

- ; WOLF, T.; WELSER, M. J.; 1985: Dormant season cold hardiness of five grape cultivars growing in New York as assessed by differential thermal analysis [Abstr.]. *HortScience* **20**, 531.
- PROEBSTING, E. L. Jr.; ANDREWS, P. K.; 1982: Supercooling and *Prunus* flower bud hardiness. In: LI, P. H.; SAKAI, A. (Eds.): *Plant Cold Hardiness and Freezing Stress*, 529-539. Academic Press, New York.
- REISCH, B. I.; POOL, R. M.; WATSON, J. P.; ROBINSON, W. B.; COTTRELL, T. H. E.; 1986: 'Melody' grape. *HortScience* **21**, 158-159.
- WOLF, T. K.; POOL, R. M.; 1986: Microcomputer-based differential thermal analysis of grapevine dormant buds. *HortScience* **21**, 1447-1448.

Grape breeding for cold resistance in North-east China for 30 years

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Jilin Province is located at north-east of China. The minimum temperature in winter is -34 °C. There was almost no grape production before the 1940s.

A breeding program based on *Vitis amurensis* (a native cold hardy species) x *V. vinifera* and *V. labrusca* hybridizations was initiated in 1951, including more than 200 combinations and 15,000 hybrid seedlings. Two winter-hardy and high-yield wine cultivars Gong-niang No. 1 (*V. vinifera* x *V. amurensis*) and Gong-niang No. 2 (*V. amurensis* x *V. vinifera*) were released and planted over a wide area. From progenies of (*V. amurensis* x *V. vinifera*) x *V. vinifera* some other winter-hardy genotypes with high sugar content and disease resistance were also obtained which are suitable for red and white wine.

The inheritance of winter hardiness of the hybrids between *V. amurensis* and *V. vinifera* was continuous variation. Most of the hybrid seedlings are adapted to the severe winter conditions which occur in Jilin Province.

The interspecific hybrids had high sugar content, and the wines were evaluated as having good quality and *vinifera* character. The F₁'s berries were black in color and white color ones from which white wine could be produced were obtained only in progenies of (*V. amurensis* x *V. vinifera*) x *V. vinifera*.

The ratio between hermaphrodites (♂) and females (♀) of the F₁ hybrid from *V. amurensis* (♀) x *V. vinifera* (♂) was about 1 : 1, while more than 70 % hermaphrodite ones were obtained from F₁ (♂) x *V. vinifera* (♂).

The hybrids were high resistant to *Elsinoe ampelina*, but susceptible to *Plasmopara viticola* as is *V. amurensis*. Strains showing high resistance to *Plasmopara viticola* could be obtained from (*V. amurensis* x *V. vinifera*) x *V. vinifera*.