

EVALUATION OF DROUGHT TOLERANCE OF STRAWBERRY CULTIVARS UNDER PROTECTED CONDITIONS



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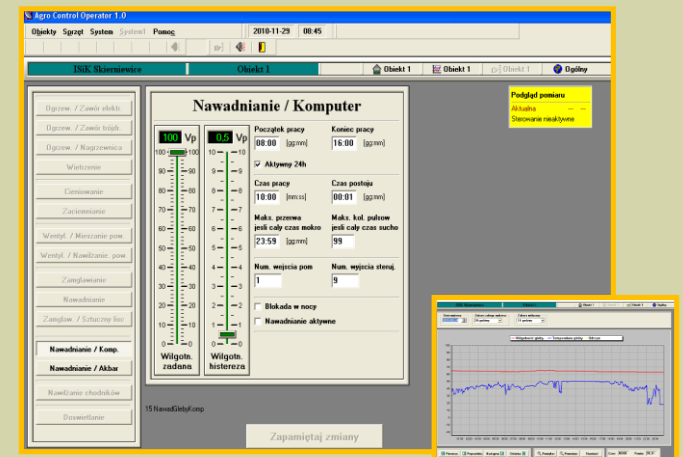
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The main objective of this study was to examine the response of strawberry cultivars to water deficiency by evaluating productivity and selected morphological and physiological parameters.



Treatment:

- Optimal irrigation – water potential in the growing medium maintained at a level of (-) 10 kPa,
- Reduced irrigation (stress treatment) – below (-) 30 kPa.



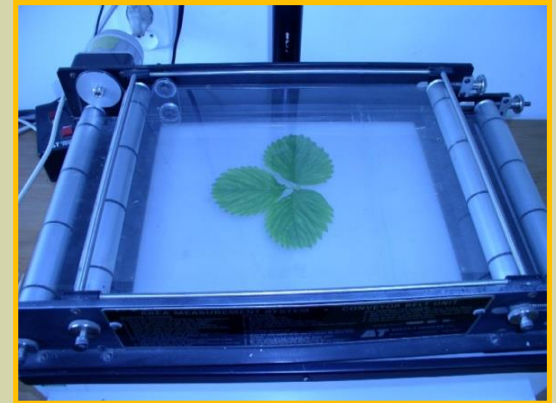
Physiological evaluation:

- Leaf gas exchange (net photosynthesis).
- Photosynthetic activity (chlorophyll fluorescence).
- Leaf greenness (relative chlorophyll content).



Plant growth assessment:

