

## **Application of composite samples to a grape ripening monitoring**

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Composite samples require less measurements and therefore lower the costs. On the other side, some information is lost, especially on the variability within the individual samples. The objective of our study was to evaluate the possible role of composite samples in grape ripening monitoring.

Grape ripening monitoring was done in 6 separate vineyards of the cultivar 'merlot' in Goriška Brda, Slovenia in 2004. Each vineyard was divided into 4 subplots. Sampling was done on four dates: 30.8., 8.9., 17.9 and 22.9.2004. Individual samples were collected from each subplot and were analyzed in the laboratory. In the laboratory, subplot samples from each vineyard were composed into a *vineyard composite sample* (VCS). On the second step, vineyard composite samples were composed in three different ways: either 3, 4, or 6 VCS were composed into *composite samples of order 3, 4 or 6* (CS3, CS4, CS4). On all samples (individual and composite) the following measurements were done: total sugars on refractometre, total acids with titration and measurements on HPLC (fructose, glucose, sucrose, total sugars, citric, tartaric, malic, shikimic and fumaric acid).

CS mean was compared with the average of all individual samples in the composite sample. Statistical assessment was focused (1) on the range, (2) on the relative error, and (3) on the confidence interval for the mean. The results show perfect correspondence for total sugars measured on refractometre and for total acids with titration. HPLC measurements show satisfactory correspondence for tartaric and maleic acid only, other results were unfavorable, possibly due to a laboratory mistake and/or to the dilution problem.