# IECAG Conference

# **The 4th International Electronic Conference on Agronomy**



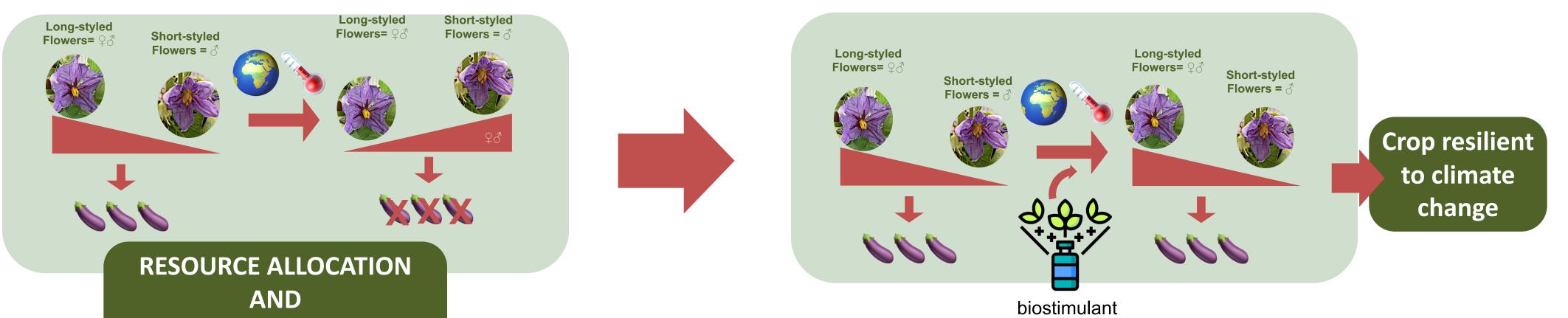
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## **Biostimulant Application as a Strategy to Sustain Reproductive Development and Fruit Set in Eggplant Under Heat Stress**

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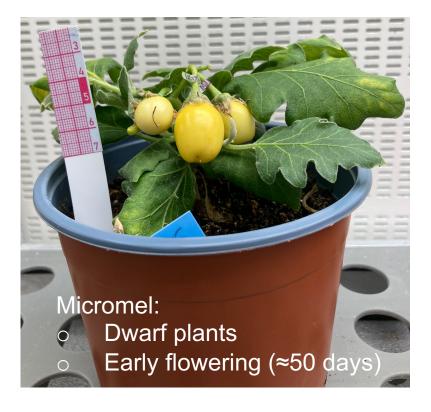
### **INTRODUCTION & AIM**



