

## Research Note

## 'Brilliant Seedless': A new medium-ripening seedless table grape

HAI-SHENG SUN, XIU-CAI FAN, MIN LI, YING ZHANG,  
JIAN-FU JIANG and CHONG-HUAI LIU

Zhengzhou Fruit Research Institute of the Chinese Academy of Agricultural Sciences, Zhengzhou, Henan Province, China

**Key words:** table grape; medium-ripening; seedless cultivar.

**Introduction:** The changes in the consumer preference generated a need for seedless table grape cultivars in China (ZHANG and NIU 2013). Consequently in recent years, breeders of China developed several seedless table grape varieties, such as 'YuehongWuhe', 'Zhao xia wu he' and 'Zheng yan wu he' (JIANG *et al.* 2010, ZHAO *et al.* 2014, LIU *et al.* 2016, MAO *et al.* 2016). In the same context a table grape breeding program was developed at the Zhengzhou Fruit Research Institute of the Chinese Academy of Agricultural Sciences in Zhengzhou (34°48'N and 113°42'E), where the winter temperature is usually between 8 and -6 °C and summer temperature ranges from 28 to 36 °C. From that program a new table grape, 'Brilliant Seedless' (*Vitis vinifera* L.), was released in 2017. It is a mid-season red and seedless cultivar with moderate-firm flesh. It is suitable for growing in a greenhouse and other facilities in north-western and northern China.

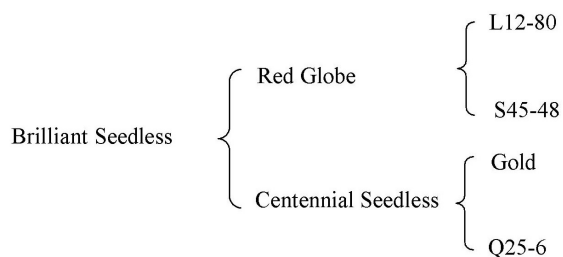


Figure: Pedigree of 'Brilliant Seedless' grape.

**Genetic background:** 'Brilliant Seedless' (Figure) originated from a hand-pollinated cross between 'Red Globe' and 'Centennial Seedless' conducted in May 2009. The seed parent Red Globe is a late-season cultivar with red and very firm, globose berries. The pollen parent 'Centennial Seedless', is a mid-season cultivar, with yellow green, seedless, oblong berries. The original plant was selected in 2012 and tested as S49-1-6. In 2013 and 2014, a field trial was established. The plantings were spaced at 2.5 × 1.3 meters and trained in a vertical system.

**Description of 'Brilliant Seedless':** During 5 years of observation in Zhengzhou, on the average bud break occurred in early April, bloom happened in early May and harvest was conducted in early August. The bunch is large, conical in shape with no shoulder and medium-dense. It has an average weight of 1194 g. The red and seedless berry is of long elliptic shape, 18.0 mm in diameter and 21.0 mm in length. The flesh is moderately firm with slight muscat flavour and the berry skin is thin. The average weight of a berry is 4.0 g; a single berry could reach 6.0 g. The berry is difficult to be detached from pedicel. The average soluble solid content of 'Brilliant Seedless' is 19.5 %, with a maximum of 21.0 %. In the first year of production in 2015, yield was about 39,000 kg·ha<sup>-1</sup>, and reached about 40,000 kg·ha<sup>-1</sup> in 2016. 'Brilliant Seedless' resembles its seed parent in cluster density, growth vigour, skin colour, flesh texture and yield. It also resembles its pollen parent in with respect to maturation period, berry shape, and seedlessness (Table).

Table

Comparison of fruit characteristics between 'Brilliant Seedless' and the parents

Year	Characteristic	Brilliant Seedless	Red Globe	Centennial Seedless
2014	Soluble solids (%)	21.0	15.3	18.3
	Cluster weight (g)	1080.0	879.5	537.4
	Berry weight (g)	3.9	8.6	4.3
	Harvest date	Aug 9	Sep 15	Aug 11
2015	Soluble solids (%)	20.3	15.8	18.2
	Cluster weight (g)	1193.0	1002.3	548.8
	Berry weight (g)	4.2	9.2	4.6
	Harvest date	Aug 16	Oct 26	Aug 20
2016	Soluble solids (%)	19.4	15.4	18.8
	Cluster weight (g)	1200.0	809.5	530.2
	Berry weight (g)	4.0	8.2	4.0
	Harvest date	Aug 11	Sep 15	Aug 10

'Brilliant Seedless' vines are very vigorous with medium internodes. For commercial production, the cluster size of this grape should be thinned to 100 berries; since it usually produces two clusters per shoot, one cluster can be removed. The shoulder and the tip must be removed in

Correspondence to: Prof. CHONG-HUAI LIU, Zhengzhou Fruit Research Institute of the Chinese Academy of Agricultural Sciences, Zhengzhou 450009, Henan Province, China. E-mail: liuchonghuai@caas.cn

© The author(s).



This is an Open Access article distributed under the terms of the Creative Commons Attribution Share-Alike License (<http://creativecommons.org/licenses/by-sa/4.0/>).

order to improve fruit presentation. Thinning must be done before veraison to avoid squeezing. It shows weak resistance to mildew diseases.

Passport data on this cultivar can be found under 'variety number vive25551' in the *Vitis* International Variety Catalogue (<http://www.vivc.de>).

This research was supported by China Agriculture Research System (CARS-30-yz-1) and The Agricultural Science and Technology Innovation Program (CAAS-ASTIP-2015-ZFRI).

- JIANG, J. F.; SUN, H. S.; LIU, C. H.; FAN, X. C.; ZHANG, Y.; 2010: Progress in the research of grape breeding from 2000 in China. *Sino-Overseas Grapevine Wine* **3**, 60-69 (in Chinese).
- LIU, C. H.; FAN, X. C.; LIN, M.; SUN, H. S.; JIANG, J. F.; ZHANG, Y.; GU, H.; LIU, S. J.; WEI, ZH. F.; 2016: A new early-ripening seedless grape cultivar 'Zheng yan wu he'. *Acta Hort. Sin.* **42**, 595-596 (in Chinese).
- MAO, R. T.; ZHAO, M. H.; WANG, F. Y.; LIU, J. L.; LI, M.; GUO, J. N.; LIU, C. H.; FAN, X. C.; 2016: Breeding report of a new early seedless grape cultivar 'Zhao xia wu he'. *J. Fruit Sci.* **33**, 637-640 (in Chinese).
- ZHANG, J. X.; NIU, R. X.; 2013: The present situation and prospect of embryo rescue technique research in seedless grape breeding. *Acta Hort. Sin.* **40**, 1645-1655 (in Chinese).
- ZHAO, W. D.; MA, L.; SUN, L. J.; GAO, S. H.; ZHAO, H. L.; WEI, G. Z.; MENG, F. R.; 2014: A new early-ripening seedless grape cultivar 'Yue hong Wu he'. *Acta Hort. Sin.* **41**, 2151-2152 (in Chinese).

*Received March 21, 2017*

*Accepted May 5, 2017*