

Drought and heat cause a shift in vegetation composition in an intensive grassland

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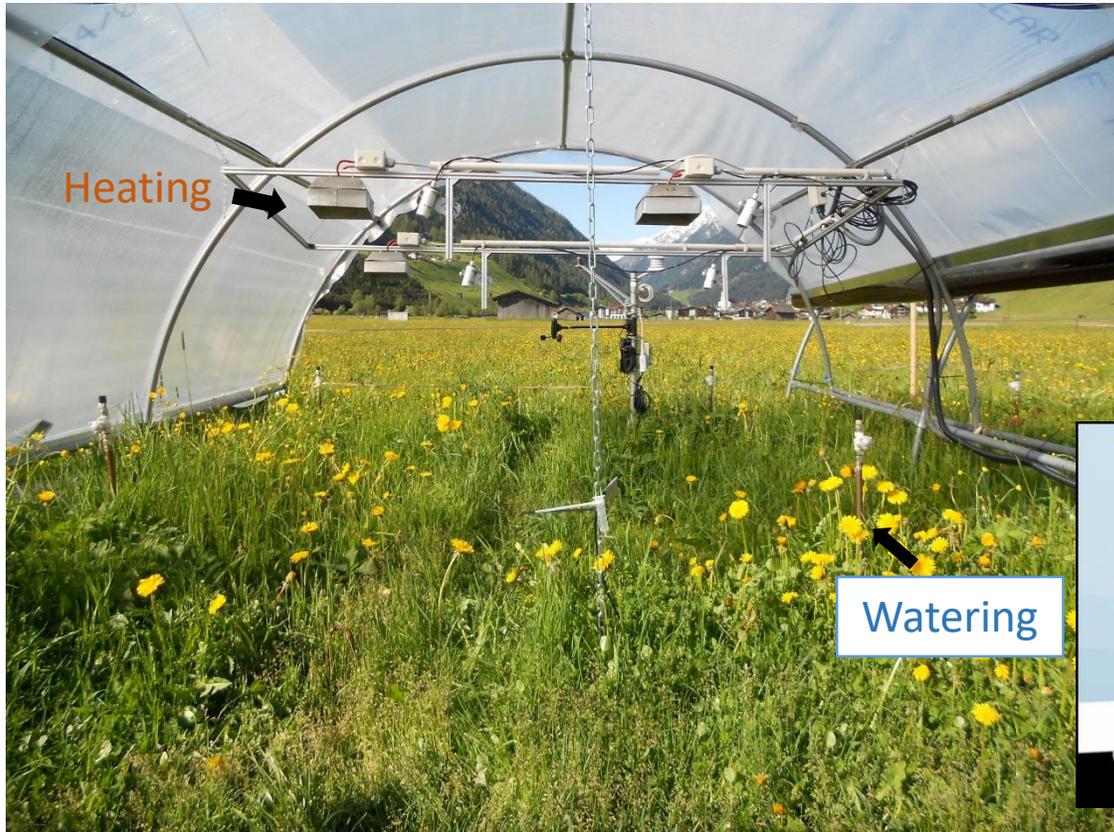
Hypothesis:

- Under drought and heat conditions, WUE and biomass productivity of an intensive mountain grassland are negatively affected when drought is severe.
- After rewetting, grassland recovers fast by a shift in functional composition

Methods

	Pre-treatment	Drought period 1	Rewetting	Drought period 2
Control treatment	Watering + no heating			
Drought treatment	Watering + no heating	No watering + heating	Watering + no heating	No watering + heating

