has been registered as Non-Major Crop Variety by the Ministry of Agriculture and Rural Affairs of the People's Republic of China in December 2024.

Key words: Muskmelon; New cultivar; Lanbai 946; White Lanzhou melon

甜瓜(*Cucumis melo* L.)为葫芦科甜瓜属1年生蔓生草本植物,依据其植物学、生态学以及农业生物学特性分为厚皮甜瓜和薄皮甜瓜两大类[1]。中国甜瓜播种面积和产量均居于世界首位[2]。甘肃是全国著名的甜瓜产区,甜瓜种植历史悠久[3]。兰州白兰瓜皮白肉绿,外形美观,果肉酥软多汁,风味浓郁,在国际市场上享有一定的声誉。20世纪八九十年代,随着甜瓜种植面积扩大,为了增强耐贮运性,甜瓜品种以硬肉为主,兰州白兰瓜丢失了酥软多汁和清香扑鼻的独特风味[4]。近年来,随着冷链运输和各种包装技术不断更新,贮运性不再是制约品种推广的主因。笔者课题组致力于打造"甘味"农产品,选育出具有兰州白兰瓜原始风味的甜瓜新品种兰白946(图1),以满足甘肃省甜瓜产业需求。

1 选育过程

兰白946是利用杂种优势选育的厚皮甜瓜优良杂种一代。母本20G5是2015年从国家种质资源库甘肃分库引进的编号为C56的白兰瓜类型材料经多代自交选纯。母本20G5植株生长势中等,株型疏散,叶片大小中等,叶色浅绿,抗白粉病,雄花两性花同株,坐果性好,果实椭圆形,果皮绿白色,果肉绿色,肉厚3.8 cm,肉质酥软多汁,风味浓郁,果肉中心可溶性固形物含量(*w*,后同)约15.1%,单果质量1.38 kg。父本20G25是2015年从美国中北部植物引种站引进的编号为PI 618819的白兰瓜类型材料连续多代自交选纯。植株长势强,株型紧凑,叶片较小,叶色深绿。雄花两性花同株,坐果性中等,果实圆形,果皮绿白色,中细网纹,果肉绿色,肉厚4.1 cm,肉质酥,果肉中心可溶性固形物含量16.2%,单果质量0.95 kg。

2020年春茬选配组合,2020年秋茬开展组合观察试验。2021—2022年早春茬开展品种比较试验,对照为当地主栽品种银帝,筛选出综合性状优良的白皮绿肉白兰瓜类型组合C61,该组合田间长势强,坐果性好,果形较对照圆,肉质较对照软糯,风味浓郁(表1)。C61每666.7 m^{2}平均产量3 104.83 kg,较对照银帝(每666.7 m^{2}产量2 958.80 kg)高146.03 kg。

2022—2023年开展多点区域适应性试验(表2),兰白946每666.7 m^{2}平均产量为2 778.2 kg。2023年进行生产试验(表3),兰白946每666.7 m^{2}平均产量

图1 白兰瓜新品种兰白946

Fig. 1 A new melon cultivar Lanbai 946

表1　兰白946与银帝主要性状差异

Table 1　Comparision of main characteristics of Lanbai 946 and Yindi

品种 Cultivar	果形指数 Fruit shape index	皮色 Pericarp color	果肉颜色 Flesh color	果肉厚度 Flesh thickness/cm	w（可溶性固形物）Soluble solid content/%		果实发育期 Fruit development period/d	落蒂性 Shedding trait
					中心 Central	边部 Edge		
兰白946 Lanbai 946	1.1	灰白 Greyish white	绿 Green	5.3	16.8	12.6	45	落 Shedding
银帝 Yindi	1.3	灰白 Greyish white	浅绿 Pale green	4.3	15.0	9.6	48	不落 No shedding

表2　品种区域试验

Table 2　Variety regional test

年份 Year	地点 Place	种植模式 Model	产量 Yield per 666.7 m²/kg		
			兰白946 Lanbai946	银帝 Yindi	比对照 Compare control/±%
2022	兰州皋兰 Gaolan, Lanzhou City	春大棚 Spring greenhouse	3 014.70	2 930.97	2.86
	兰州皋兰 Gaolan, Lanzhou City	春大棚砂田 Spring greenhouse sandy land	2 947.54	2 835.73	3.94
	天水武山 Wushan, Tianshui City	春大棚 Spring greenhouse	2 831.83	2 880.37	−1.69
	平凉泾川 Jingchuan, Pingliang City	春大棚 Spring greenhouse	2 930.20	2 921.97	0.28
	武威民勤 Mingqin, Wuwei City	露地 Open field	2 731.73	3 013.83	−9.36
2023	皋兰长川 Changchuan, Gaolan County	春大棚 Spring greenhouse	2 755.57	2 745.18	0.38
	皋兰老鹳 Laoguan, Gaolan County	春大棚砂田 Spring greenhouse sandy land	2 653.30	2 587.43	2.55
	平凉泾川 Jingchuan, Pingliang City	春大棚 Spring greenhouse	2 502.60	2 747.77	−8.92
	庆阳西峰 Xifeng, Qingyang City	春大棚 Spring greenhouse	2 737.80	2 663.72	2.78
	武威民勤 Mingqin, Wuwei City	露地 Open field	2 676.70	2 774.20	−3.51
平均产量 The average yield per 666.7 m²/kg			2 778.20	2 810.12	−1.14

