Ripeness distribution of Crimson Seedless at three ripeness levels: What happens if irrigation is reduced under different micro climatic conditions?

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SATI South African Table Grape Industry

Stellenbosch University

Università di Foggia

NRF National Research Foundation

Università degli Studi di Torino

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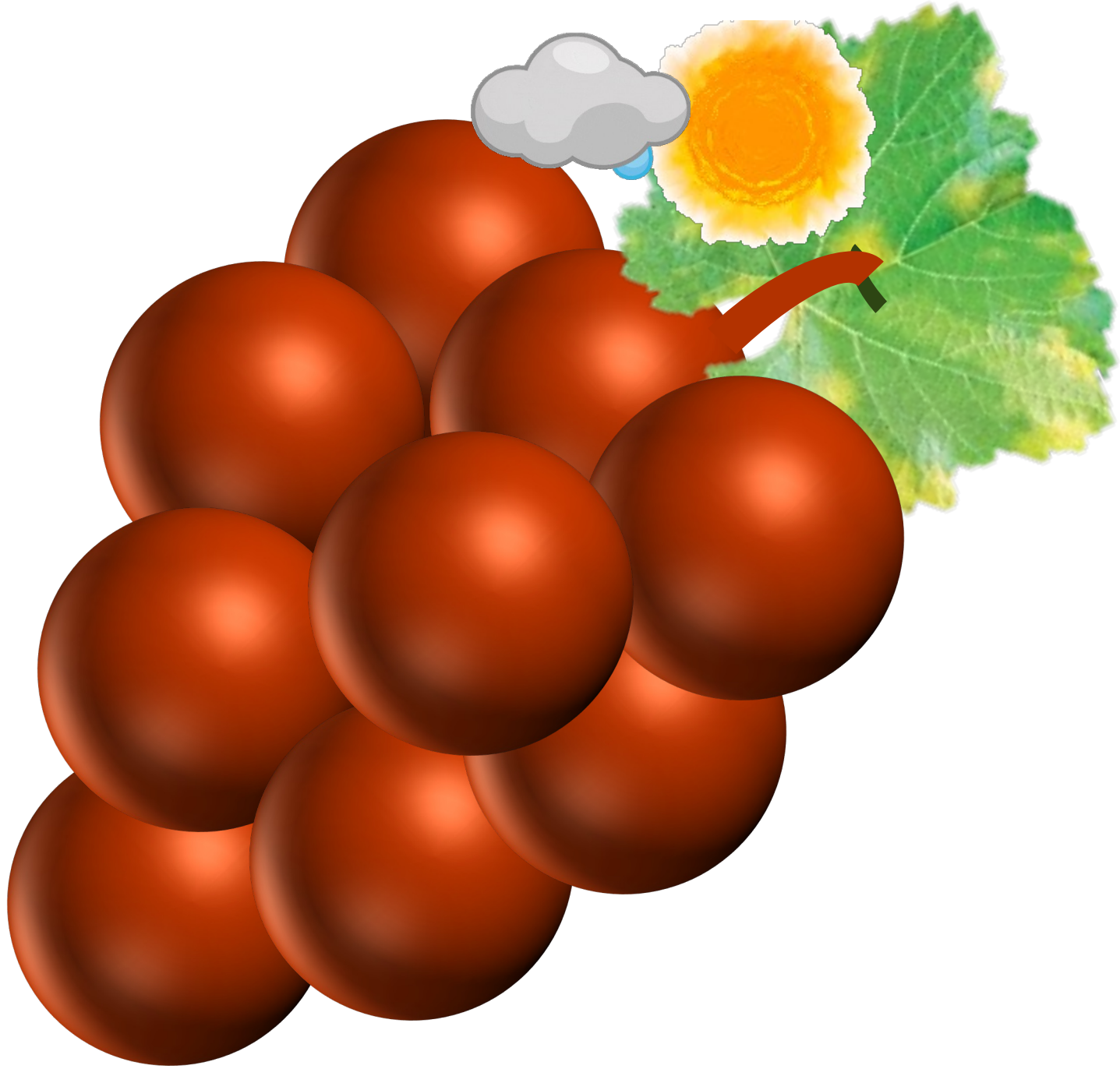
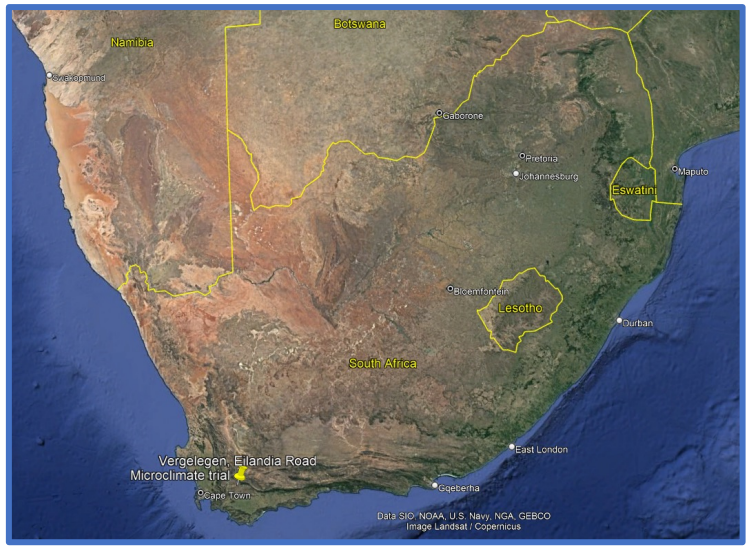
Context and Purpose

