



10TH
INTERNATIONAL
TABLE GRAPE
SYMPOSIUM

24 NOV
10
| DEC 2018
NORWICH WEST
SOUTH AFRICA



Comprehensive Management of Dehydration in Table Grapes

Daniel Silva, Biochemist, M.Sc. in Innovation
Infruta S.A.

Exporting is a risky business

An aerial photograph of a large container ship sailing on the open ocean. The ship's deck is densely packed with colorful shipping containers in shades of red, blue, green, and orange. In the foreground, several large green cylindrical tanks are visible. The ship's superstructure, including the bridge and various deck equipment, is visible towards the stern. The water is a deep blue-green with white foam from the ship's wake.

Each passing day has an impact on
the quality of your fruit



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26 NOV
TO
1 DEC 2023
SOMERSET WEST
SOUTH AFRICA

4%

weight loss

Can represent over **\$115 MM** in losses per season for the Chilean market.





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Symptoms of dehydration



Physical process

Associated with water loss in tissues.
Directly related to environmental conditions (Temperature and humidity).

Chemical/enzymatic process

Associated with oxidative and degradative processes related to metabolism and senescence (“browning”).



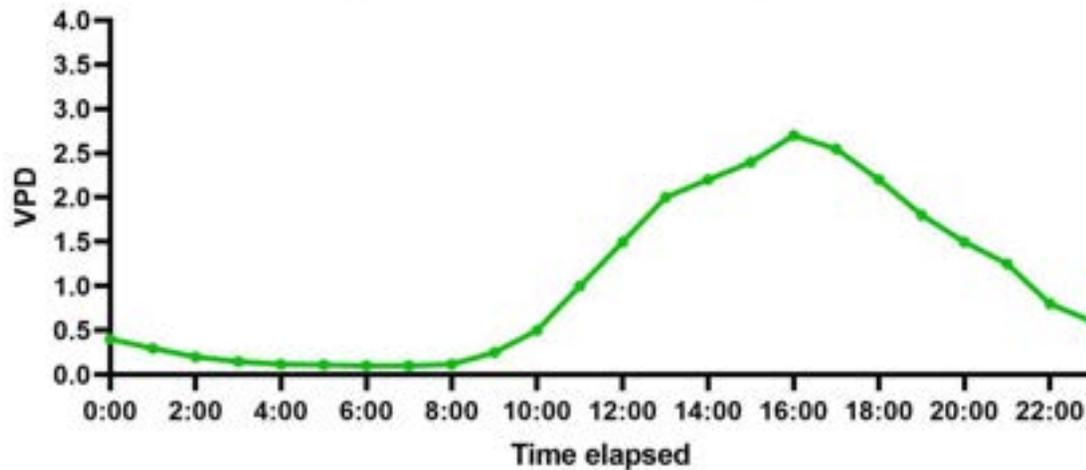
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Environmental conditions for dehydration - Vapor Pressure Deficit (VPD)

Vapor Pressure Deficit Progression



01

Vapor Pressure Deficit: difference between the amount of moisture in the air and how much moisture the air can hold when it is saturated.

02

The lower the VPD, the less dehydrating the environment is for the fruit.



Exportadora Río King - A Case Study

Central Valley in Chile

The Value Chain



Where should we focus our efforts?



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20-22 NOV
2019
Ljubljana, Slovenia