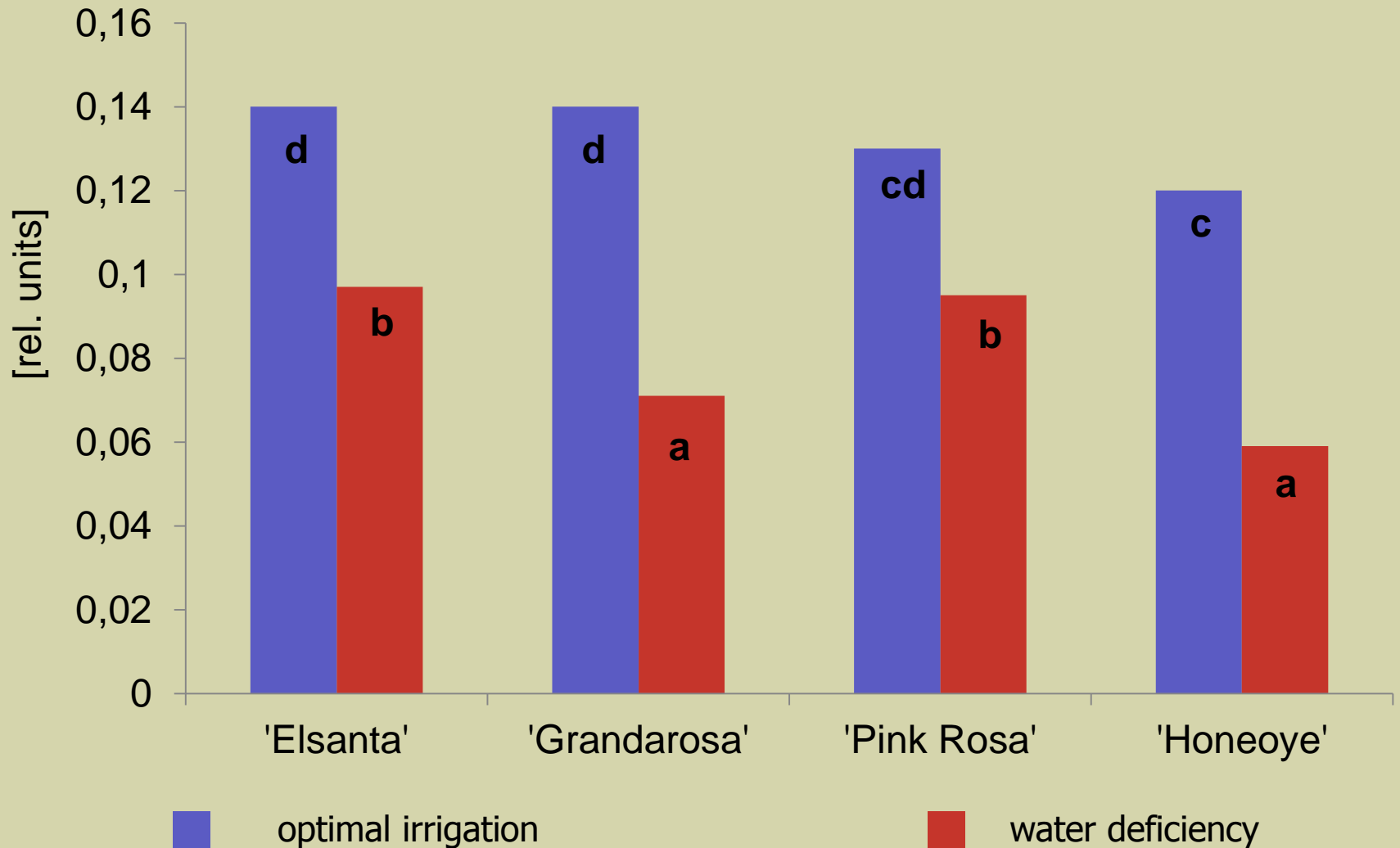
- Fresh weight of plant organs.
- Leaf surface area.
- Root system development.