- Challenging conditions
- Require understanding homogeneity of ripening
- Aimed to determine the impact of different amounts of irrigation water and covering of vineyards with plastic on ripeness distribution at three ripeness levels
- Objective of the study was to provide producers with guidelines to grow a crop with consistent quality



Materials and Methods



- Crimson seedless / Ramsey
- Stony loam-sand
- Sprinklers 32 L/h
- 1.75m x 3m planting width
- Pergola

Open Field (OF) and Overhead Plastic covering (OPC)	
Water Treatment (amount measured)	**Ripeness level (°Brix)**
W100 (Commercial practice) **W080** **W070** **W055**	R1 = +-14.4 =83 DAFB R2 = 16 °Brix (*recommended) = 90 DAFB R3 = 17.6 = 97 DAFB R4 = 104 DAFB R5 = 111 DAFB

*Department of Agriculture Forestry and Fisheries (DAFF, 1990)
Irrigation scheduling: ET_0 & crop factor (Commercial practice)

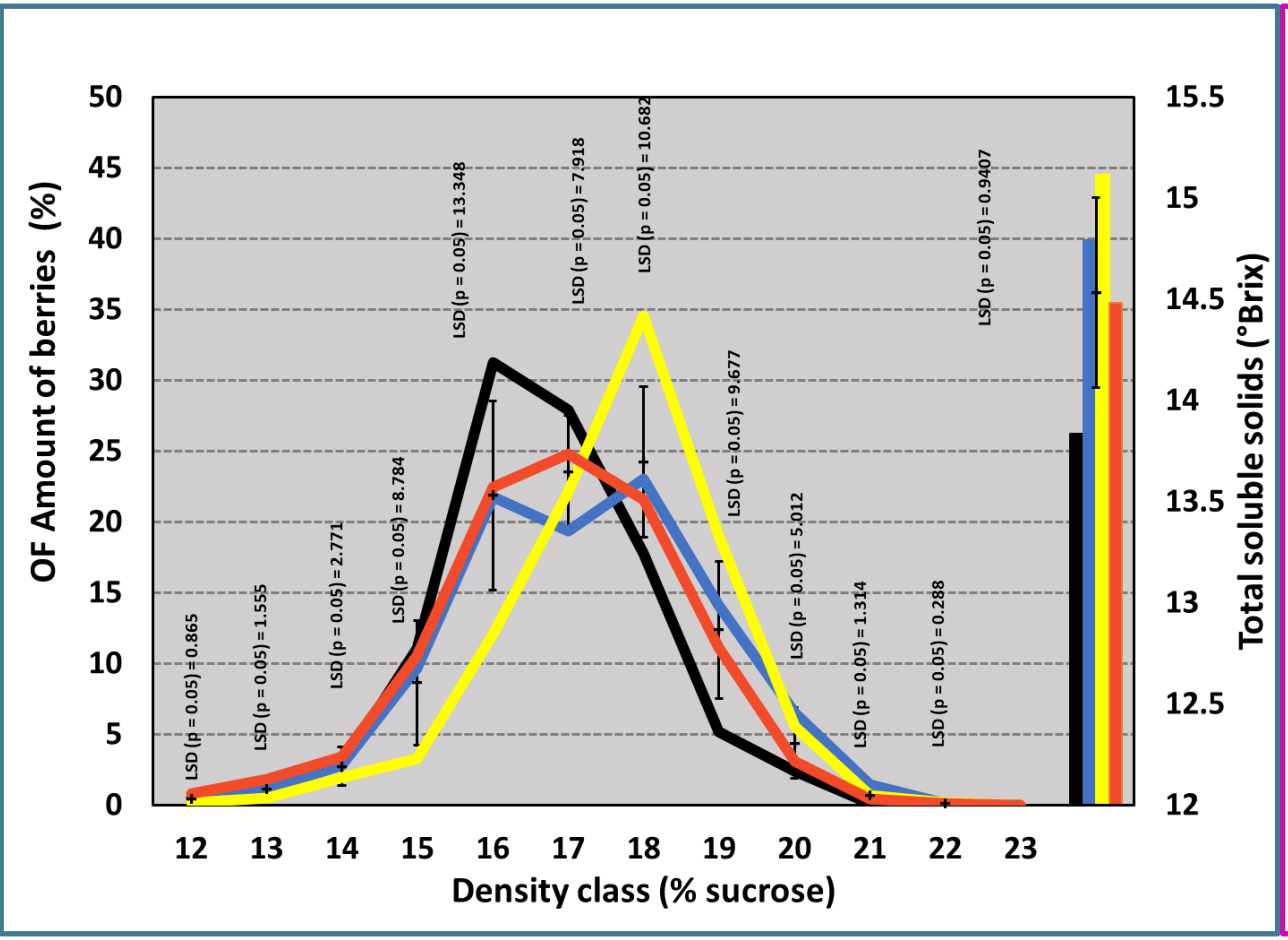
Materials and Methods

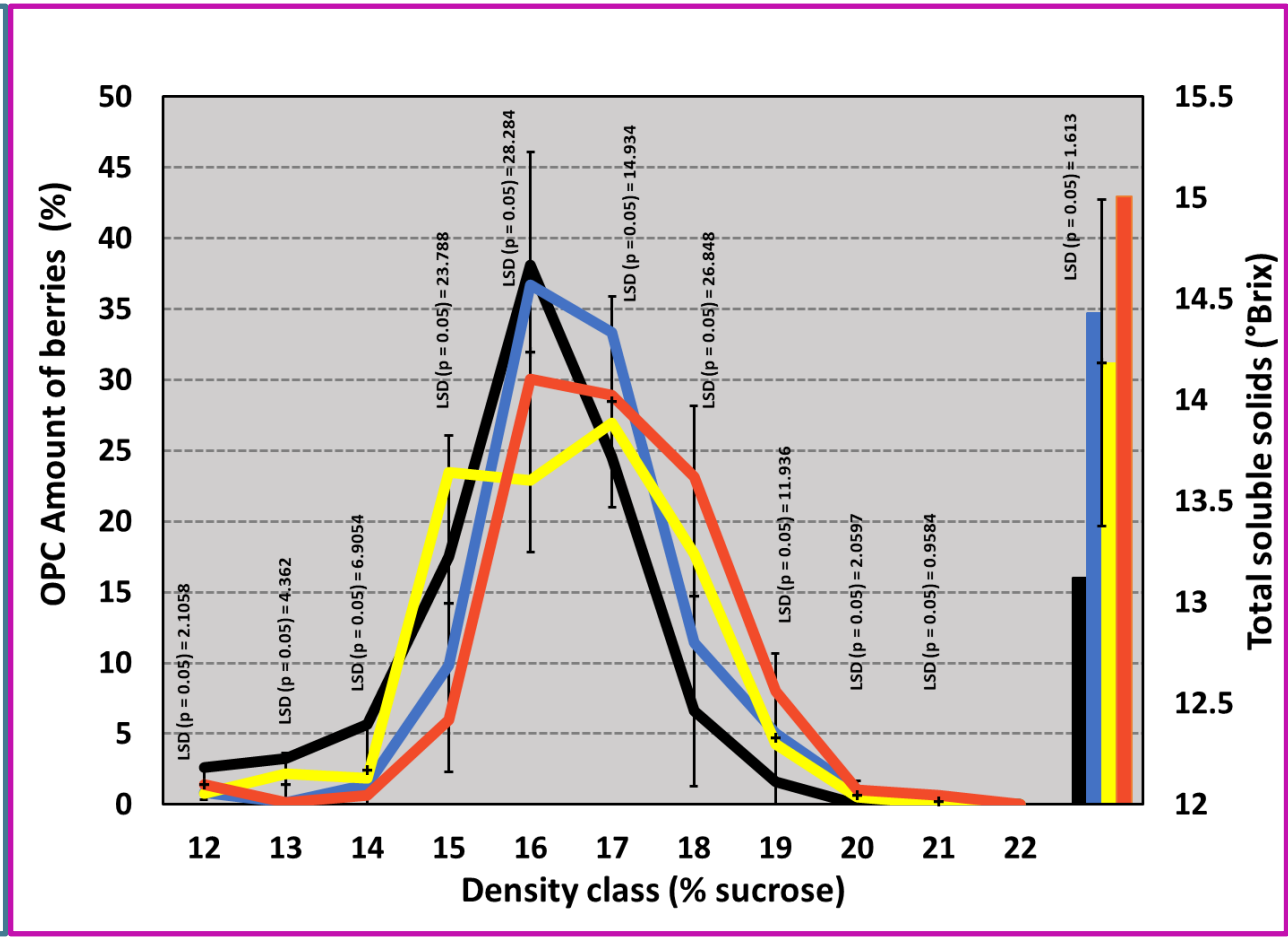
- 22/23 season
- Density separations with sucrose solutions
- Total soluble solids per group separated

