Vitis **33**, 96 (1994)

Research Note

Evidence for tertiary buds within latent buds of Müller-Thurgau grapevines

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K e y w o r d s : Vitis vinifera, latent bud, anatomy.

Introduction: The compound latent (winter) buds of grapevines have a complex structure. According to most authors longitudinal cuttings indicate the main or primary bud in the center and, above and below, two secondary buds (Krömer 1923, Sartorius 1937, Pratt 1974, Winkler *et al.* 1974). On the axis of the secondary buds tertiary buds may be found (Branas 1946, Huglin 1958, Mullins 1992). In a series of experiments we dissected the primary, the two secondary and a tertiary bud within latent buds of the economically important variety Müller-Thurgau.

Material and methods: From September to November canes of Müller-Thurgau vines with up to 15 nodes were cut in the field. The buds were dissected under a binocular (Olympus 2 x G 15) using a Schott KL 1500 lamp as a light source. The bud scales and the hair were carefully removed by a special pair of microtweezers. It took about 15-25 min to dissect a latent bud.

Results and discussion: In most of the buds visually classified as intact on the left side of the upper secondary bud a tertiary bud was detected (Figure). A more detailed analysis of latent buds of 5 canes of Müller-Thurgau vines indicated that all the buds between node 4 (basal) and node 14 (apical) contained a tertiary bud. 80% of the buds at the basal nodes 1-3 and the apical node 15 showed bud necrosis. As far as the authors are aware the existence of tertiary buds has been mentioned frequently in literature (Branas 1946, Huglin 1958, Bouard 1971) but convincing photos have not been published. According to the latter authors latent buds consist of 1, 2, 3.... n buds, the structure of the buds getting rudimentary with increasing order: while secondary buds of some varieties may contain inflorescences tertiary buds are assumed to contain no inflorescences (Branas 1946, Huglin 1958). Our results neither confirm nor reject this assumption, but work is in hand to cultivate these buds *in vitro* to obtain more information, e.g. on their possible role in bud fruitfulness.

Acknowledgement: The authors wish to thank the "Deutscher Akademischer Austauschdienst" (DAAD) for financial support.

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Figure: Primary (1), secondary (2, 3) and tertiary (4) buds in a latent bud of the *Vitis vinifera* var. Müller-Thurgau.

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