CONGRESS HOTEL
SLOVENIA PARK

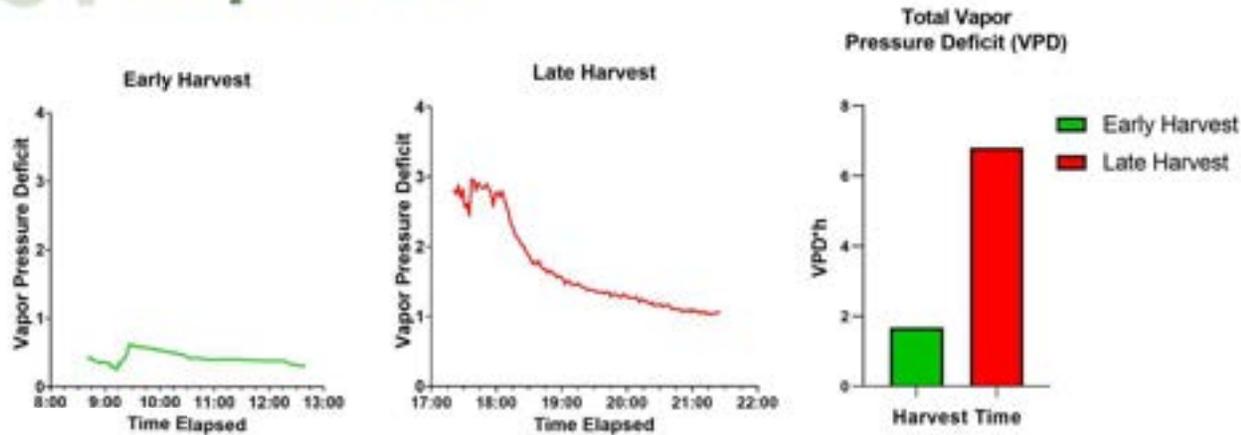
Early vs late harvest



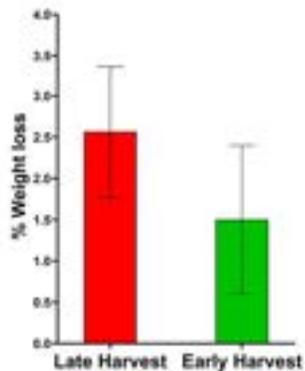
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"A grape star"



01 Vapor Pressure Deficit



02 Weight loss in table grape bunches



Sweet Globe table grapes after 40-day storage.

Early harvest significantly decreases VPD exposure and weight loss.



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20-22 NOV
2019
Ljubljana, Slovenia
SLOVENIA 2019

Use of harvest box covers

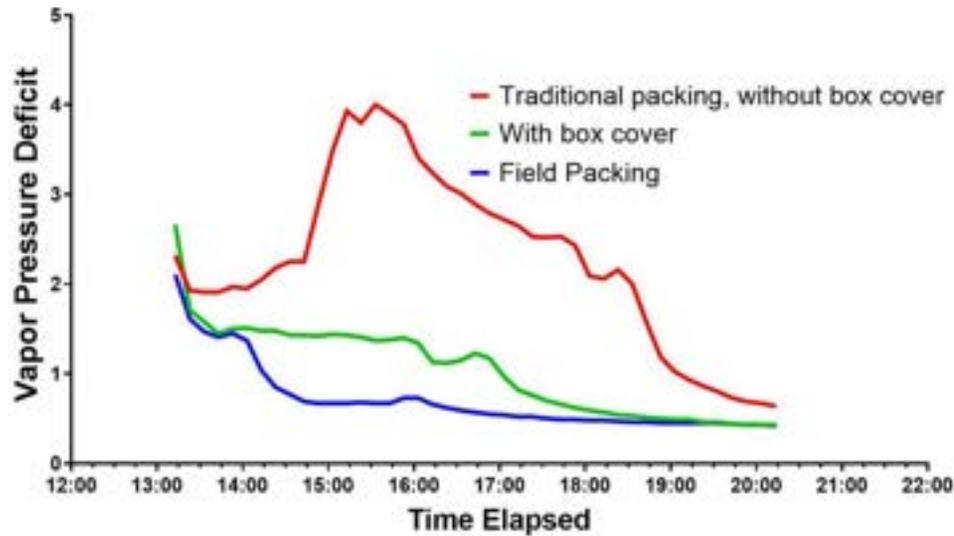


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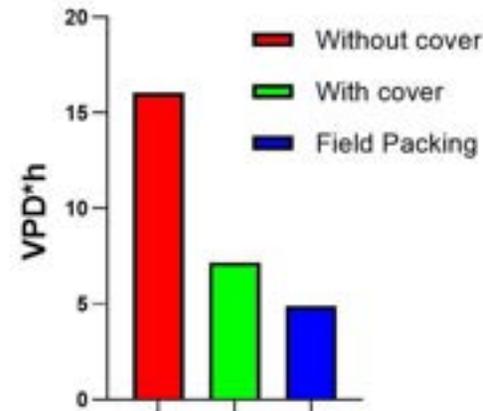


01 Vapor Pressure Deficit

Use of box covers during harvest



Total Vapor Pressure Deficit (VPD)



Use of harvest box covers in traditional packing operations significantly decreases VPD exposure to levels similar to field packing conditions.



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2023
Ljubljana, Slovenia
SLOVENIA 2023

