

physiological parameters may further improve the prediction of yield and quality traits. However, large-scale adoption of digital technologies is still limited by equipment costs, data-processing capacity, and technical compatibility. Therefore, future development should focus on sensor integration, Internet of Things (IoT)-based monitoring, and intelligent decision-support platforms to promote precision pruning, irrigation, fertilization, and harvesting management.

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Conflict of Interest Disclosure

The author affirms that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

References

- Chen H., Li C., Li Y., Wang X., and Xi Z., 2024, Effects of cultivars as rootstocks on the expression of aroma components and related genes in ‘Shine Muscat’ grape, *European Food Research and Technology*, 250(4): 1043-1059.
<https://doi.org/10.1007/s00217-023-04444-1>
- Chen J., Guo Y., Hu H., Fang C., Wang L., Hu L., Lin Z.F., Zhang D., Yang Z., and Wu Y., 2025, Regulation of cell metabolism and changes in berry shape of Shine Muscat grapevines under the influence of different treatments with the plant growth regulators gibberellin A3 and N-(2-chloro-4-pyridyl)-N’-phenylurea, *Horticulturae*, 11(10): 1160.
<https://doi.org/10.3390/horticulturae11101160>
- Cheng D., He S., Li L., Tong X., Gu H., Sun X., Li M., and Chen J., 2025, Effects of mepiquat chloride and chlormequat chloride on the growth and fruit quality of ‘Shine Muscat’ grapevines, *Agriculture*, 15(12): 1267.
<https://doi.org/10.3390/agriculture15121267>
- Cheng D., He S., Li L., Tong X., Gu H., Sun X., Li M., and Chen J., 2026, Impact of prohexadione calcium and mepiquat chloride on vegetative growth and fruit quality in ‘Shine Muscat’ grapevines, *Horticulturae*, 12(4): 418.
<https://doi.org/10.3390/horticulturae12040418>
- Choi S., Ban S., and Choi C., 2023, The impact of plant growth regulators and floral cluster thinning on the fruit quality of ‘Shine Muscat’ grape, *Horticulturae*, 9(3): 392.
<https://doi.org/10.3390/horticulturae9030392>
- Collins C., Wang X., Lesefko S., De Bei R., and Fuentes S., 2020, Effects of canopy management practices on grapevine bud fruitfulness, *OENO One*, 54(2): 313-325.
<https://doi.org/10.20870/oeno-one.2020.54.2.3016>
- De La Fuente M., Linares R., Lissarrague J.R., Sánchez-Élez S., and Baeza P., 2026, Influence of canopy vineyard management on physiological behaviour and radiation interception efficiency in Syrah, *Horticulturae*, 12(2): 242.
<https://doi.org/10.3390/horticulturae12020242>
- Del Zozzo F., and Poni S., 2024, Climate change affects choice and management of training systems in the grapevine, *Australian Journal of Grape and Wine Research*, 2024: 7834357.
<https://doi.org/10.1155/2024/7834357>
- Doğan O., 2025, Determination of effects of some summer pruning applications on yield and quality characteristics of Alphonse Lavallée (*Vitis vinifera* L.) grape variety, *Horticulturae*, 11(4): 445.
<https://doi.org/10.3390/horticulturae11040445>
- Domingues Neto F.J., Tecchio M.A., Borges C.V., Rodrigues J.D., Ono E.O., Lima G.P.P., Moura M.F., Hernandes J.L., Silva M.S., and Leonel M., 2024, Yield performance and quality assessment of Brazilian hybrid grapes influenced by rootstocks and training systems, *Horticulturae*, 10(9): 909.
<https://doi.org/10.3390/horticulturae10090909>
- Dou F., Phillip F.O., and Liu H., 2024, Combined metabolome and transcriptome analysis revealed the accumulation of anthocyanins in grape berry (*Vitis vinifera* L.) under high-temperature stress, *Plants*, 13(17): 2394.
<https://doi.org/10.3390/plants13172394>
- Du W., Li S., Du T., Huang W.C., Zhang Y., Kang H., Yao Y., Gao Z., and Du Y.P., 2023, ‘Miguang’ grape response to pergola and single-curtain training systems, *Horticulturae*, 9(1): 113.
<https://doi.org/10.3390/horticulturae9010113>
- Galar-Martínez M., Torres N., Sebastián B., Palacios J., Arzoz I., Juanena N., Villa-Llop A., Loidi M., Dewasme C., Roby J.P., and Santesteban L.G., 2024, Respectful pruning improves grapevine development: a case study in young vineyards, *Australian Journal of Grape and Wine Research*, 2024: 8448405.
<https://doi.org/10.1155/2024/8448405>
- Hernández-Ordoñez E., Cruz-Álvarez O., Orozco-Avitia J.A., Hernández-Rodríguez O.A., Alonso-Villegas R., Jacobo-Cuéllar J.L., Gardea-Bejar A., and Ojeda-Barrios D., 2024, Physiological responses of cabernet sauvignon to dividing canopies in the chihuahuan desert, *Agriculture*, 14(12): 2101.
<https://doi.org/10.3390/agriculture14122101>