



**Thesis title:** Study of the response of a wide range of grape varieties to climate changes in Bordeaux: *A phenological study of grape vines by means of a new analysis methodology to classify grape varieties.*

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**Date & location of the oral examination (if known) :**

**Confidential:**  Yes  No

**Abstract (max 300 words)**

**Topic position & objectives:** The influence of climate over grape vine development is noticeable, particularly its influence in the precocity of the phenological cycle, thus, affecting its qualitative grape potential. The adaptation of viticulture to the new surrounding conditions created by climate change, represent a major challenge to the wine producing area of Bordeaux over the next decades. Climate change will carry an advance on the precocity of the phenological cycle of the vines endangering the production of high-quality wines. On pessimistic scenarios, drastic changes will have to be considered, for instance, the introduction of non-autochthonous grape varieties with late phenological cycle.

The Vitadapt project proposes to study the evolution of a wide range of grape varieties in the context of changing climatic conditions in Bordeaux, looking for potential candidates for a possible introduction to the wine production area of Bordeaux

**Methods:** A wide range of varieties was established on an experimental vineyard with 52 grape varieties. Budburst, flowering and veraison dates are recorded throughout the season. The adaptation of the “precocity indexes” as a tool to compare a wide range of grape varieties as well as to form precocity groups of precocity is suggested.

**Results:** Precocity indexes were successful in establishing a ranking of the phenological precocity among all grape varieties. Grape variety cluster formation based on this precocity ranking was also successful, forming homogenous group of varieties when the analysis were performed within a season (season 2014). When comparing length of cycles, results were more erratic.

Nevertheless, the methodology was successful in establishing a classification among varieties based on their precocity of grapevine cycle. Even more, when comparing among seasons the classification was highly consistent.

**Main conclusions:** The results show that despite a successful performance within season analysis, for multi-seasonal comparisons temporal robustness is required in order to conclude about the overall methodology performance.

**Keywords (5):** budburst, climate change, , floraison, phenology, veraison