

Research Note

‘Wanheibao’: A new polyploid late-season table grape with muscat flavor

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Key words : fresh market, table grape, cultivars.

Introduction: Consumers in north China prefer grapes with muscat flavor and big sized berries, but the existing cultivars in the local market have either muscat flavor and small-sized berries or big sized berries without muscat flavor. The ‘Wanheibao’ grape (*Vitis vinifera* L.) is a late ripening cultivar with big berry size and sweet muscat flavor. The average bud break date is April 16, average bloom date is May 29, and typical harvest date is September 25. The cultivar, has a medium to high cluster density and easy management capability. It was suitable for growing in northern China.

Material and Methods: ‘Wanheibao’ is the result of hybridization between ‘Guibao’ and ‘QiuHong’ in spring of 1999 (Figure). ‘QiuHong’ is the pollen parent with big berry size and crisp flesh. The seed parent is ‘Guibao’, a mid-season cultivar with more seeds and sweet muscat flavor. It was released by the Pomology Institute of Shanxi Academy of Agricultural Science in 1992. The harvested seeds were treated with colchicine at different temperatures (25 °C during day time and 20 °C during night time) and then planted in the field. Seedlings were first examined morphologically and then analyzed by tip-end slicing to verify the ploidy structure of the meristematic cells from

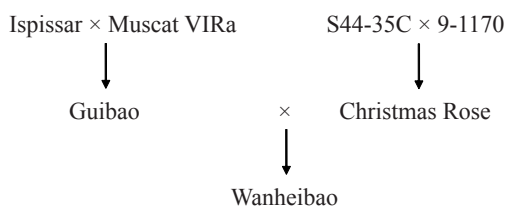


Figure: Cluster and Pedigree of ‘Wanheibao’ grape.

the LI and LII layers. The selected ‘Wanheibao’ is a tetraploid Eurasian variety.

The original plant was first selected in 2005 and tested as “99-7-4 (4)”. The year after 50 buds were grafted on 5-year-old rootstocks for trials. The plantings were spaced 3.0 x 1.5 meters and trained in vertical system. The vegetatively propagated vines first produced fruit in 2007, yielding 12,000-18,000 kg·ha⁻¹; in 2008, the yield was 18,000-22,500 kg·ha⁻¹.

The cultivar resembles its seed parent in many characteristics, such as the muscat flavor, skin color, thickness, and high yield. It resembles its pollen parent in the characteristics of berry size, late maturation and cluster structure.

Results and Discussion: ‘Wanheibao’ vines are moderate to vigorous on their own roots, with medium internodes and good productivity when spur-pruned. On the average, it ripens in late September in Shanxi. The cluster is large, has an average weight of 594.3 g and is conical-shaped and sometimes shouldered. The round to oval-shaped berry has an average weight of 8.5 g with a maximum weight of 17 g. It contains 1-2 seeds. The average berry length and width are 2.31 mm and 2.23 mm, respectively. The average internode length of the ‘Wanheibao’ grape is 8.1 cm. The berries are purple-black in color. The flesh is firm and crisp with an excellent muscat flavor and does not separate from the skin. The average soluble solid content of ‘Wanheibao’ is 21.6 %, with a maximum of 23.4 %. For commercial production, the cluster size of this grape should be thinned to 70-80 berries. The vine is early fruiting and easy to manage. No specific diseases or pests have been encountered during observations to date.

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Passport data on this cultivar can be found under 'variety number vivc24481' in the Vitis International Variety Catalogue (<http://www.vivc.de>).

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Table

Fruit characteristics of the three cultivars during 2008-2010
at the Pomology Institute of Shanxi Academy of Agricultural
Science, Shanxi

Year	Characteristics	Wanheibao	Guibao	Quihong
2008	Soluble solids	21.2 %	20.5 %	20.8 %
	Cluster weight	557.8 g	423 g	500 g
	Berry weight	7.9 g	4.8 g	5.8 g
	Harvest date	Sep 25	Sep 10	Oct 2
2009	Soluble solids	21.0 %	18.8 %	20.1 %
	Cluster weight	539.2 kg	385 g	637.5 g
	Berry weight	8.2 g	4.5 g	5.9 g
	Harvest date	Sep 28	Sep 12	Oct. 4
2010	Soluble solids	21.1 %	19.3 %	19.8 %
	Cluster weight	518 g	426 g	560 g
	Berry weight	8.0 g	4.6 g	6.1 g
	Harvest date	Sep 25	Sep 9	Oct 2

²Data are the means from 20 vines of each cultivar with 10 berries per vine.