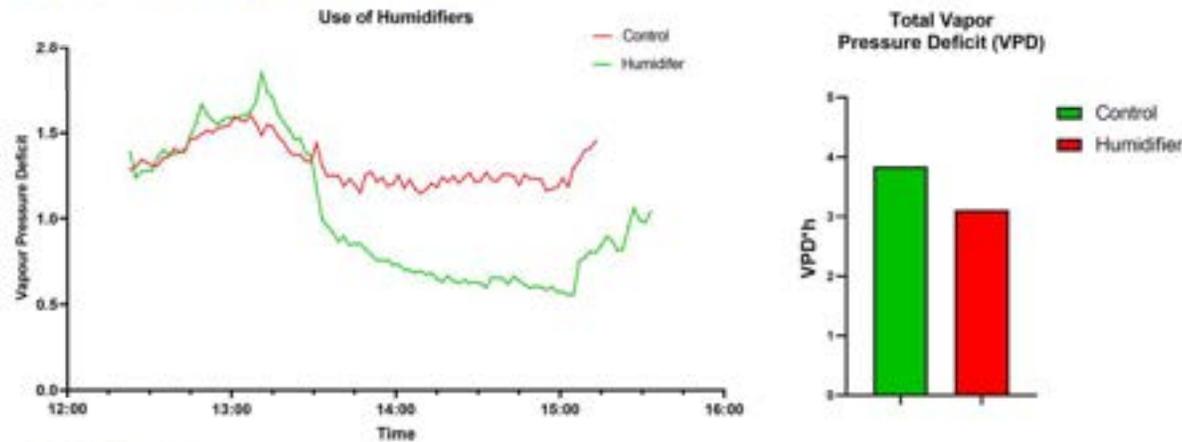
Use of humidifiers in packing houses



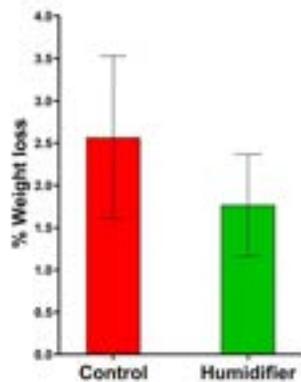
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01 Vapor Pressure Deficit



02 Weight loss in table grape bunches



Sweet Celebration table grapes after 40-day storage.

Use of humidifiers in packing house decreases VPD exposure and weight loss.



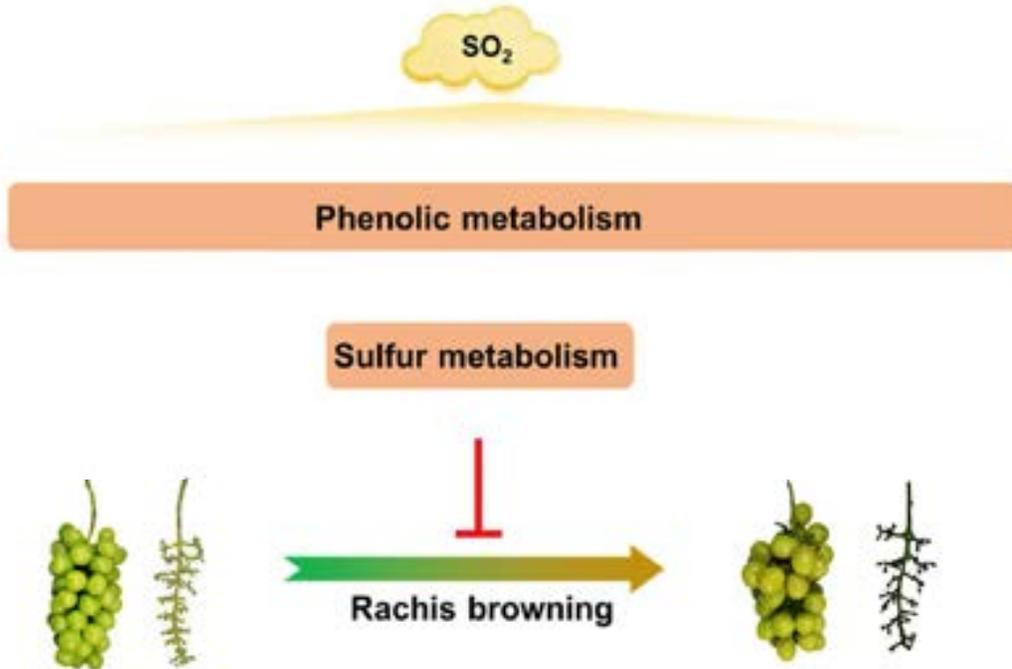
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20-22 NOV
2023
LIMASSOLA
CONFERENCE CENTER
LIMASSOLA, CYPRUS

Use of (the right) SO₂ pads



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Sulfur dioxide to minimize browning

Choosing the right SO₂ pad can make a difference in one of the key symptoms of rachis dehydration.

Especially useful in the later stages of the chain where fruit is already in transit.

Image edited from: Li, Z., Chen, S., Qi, M., Yang, M., Yuan, H., Xu, Y., Huang, J., Li, D., Zhou, W., Yuan, Y., Luo, Z., & Li, L. (2023). Inhibition of postharvest rachis browning of table grapes by sulfur dioxide: Evidence from phenolic metabolism and sulfur assimilation. *Postharvest Biology and Technology*, 204, 112413. <https://doi.org/10.1016/j.postharvbio.2023.112413>.



01
02
03



Evidence-based approaches are the way forward

01

'Harvest, pack and cool as quickly as possible' still holds true, but deviations from ideal conditions require careful allocation of resources.

02

Growers and exporters have several tools at their disposal to minimize the effects of dehydration and browning.

03

Solution providers must also keep this approach in mind to deliver technologies and services with real added value.



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Acknowledgments to Víctor Guzmán and Daniela Henríquez from Exportadora Río King.