

Phenological Characterization and Thermal Requirement in Grapevines under Overhead Plastic Cover

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The plastic overhead cover (POC) of grapes is increasing in Brazilian vineyards aiming to reduce physical and biological damages. The work aims at evaluating the POC effect on phenology behavior and thermal requirement of grapevines. The experiment was installed in 2005/2006, in Flores da Cunha, Rio Grande do Sul, Brazil, in a vineyard of 'Moscato Giallo', trained in "Y" and covered with an impermeable plastic cloth (2.65m x 160m), in 12 rows with 35m, being left 5 rows without covering (control). The plants were grafted onto the Kobber 5BB rootstock and planted in a density of 3703 plants/ha (3.0 x 0.9m). In both areas, the microclimate was evaluated in presence of free water (visual register), temperature (T), relative humidity (RH) of the air, photosynthetically active radiation (PAR) and wind speed (WS) above the canopy and close to the cluster. The phenology had been followed weekly visually since the winter pruning until the leaves fall of 10 plants in each system (POC and control). The degree-days (GD°C) were calculated using 10°C as base temperature. The POC increased the temperature at the canopy and clusters levels, but did not have influence upon the RH. This system also reduced the PAR and wind speed as well as restricted drastically the free water on the leaves. Anticipation was observed on the beginning of budburst and veraison due to the largest GD°C proportionated by the POC. However, plants in POC had a delay in the evolution of maturation, which could be related to restriction of PAR on the clusters (-55%). To the total cycle was necessary 2079 GD°C in the covered area and 1847 GD°C in the control. The POC alters microclimate and vine physiology, which must be considered in the management of vineyard.

Keywords: microclimate, grape, phenologic behavior, budburst, plasticulture

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