 Harvest 1
  Harvest 2
  Harvest 3



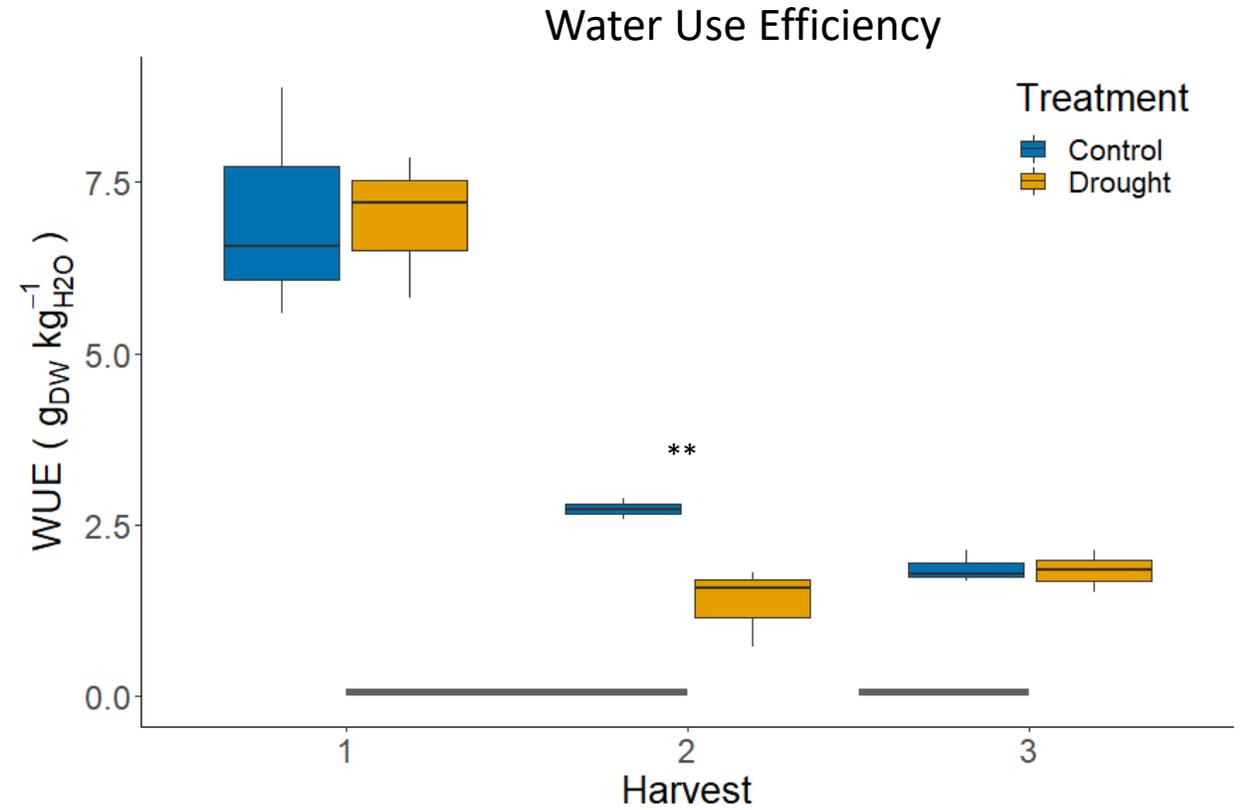
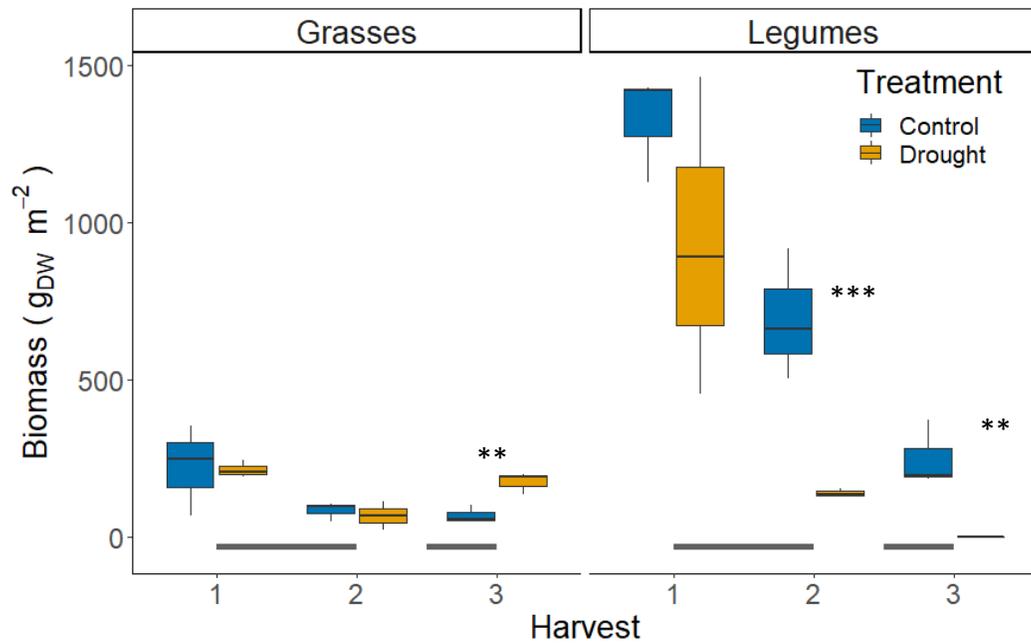
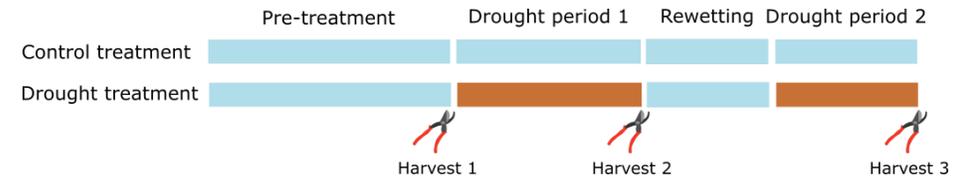
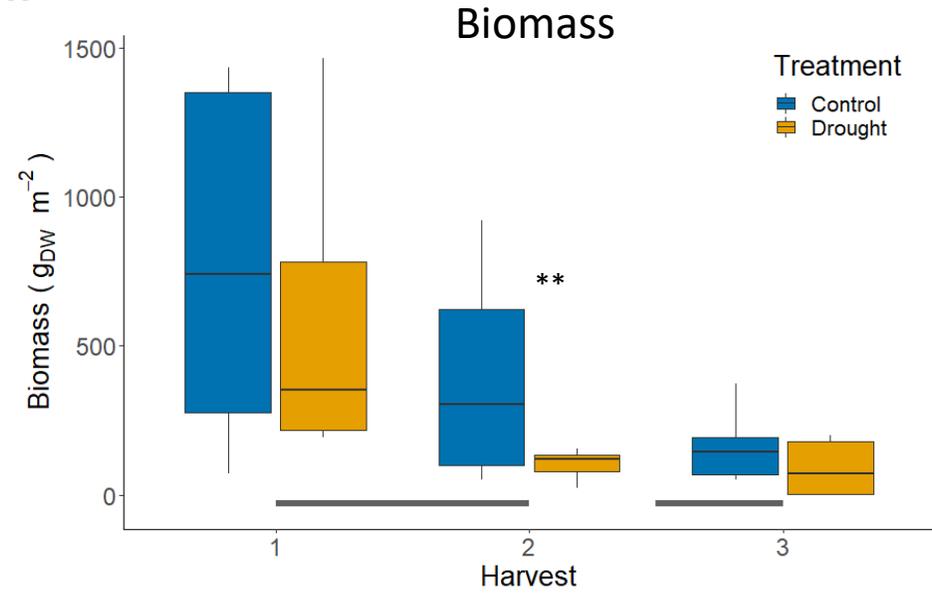
<https://www.metergroup.com/>

