

Plant water relations under drought in organic and conventional farming systems

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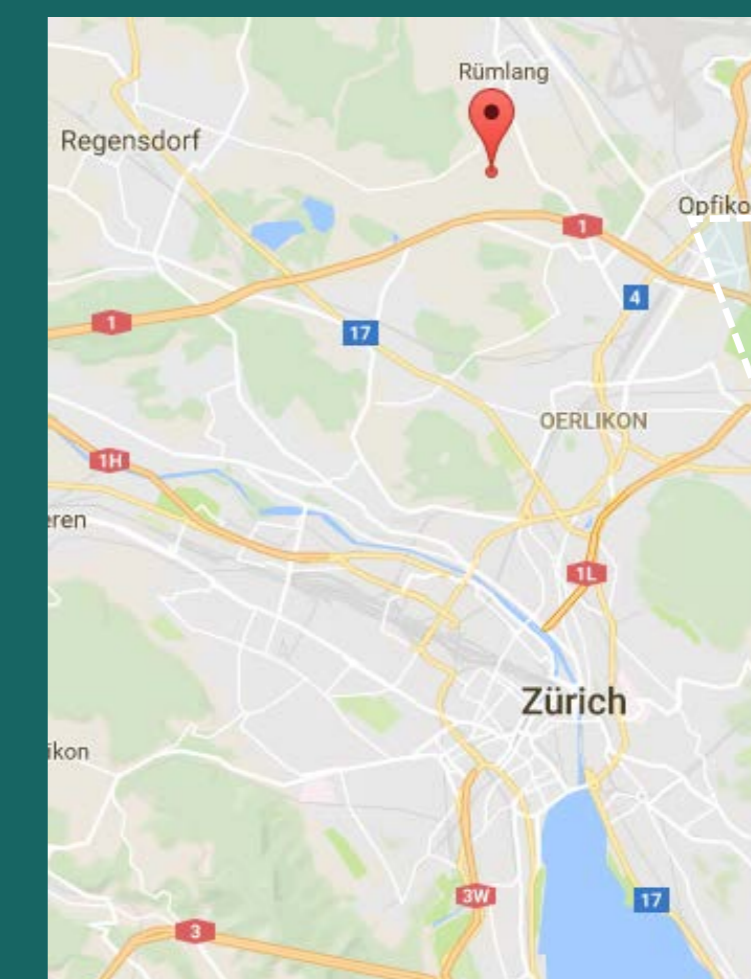
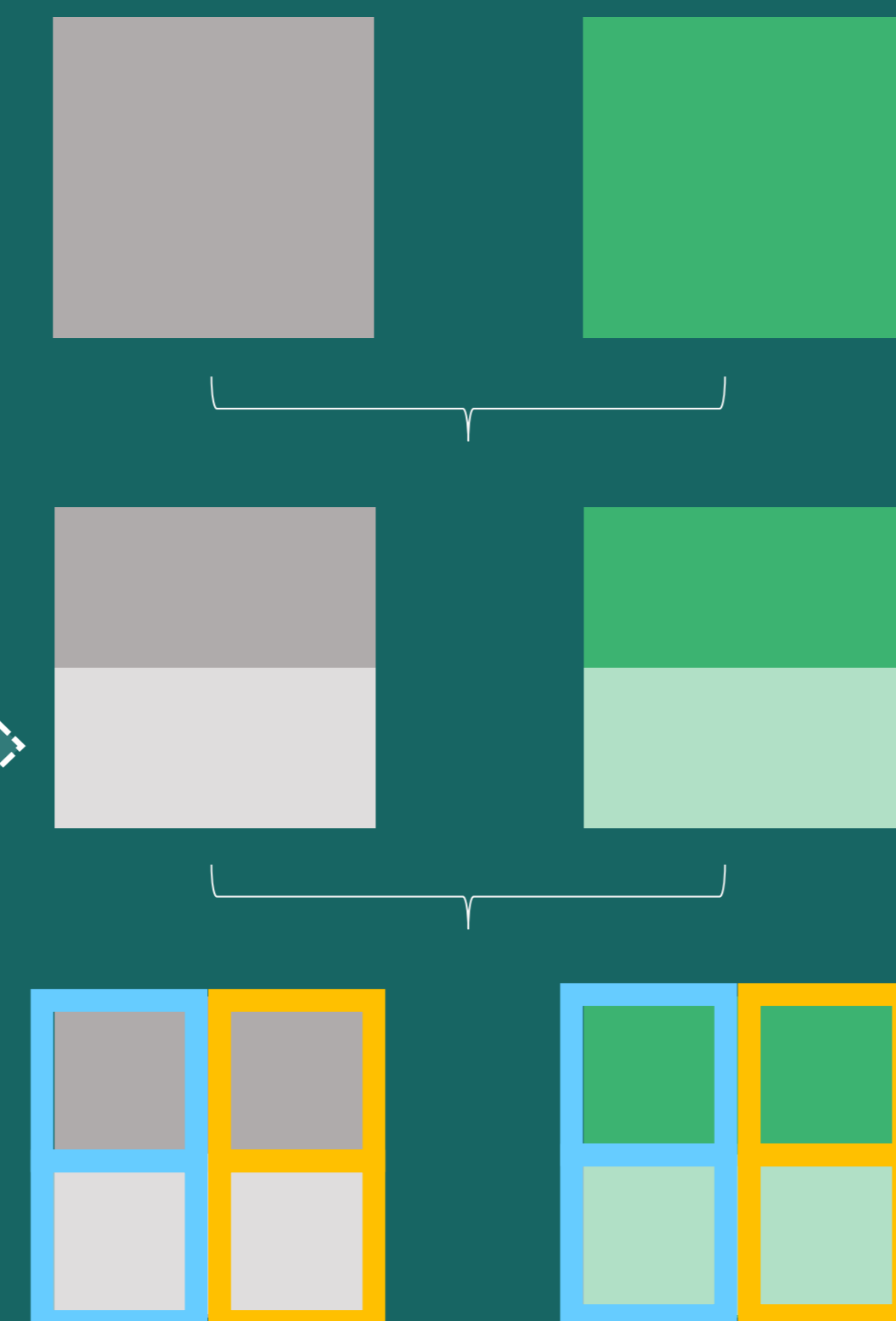
1 Objective