Open Field

Overhead Plastic Covering

Ripeness level 1



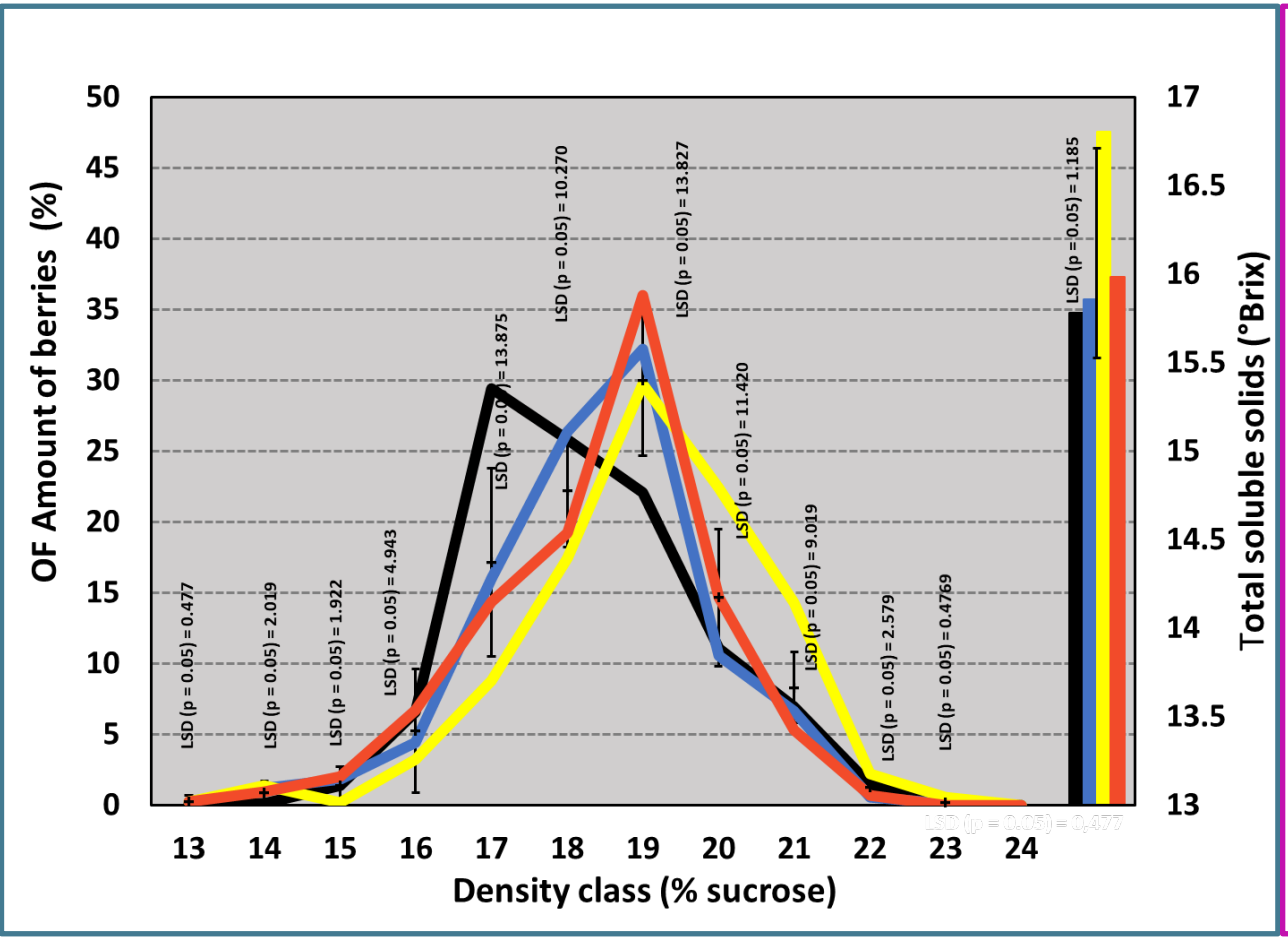


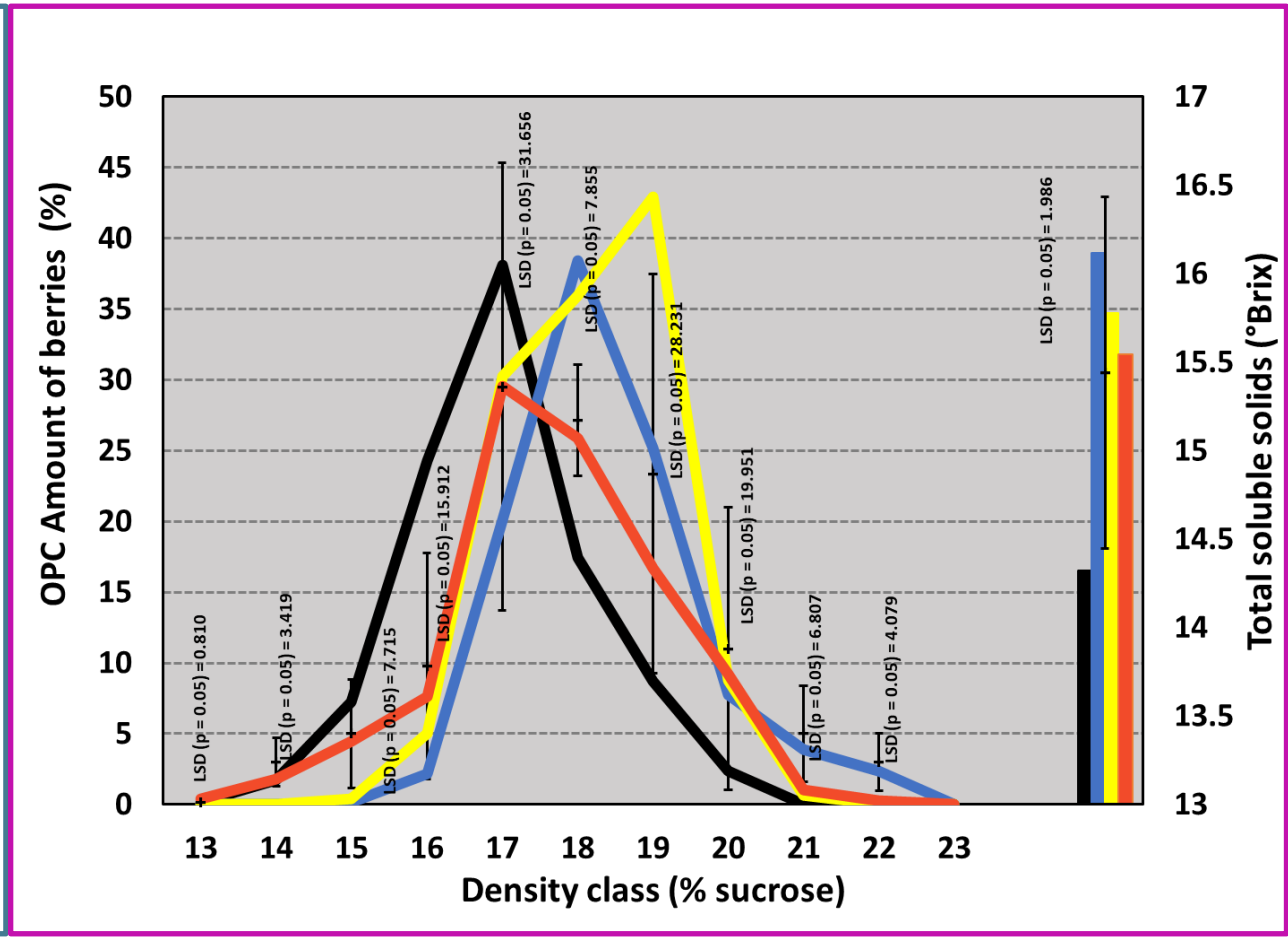
W100 W080 W070 W055 + LSD

Open Field

Overhead Plastic Covering

Ripeness level 2



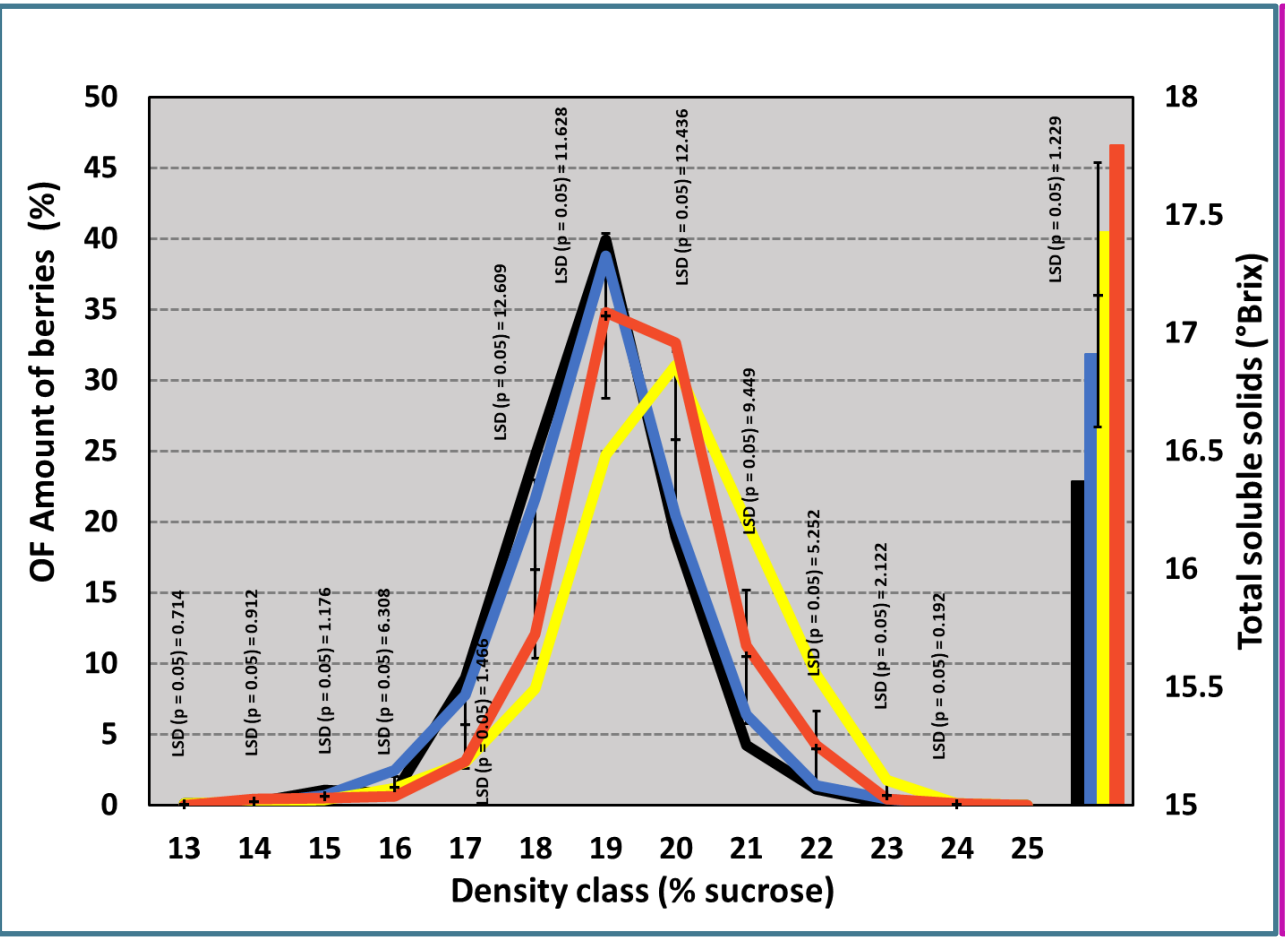


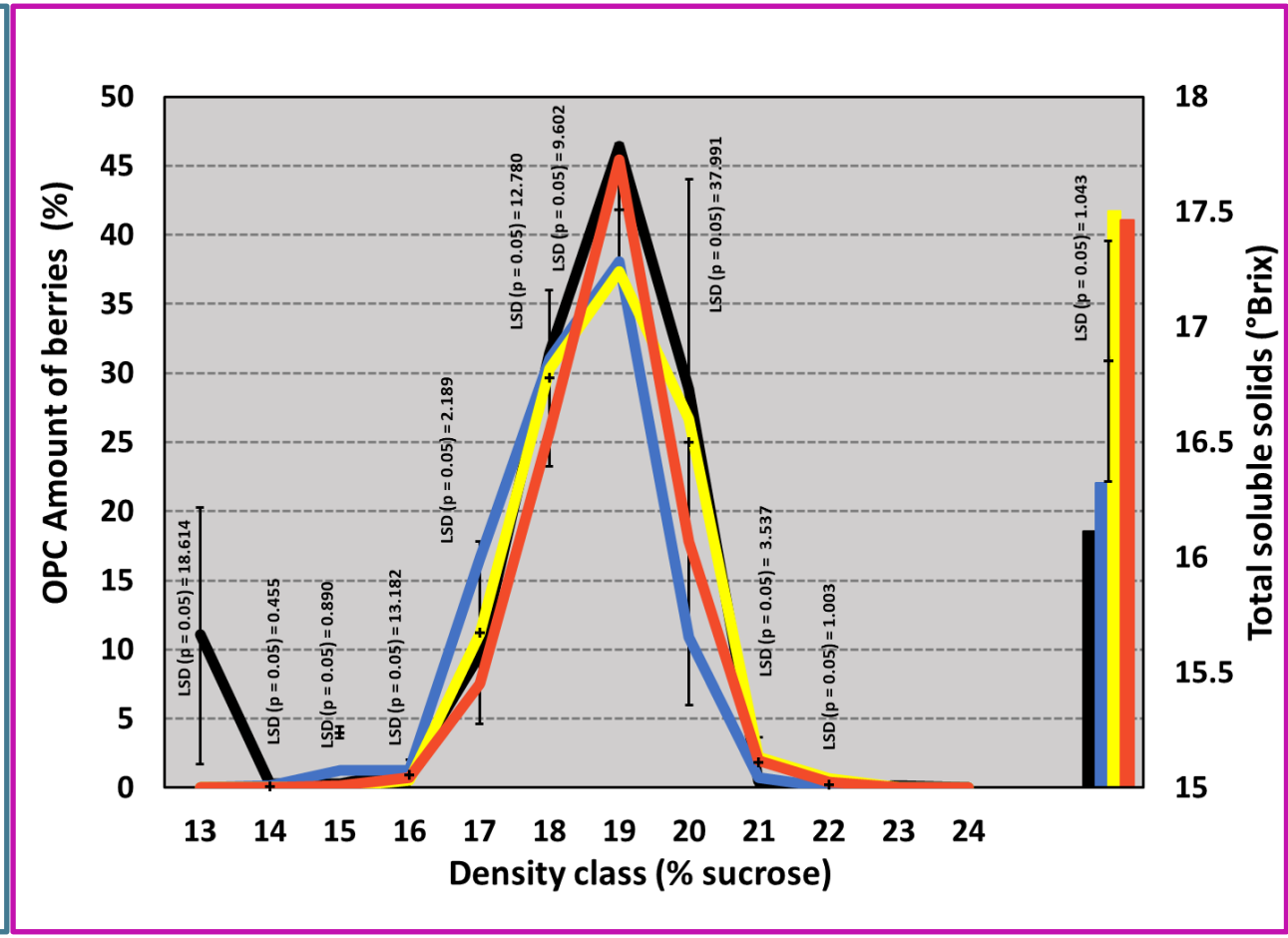
W100 W080 W070 W055 + LSD

Open Field