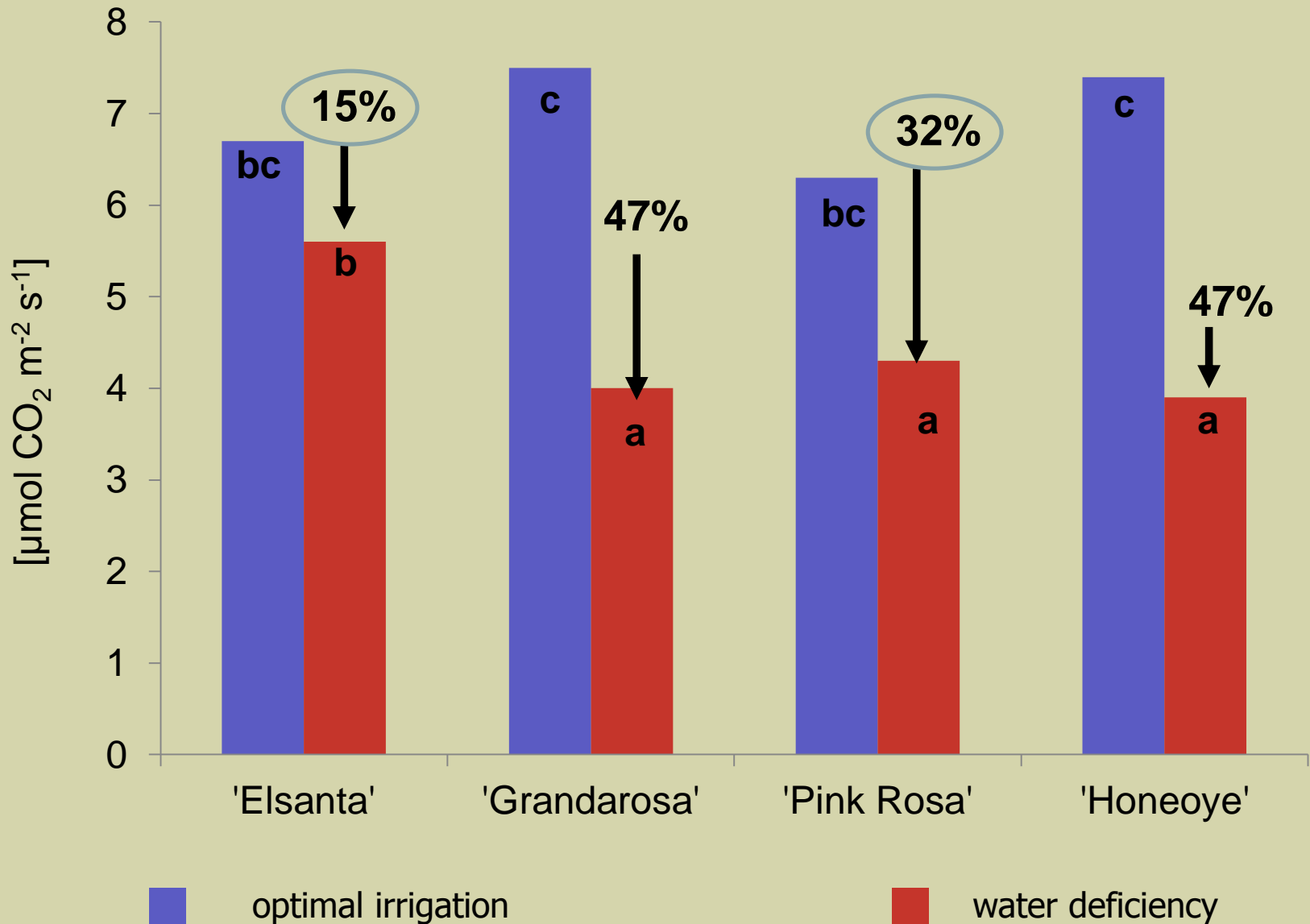
Evaluation of plant yield



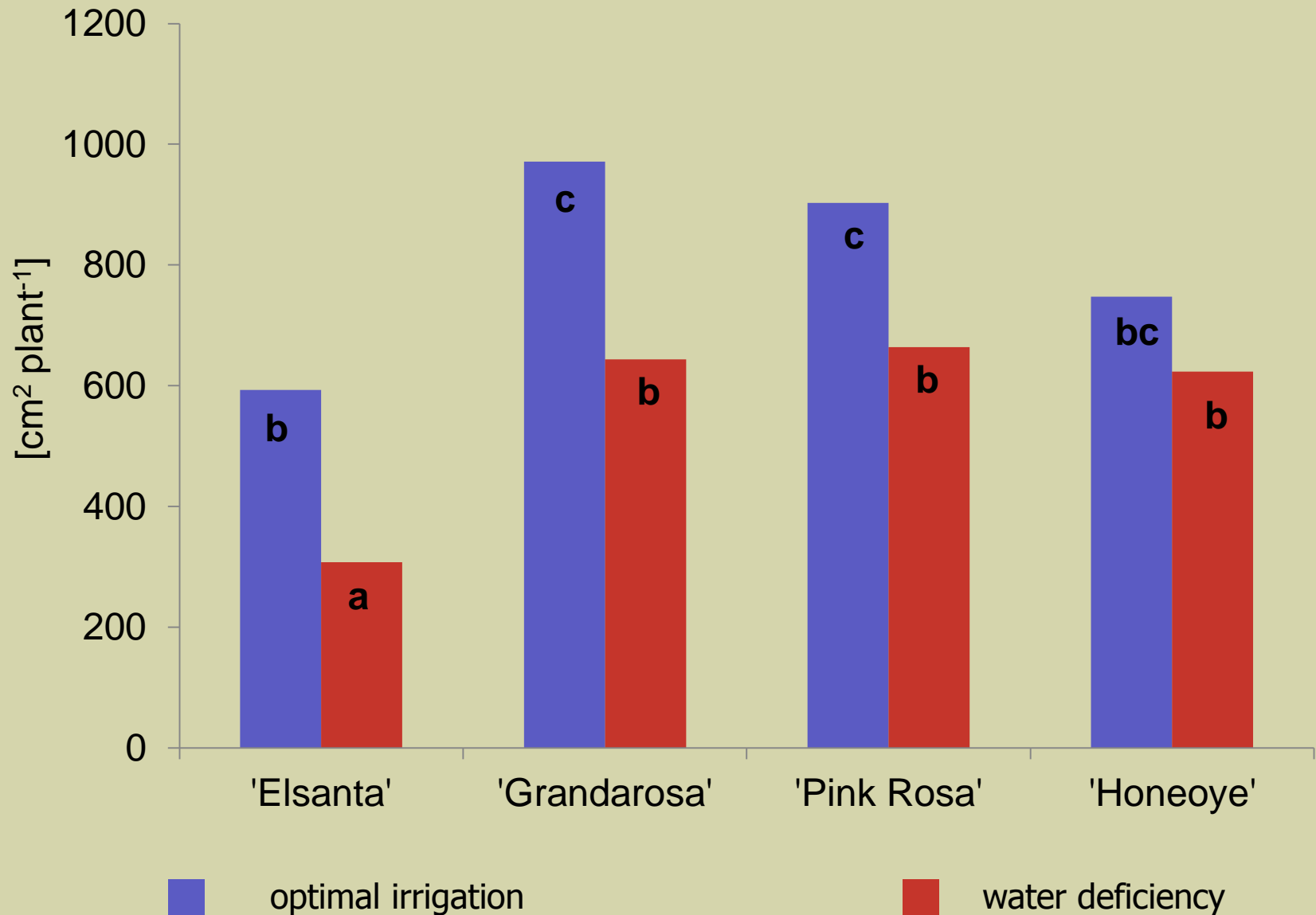
Actual photochemical efficiency of PSII



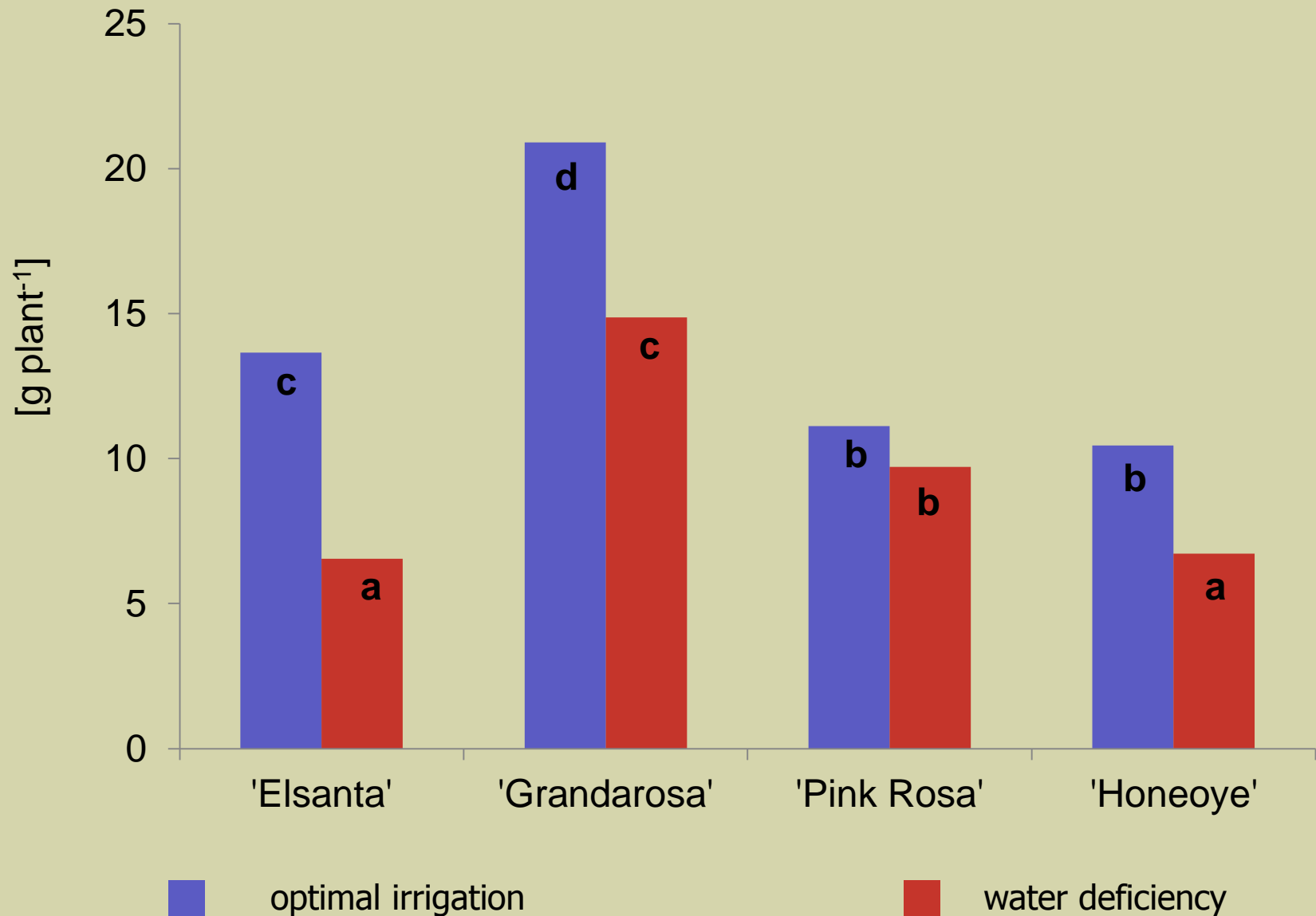
Net photosynthesis



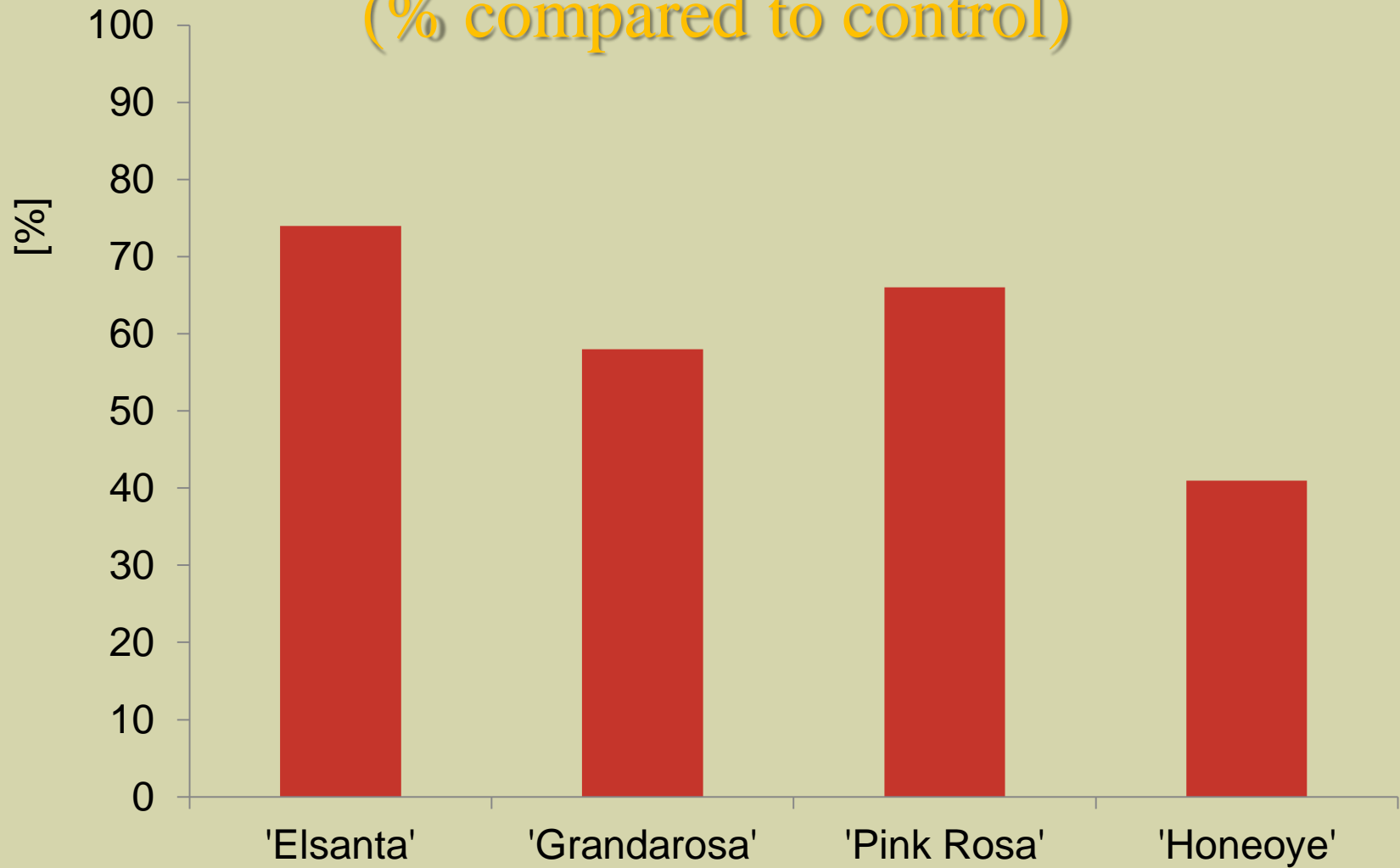
Total leaf surface area



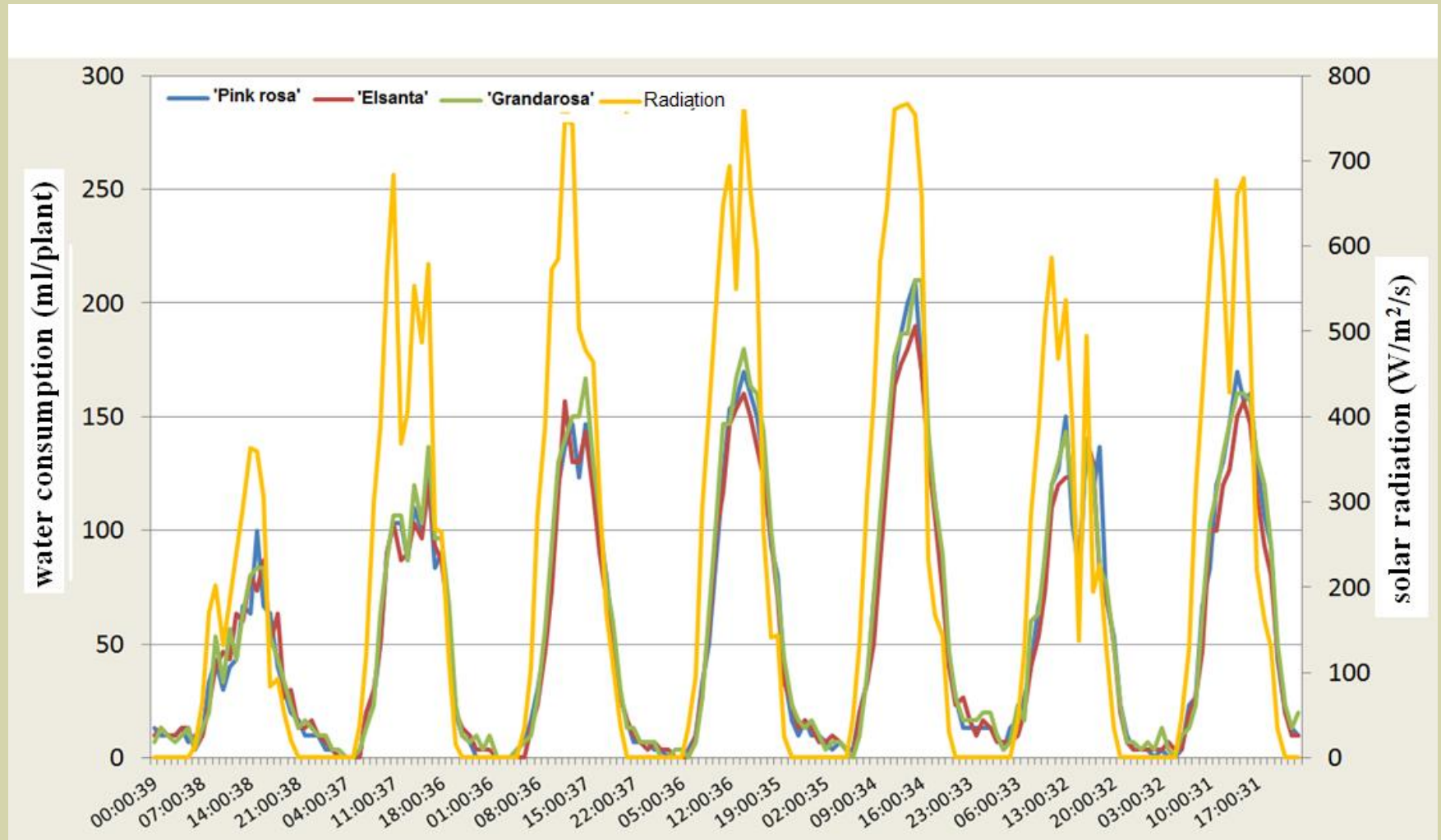
Fresh weight of root system



Fruit yield of stressed plants (% compared to control)



Water uptake by strawberry plants



Conclusions

1. Genotypic differences in drought tolerance among strawberry cultivars were observed.
2. Photosynthetic activity of strawberry plants grown under water deficiency conditions was decreased. Higher reduction in net photosynthesis was observed in 'Honeoye' and 'Grandarosa' compared to the other cultivars.
3. Growth inhibition in response to reduced water availability was recorded in all cultivars tested.



Conclusions

3. The highest yield was obtained from 'Elsanta' and 'Pink Rosa' plants. The highest reduction in yield was observed in 'Honeoye' and 'Grandarosa'.
4. Cultivars 'Elsanta' and 'Pink Rosa' were evaluated as more adaptable to water shortage. 'Honeoye' and 'Grandarosa' showed lower tolerance to water stress.
5. The level of water uptake depended on the amount of solar radiation reaching the plants and was similar for the cultivars examined.





"The sustainable improvement of European berry production, quality and nutrition value in a changing environment: Strawberries, Currants, Blackberries and Raspberries".

Work package: Improved cultivation techniques.

Task 2.3. Reducing environmental impact.

Subtask 2.3.3 Improved substrate, nutrient and water use efficiency.