To determine if crop water relations significantly change in different farming systems under different soil water availabilities



2 Experimental setup

Conventional intensive tillage
Conventional no tillage
Organic intensive tillage
Organic reduced tillage



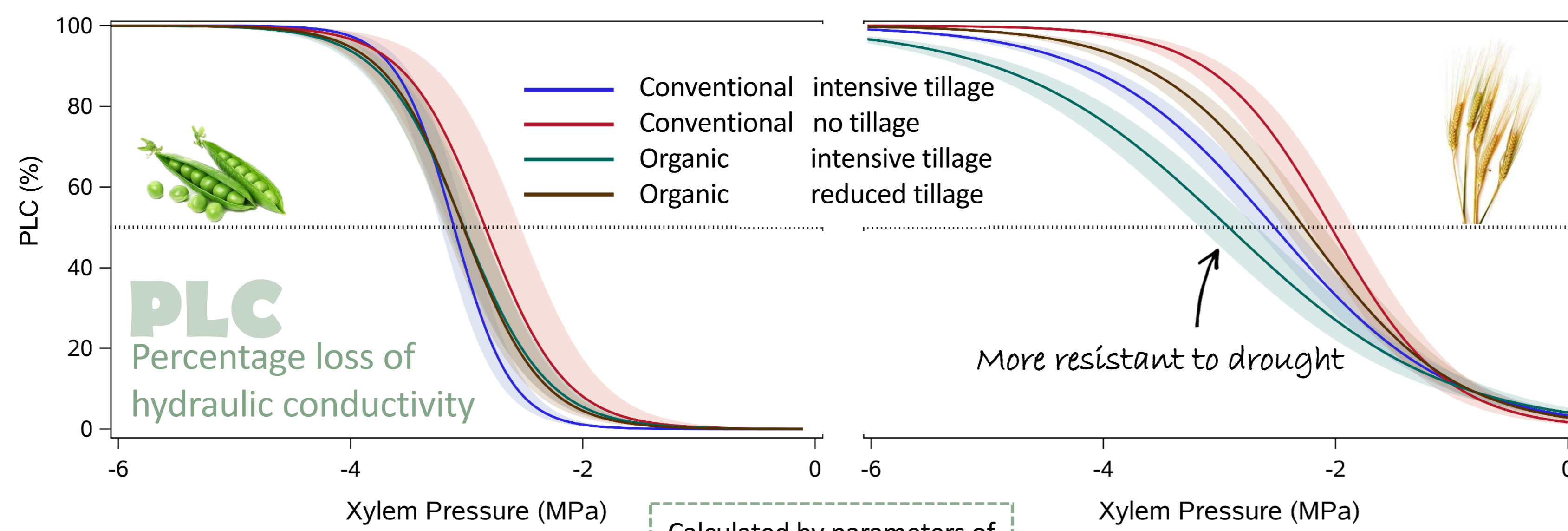
Research site: Ruemlang

The FAST trial^[1]