6 Small-Field-Lysimeters with a commercial seed mixture used for intensively cultivated hay meadows

What did we measure?

- Biomass as the dry weight of the harvested biomass
- Water Use Efficiency (WUE) = $\frac{\text{biomass production}}{\text{accumulated ET}}$

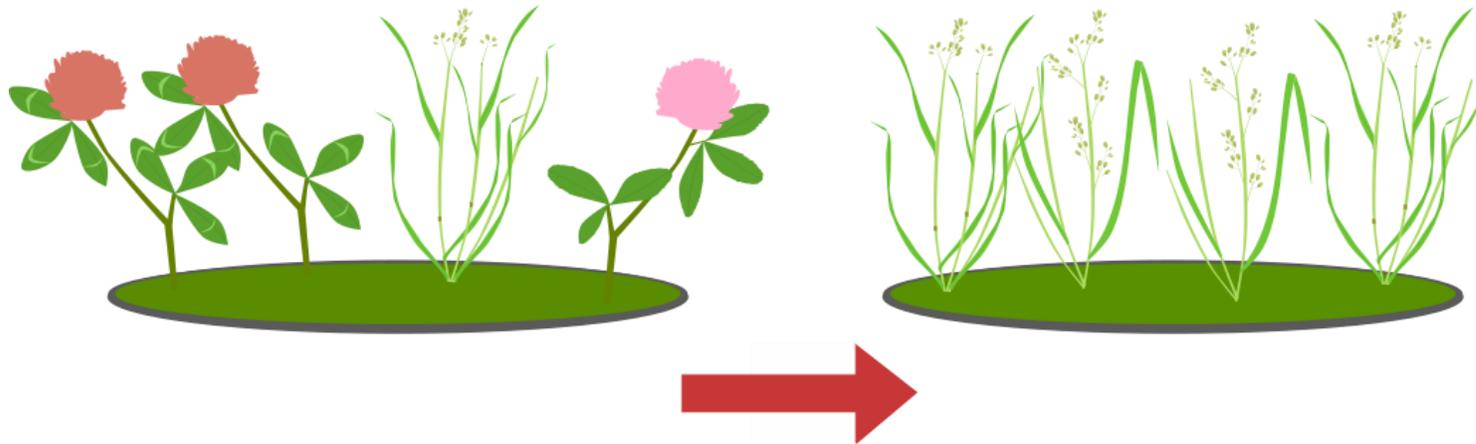
Results



Conclusions

Drought and heat...

- caused a decrease on WUE and biomass productivity,
- induced a re-assembly of the grassland community, which benefited WUE and biomass productivity.



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Tello-García, E., L. Huber, G. Leitinger, A. Peters, C. Newesely, M.-E. Ringler, and E. Tasser. 2020. Drought- and heat-induced shifts in vegetation composition impact biomass production and water use of alpine grasslands. *Environmental and Experimental Botany* **169**:103921.