Overhead Plastic Covering

Ripeness level 3



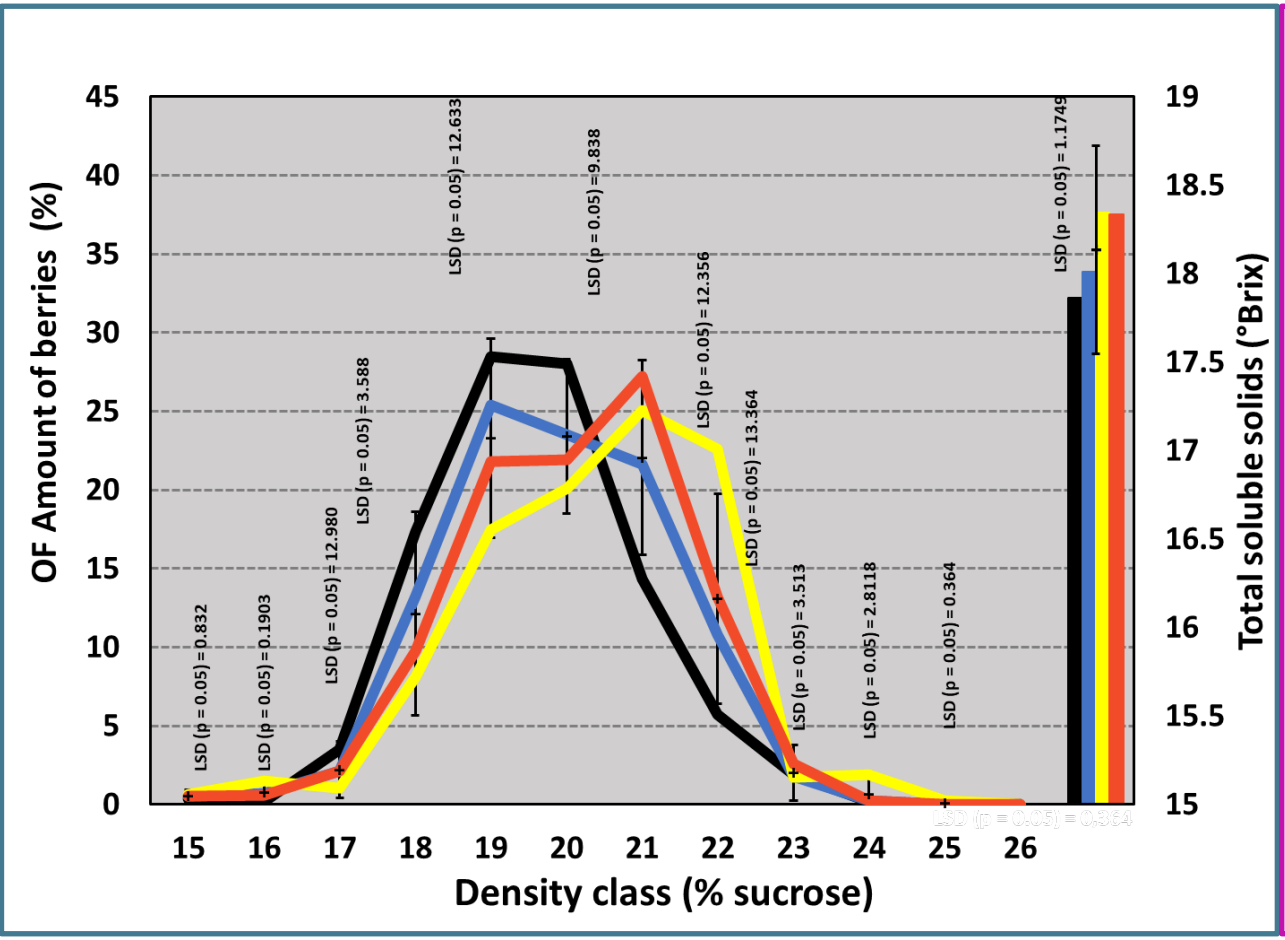


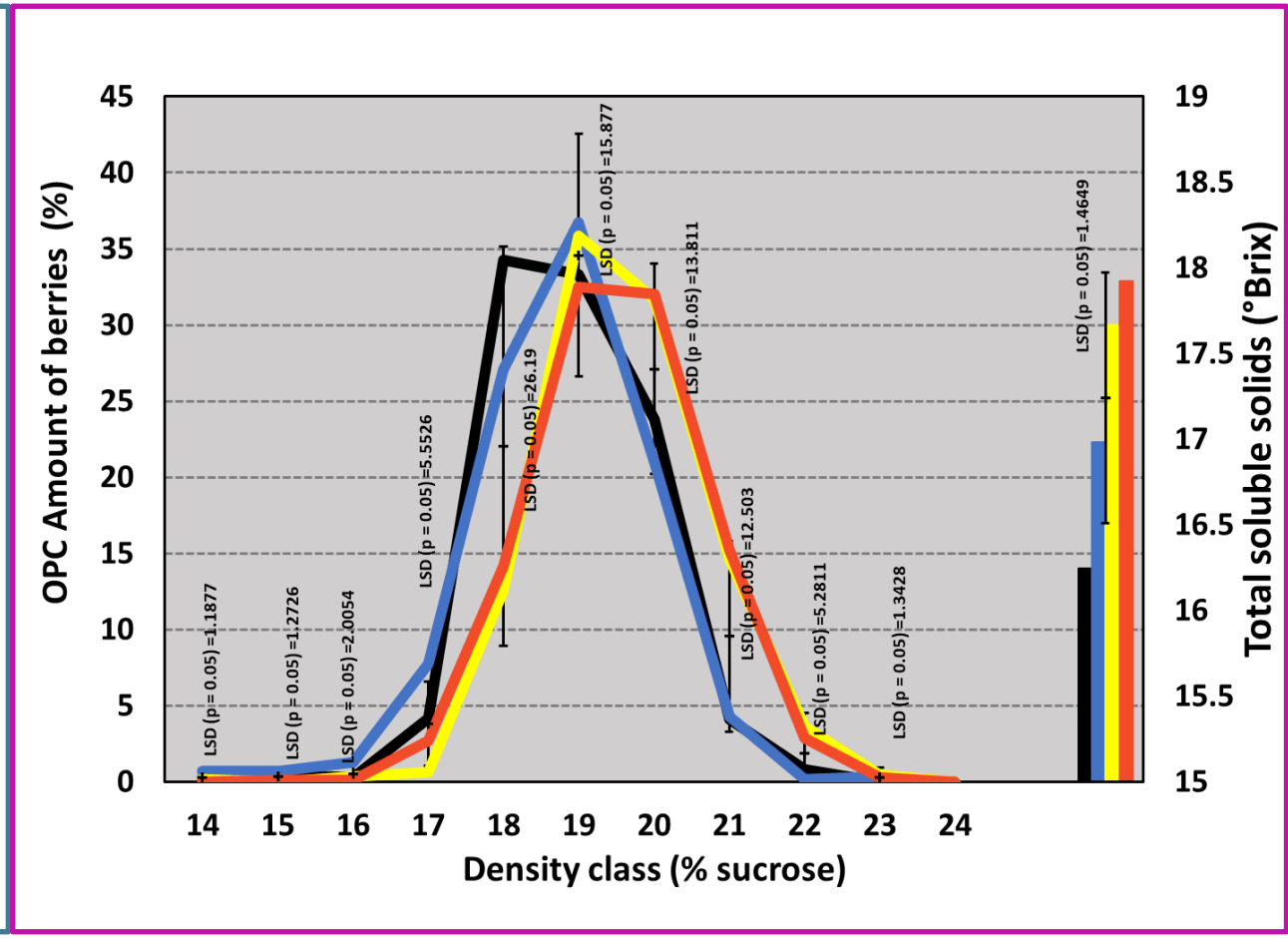
W100 W080 W070 W055 + LSD

Open Field

Overhead Plastic Covering

Ripeness level 4

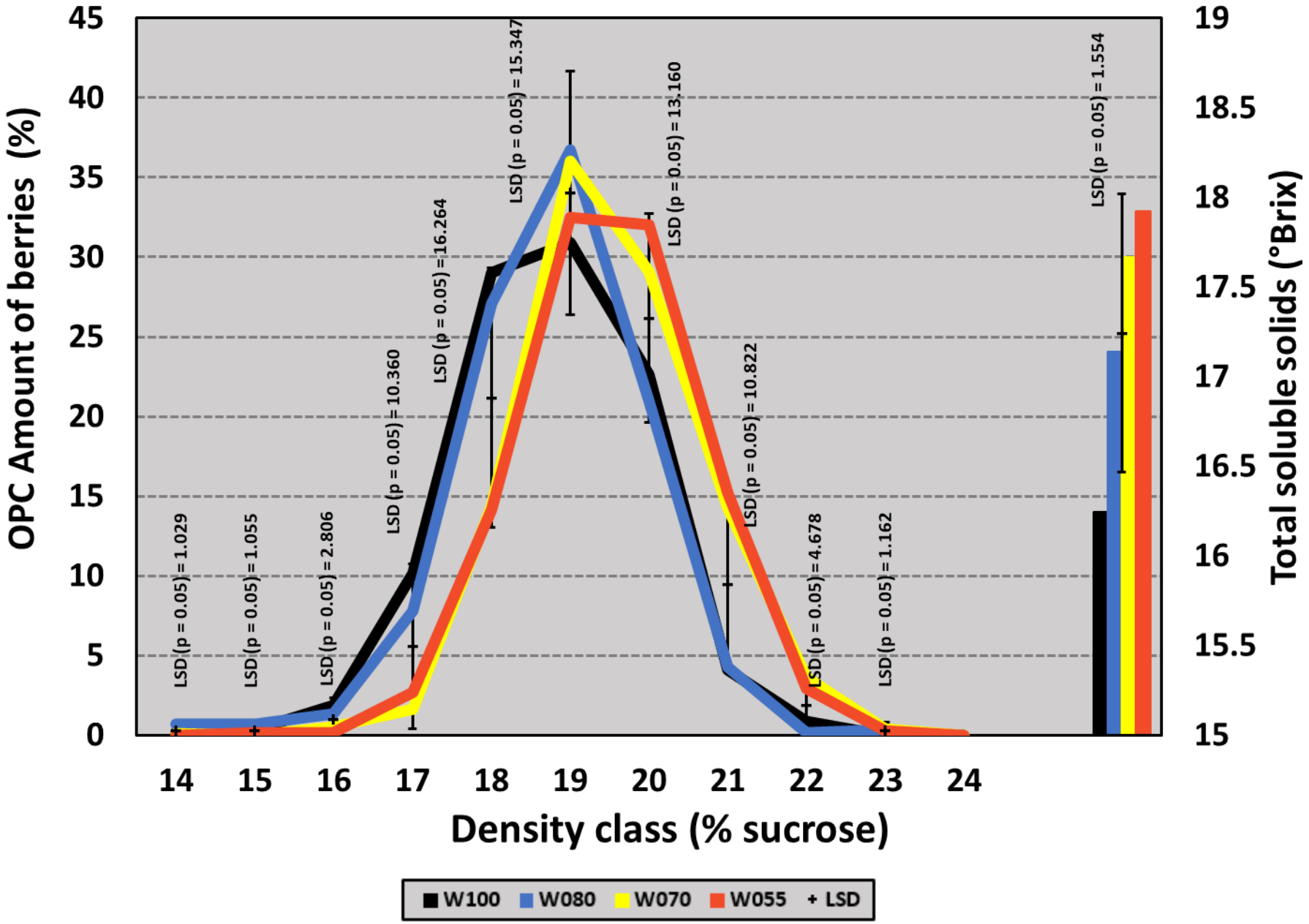




W100 W080 W070 W055 + LSD

Overhead Plastic Covering

Ripeness level 5



Discussion and conclusions

- OPC delayed ripening
- Stretching the harvest time did not benefit the ripening of grapes underneath the OPC in this study
- The results of the 21/22 season followed similar trends, but should be consolidated with the 22/23 results to make a final recommendation
- Throughout the OF trial, the application of W070, increased the amount of berries in the 19 to 22 Brix categories
- Significant increases by W070 in the higher brix categories compared to W100 in OF conditions
- W070 tend to benefit higher sugar at R1 and R2 OF
- Application of water deficit for the benefit of sugar accumulation must be applied cautiously because of the effect of deficit on berry size
- W100 and W080 resulted in similar distribution patterns for both OF and OPC
- W100 did not benefit ripeness distribution or TSS significantly compared to W080
- This site: Water application of 80% of the normal supply under OF conditions and as low as 70% of normal water supply under OPC

Acknowledgements

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