

Title Improvements of the SO₂ technology for extended storage of table grapes
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Abstract

The SO₂ technology is the current practice for storage of table grapes. While it has been under scrutiny in the last decade and there is a constant demand for alternative technologies, it remains the only established method for extended storage of table grapes. We present 3 tools which improve the efficiency, longevity and accuracy of storage of grapes with SO₂. Most of the dusty is packaging grapes in cartons containing liners in which dual release SO₂ sheets are placed on the grapes. This packaging confines the SO₂ to the clusters but it compromises the efficiency of forced air cooling. The alternative method is to avoid the use of liners and to wrap the pallet with polyethylene stretch film. This process reduces forced-air cooling time, saving energy and a considerable amount of plastic packaging material. The level of SO₂ in the pallet is low because the pallet is open its bottom and the quality of the rachis is high because the humidity in the pallet is high as well. Adoption of this technology for extended storage of 'Red Globe' grapes stored in plastic boxes, by closing the bottom of the pallets, proved to be problematic due to high levels of SO₂ and short duration of release. By placing the SO₂ releasing sheets in plastic bags containing holes in the bottom, it was possible to extend the storage from 3 month to 4.5 month with satisfactory quality and levels of sulfites within the grapes that did not exceed the threshold of 10 mg kg⁻¹. To improve the quality of the process we developed an analytical method to measure the rate of SO₂ released from the SO₂ sheets. These 3 methodologies are practiced on a commercial scale enabling storage of table grapes of consistent quality.