Farming System and Tillage Experiment

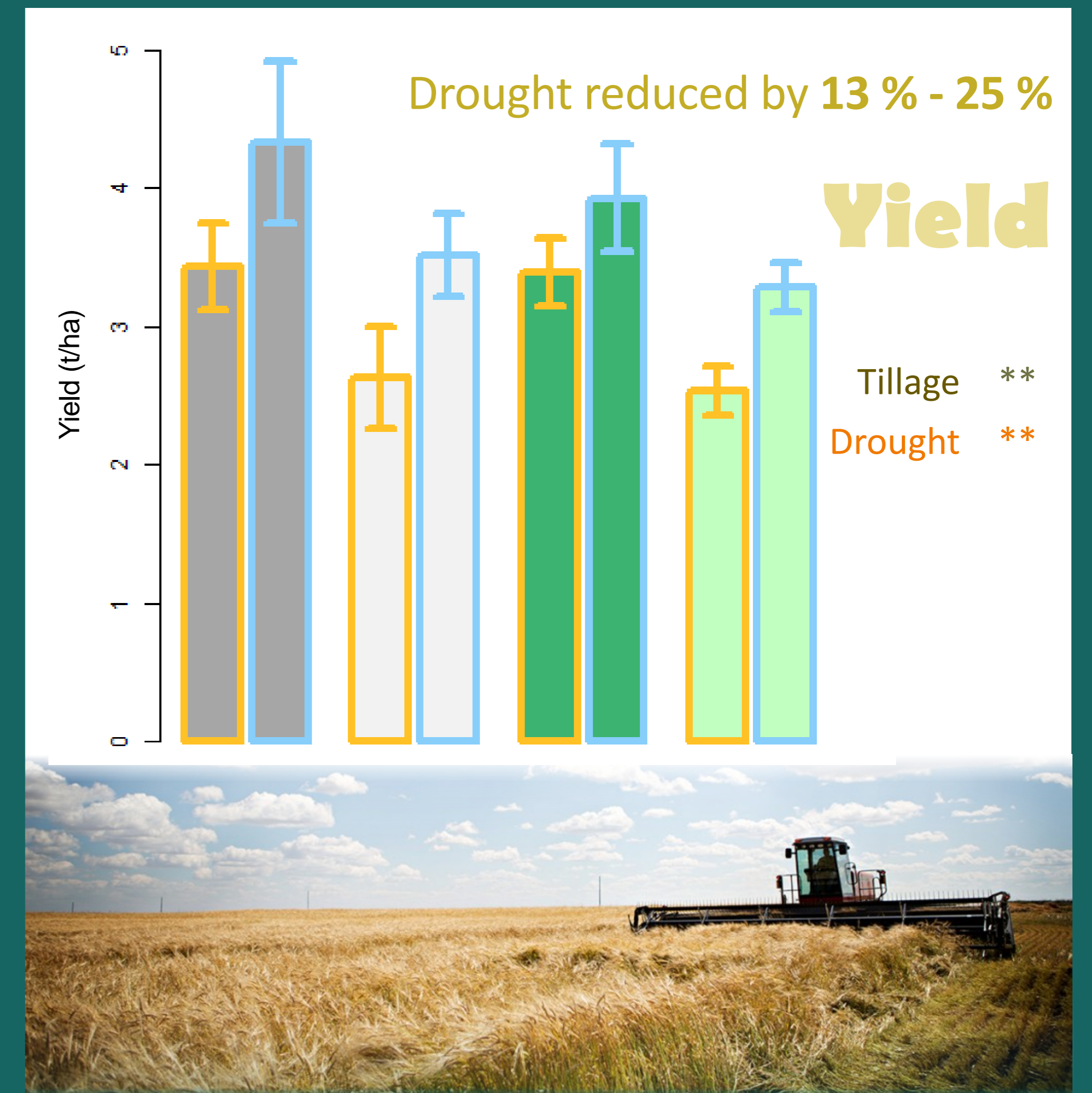
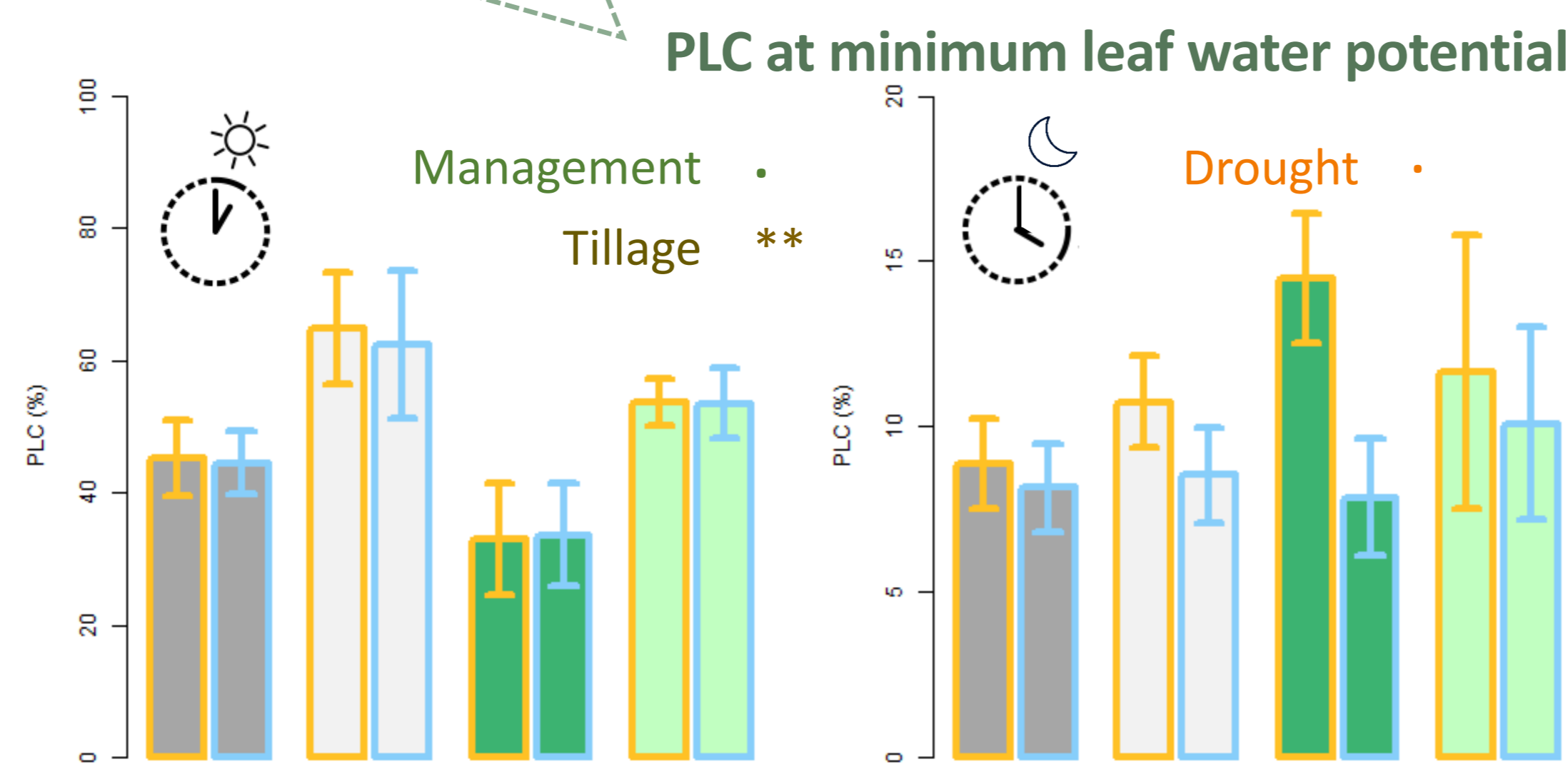
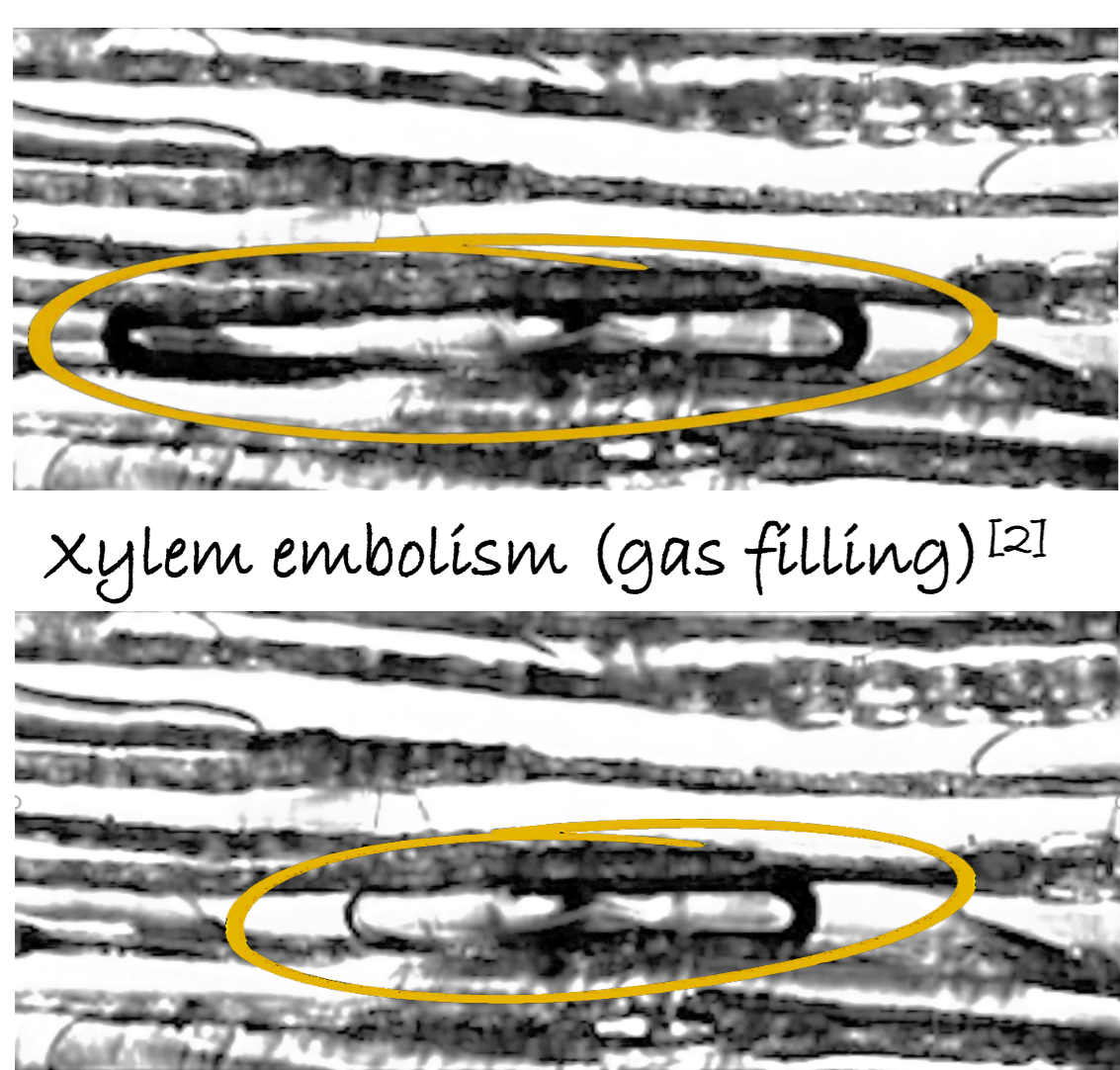
3 Primary results

Vulnerability curve

Reflects plant resistance to drought induced embolism



Calculated by parameters of VC and leaf water potential



4 First conclusions

- Drought could be successfully simulated with the rainout shelters;
- Drought significantly reduced the yield;
- Plants under intensive tillage were more resistant to drought.

5 References

1. Wittwer, R.A., Dorn, B., Jossi, W., van der Heijden, M.G.A. (2017) Cover crops support ecological intensification of arable cropping systems. Scientific Reports, 7:41911.
2. Hochberg, U., Herrera, J.C., Cochard, H., Badel, E. (2016) Short-time xylem relaxation results in reliable quantification of embolism in grapevine petioles and sheds new light on their hydraulic strategy. Tree Physiology 36, 748-755.

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 'ns' 1