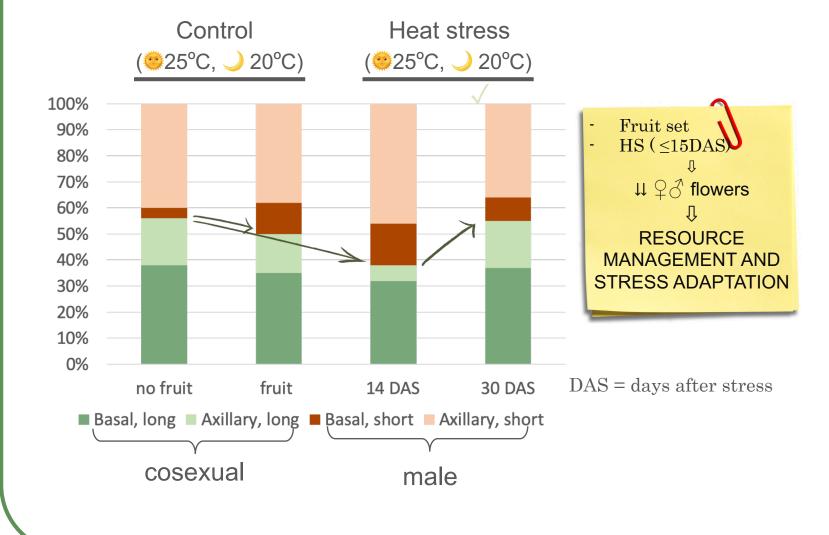
#### **STRESS ADAPTATION?**

#### **RESULTS & DISCUSSION**

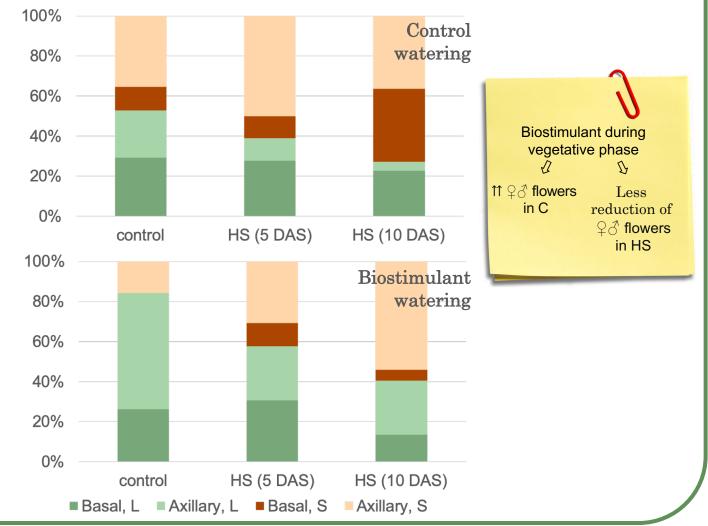
Micromel is a dwarf, early-flowering eggplant variety amenable for molecular studies (López-Martínez et al., in preparation)



The proportion of cosexual flowers in Micromel decreases in response to resource allocation needs (i.e., fruit set) and stress presence

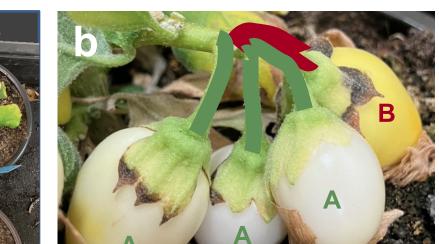


Watering of plants with a biostimulant during the vegetative phase, increases the amount of ` cosexual flowers in control conditions and mitigates the reduction caused by heat stress



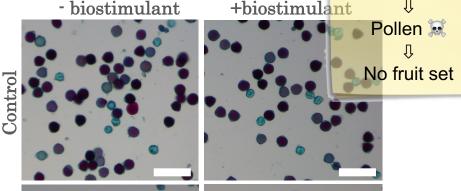
In control conditions, plants watered with biostimulant produce morefruits per plants (a), due to a higher fruit set ratio/flower cluster (b)





HS conditions leads to reduced pollen number and viability,

hindering fruit set in control and biostimulant watered plants HS



#### **METHODS**

#### **Plant growth conditions**

Seeds were germinated on plates, transferred to seedbeds upon expansion of the cotyledons and transferred to 20 cm Ø pots after expansion of the first 2 true leaves.Light: 16h light/8h dark. Temperature: 25-20°C (day/night) for control and 35-29 °C (day/night) for heat stress conditions. Watering: pots were weighted before and after transfer to high temperature conditions and watering was adapted to maintain similar hydration levels considering the different levels of evapotranspiration. Biostimulant treatment: 1 application of (0,6% v/v) of ICEBERG<sup>®</sup> (KhemeChemical SL) after transfer to pots. Then, DESERT<sup>®</sup> +ICEBERG<sup>®</sup> (KhemeChemical SL) (0,4% v/v of each) every 2 weeks until bolting. **Microscopical analysis** Pollen viability staining: Peterson et al. 2010.

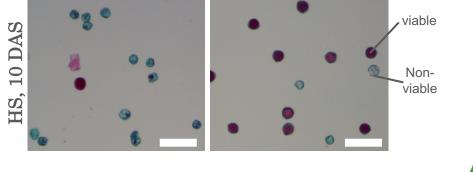


Control watering



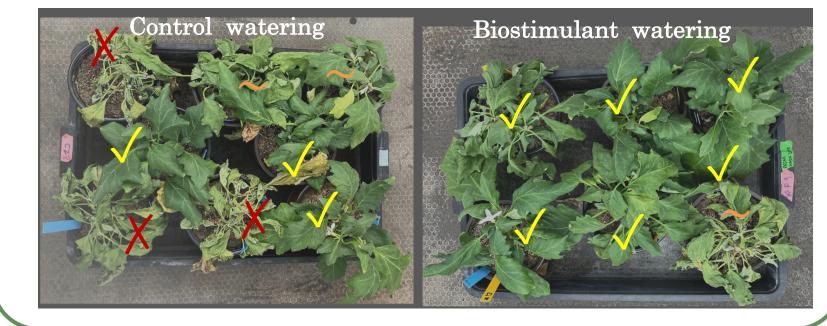


B=basal flower: A= axillary flower



Plants watered with biostimulant tolerate better combined stress (heat stress + drought)

#### HS + Drought (7 DAS)



#### CONCLUSION

1. The proportion of cosexual and male flowers in Micromel depends on resource needs (i.e., previous fruit set, stress conditions)

2.Application of biostimulants during the vegetative phase leads to a 20% increase of cosexual flowers in control growth conditions and higher fruit set. In HS, they produce more cosexual flowers but fruit set is hindered by loss of pollen viability.

3.Biostimulant application makes plants more resilient to multiple stresses

#### **REFERENCES/FUNDING**

Peterson, R., Slovin, J. P. & Chen, C. A International Journal of Plant Biology 1, e13 (2010).



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