表3　品种生产试验

Table 3　Variety production test

年份 Year	地点 Place	种植模式 Model	产量 Yield per 666.7 m²/kg		
			兰白946 Lanbai946	银帝 Yindi	比对照 Compare control/±%
2023	兰州皋兰 Gaolan, Lanzhou City	春大棚 Spring greenhouse	2 837.40	2 626.27	8.04
	兰州皋兰 Gaolan, Lanzhou City	春大棚砂田 Spring greenhouse sandy land	2 434.85	2 420.92	0.58
	平凉泾川 Jingchuan, Pingliang Cit	春大棚 Spring greenhouse	2 557.37	2 466.33	3.69
	庆阳西峰 Xifeng, Qingyang City	春大棚 Spring greenhouse	2 291.40	2 382.38	−3.82
	武威民勤 Mingqin, Wuwei City	露地 Open field	2 349.72	2 573.70	−8.70
	酒泉瓜州 Guazhou, Jiuquan City	春大棚 Spring greenhouse	2 535.28	2 602.48	−2.58
平均产量 The average yield per 666.7 m²/kg			2 501.00	2 512.01	−0.44

为2 501.0 kg，与对照银帝相当，田间表现坐果性好，果实短椭圆形，果肉翠绿，肉质软糯多汁，风味浓郁，在兰州市皋兰县、武威市民勤县等地均表现出良好的适应性。2024年12月通过农业农村部非主要农作物品种登记，登记编号：GPD甜瓜（2024）620218。

2　主要性状

2.1　植物学特征

兰白946种子黄褐色，千粒质量36 g。植株长势强，株型疏散，节间长度20 cm，叶片形状五角星，缺刻浅，叶色黄绿。雄花两性花同株，花冠黄色。子房茸毛少，幼果无苦味。吊蔓栽培单蔓或双蔓整枝，子蔓坐果；趴地栽培3~4蔓整枝，以孙蔓坐果为主，坐果性好。

2.2　果实主要特征

兰白946为杂交一代厚皮甜瓜新品种，具有兰州白兰瓜的原始风味。果实短椭圆形，果皮灰白色，有不规则稀网（图1），平均单果质量2.0 kg。果肉翠

绿，肉厚5.0 cm，果肉中心可溶性固形物含量16.8%，边部可溶性固形物含量12.6%，果肉维生素C含量15.6 mg·100 g^{-1}。肉质软糯多汁，风味浓郁，口感佳。

2.3 物候期

兰白946熟性中等，早春茬3—6月兰州市皋兰县旱砂大棚覆膜种植，趴地栽培，孙蔓坐果，全生育期110 d左右，果实发育期45 d。秋延后8—11月温室吊蔓栽培，全生育期120 d，果实发育期47~50 d。

2.4 抗病性及适应性

兰白946田间抗病性鉴定结果表明，对自然诱发的白粉病，病情指数13.15，中抗白粉病；对自然诱发的霜霉病，病情指数18.13，中抗霜霉病。适宜在西北生态区保护地及露地起垄覆膜种植。

3 栽培技术要点及注意事项

3.1 栽培技术要点

该品种适宜在甘肃省兰州市、武威市等地区日光温室、早春大棚、小拱棚及露地起垄覆地膜栽培，起垄前施足基肥，基肥以猪粪、牛粪等有机肥为主，每666.7 m^2配施复合肥50~100 kg。育苗适宜温度20~30 ℃，不能低于15 ℃，尽量延长光照时间。两叶一心或三叶一心时选壮苗定植；吊蔓栽培每666.7 m^2保苗1500株左右，单蔓或双蔓整枝，子蔓坐果；爬地栽培每666.7 m^2保苗约1200株，7~8叶期打顶，留3~4条子蔓，每条子蔓留1~2条孙蔓，孙蔓坐果，每株留1果。开花坐果期适宜温度25~35 ℃，坐果期要及时整枝打杈、浇足水，促进坐果；果实发育期45 d左右，成熟期控水。适时采收，以防止过熟后落蒂影响风味。

3.2 注意事项

膨瓜期要及时灌水，缺水容易化瓜；坐果期要及时整枝，促进坐果；果实成熟期灌水需谨慎，灌水过多易烂果；完熟后易落蒂，贮运性降低，建议适时采收。生长后期及时防病。

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