

## Effect of different packaging materials on table grape quality preservation during cold storage

L. R. Forleo<sup>1</sup>, T. Basile<sup>1</sup>, D. Mallardi<sup>1</sup>, F. Ferrulli<sup>1</sup>, B. Suriano<sup>1</sup>, A. Salerno<sup>1</sup>, A. D. Marsico<sup>1</sup>, C. Bergamini<sup>1</sup>, M.F. Cardone<sup>1</sup>, R. Perniola<sup>1</sup>

<sup>1</sup> Council for Agricultural Research and Economics -Research Center Viticulture and Enology (CREA-VE), Via Casamassima 148-70010 Turi (Ba), Italy

\*Corresponding author: [luciarosaria.forleo@crea.gov.it](mailto:luciarosaria.forleo@crea.gov.it)

### Abstract

During cold storage, grapes undergo changes that affect their visual, mechanical, and organoleptic properties, potentially impacting quality and negatively influencing consumer acceptance. Key parameters include uniform color, crunchiness, and flesh consistency. We evaluated the influence of two distinct packaging methods on the chromatic characteristics, hardness, and pedicel detachment resistance of fourteen new seedless white and red grape varieties during cold storage. These factors are crucial for maintaining the quality of the product and extending its shelf-life. The novel grape varieties were obtained through a breeding program at CREA-VE of Turi, Southern Italy. The harvested bunches were divided into carton boxes and plastic clamshells without SO<sub>2</sub> generating pads. They were then stored at 2°C with 95% relative humidity. The CIELab coordinates, hardness value, and pedicel detachment force of the berries were measured at harvest and after 14 and 21 days of cold storage. The differences between the groups were assessed using an ANOVA, followed by Fisher's LSD post-hoc test. In the case of carton packaging, cold storage did not affect the hardness of seven varieties, the chromatic coordinates of three varieties, and the pedicel detachment force of ten varieties. However, for plastic-packed varieties, two groups of six different varieties each showed stable values of hardness and detachment, while four varieties maintained the colour parameters. When it comes to Barese cv. packed in both carton boxes and plastic clamshells, there was no significant difference in any of the parameters evaluated, indicating a good cold storage ability.

**Keywords:** *Vitis Vinifera*, packaging, postharvest, quality, cold storage.