

Impact of poplar water status on leaf-beetle (*Chrysomela populi*) survival and feeding

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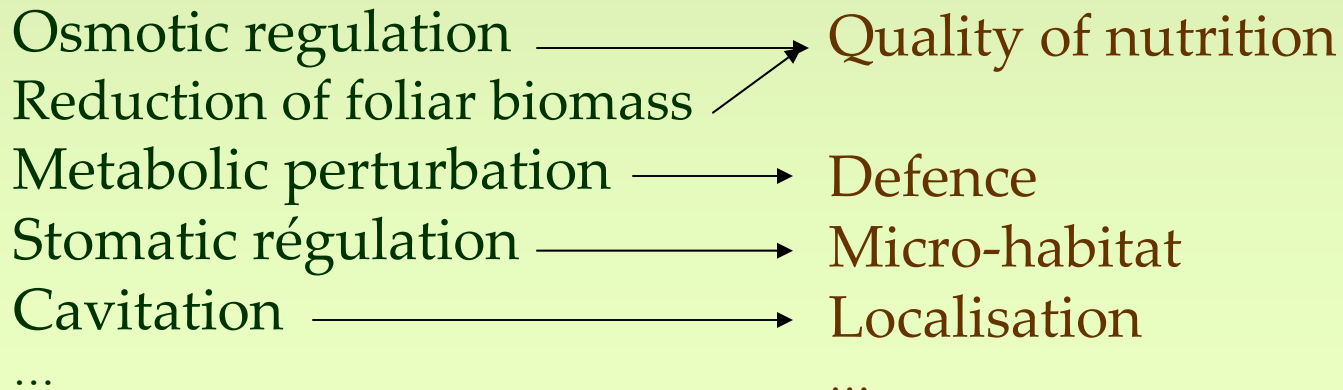
Effect of drought on the tree - herbivorous insect relation *(Mattson & Haack 1987)*



Morphological and physiological modifications of plant development



Adaptation of herbivore population



Impact of poplar water status on leaf-beetle survival and feeding

Intro



Morphological and physiological modifications of plant development



P. x euramericana, clone 417

Adaptation of herbivore population



C. populi

Objective : evaluate the reaction of a herbivorous insect at different levels of hydric stress supported by a poplar clone.

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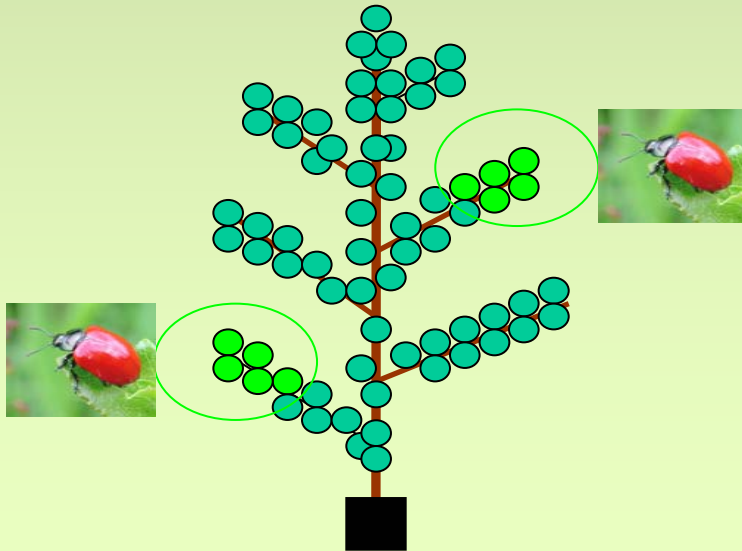
8 weeks stress

Intro

Exper.

TOTAL
90 plants

T M S



Experimental plan and device

Cage JMM

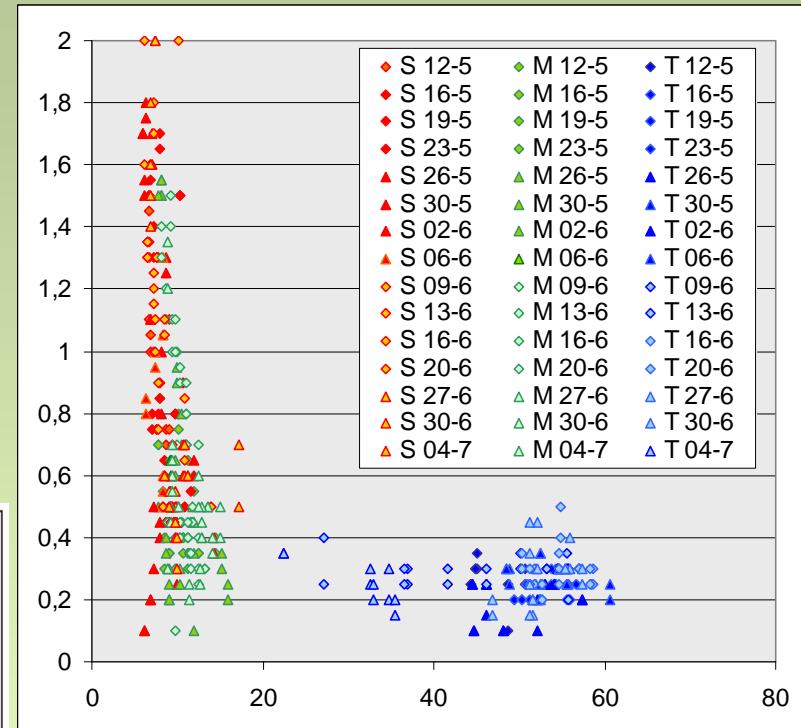
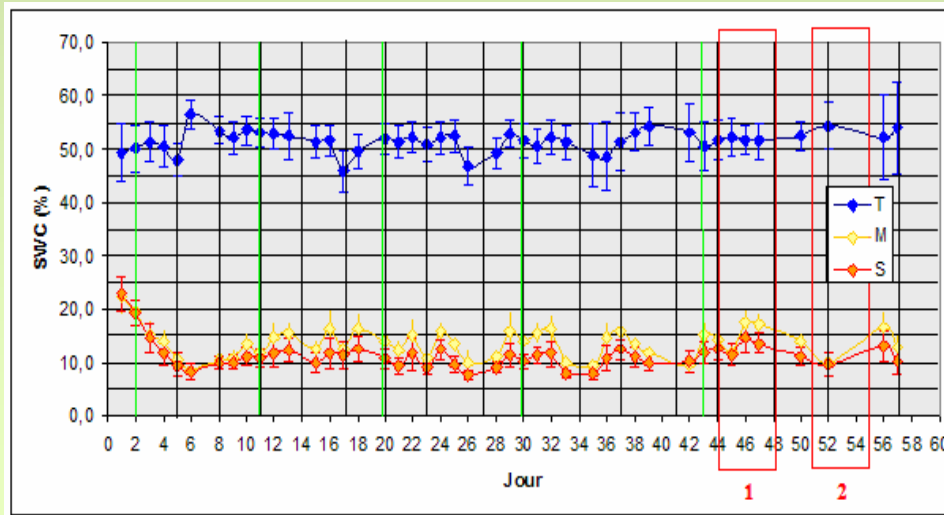
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Intro

Expér. 2

Summary of results

- Soil Moisture Content
- Basic hydric potential of leaf differs with high drought



X = days, Y = ph fb - MPa

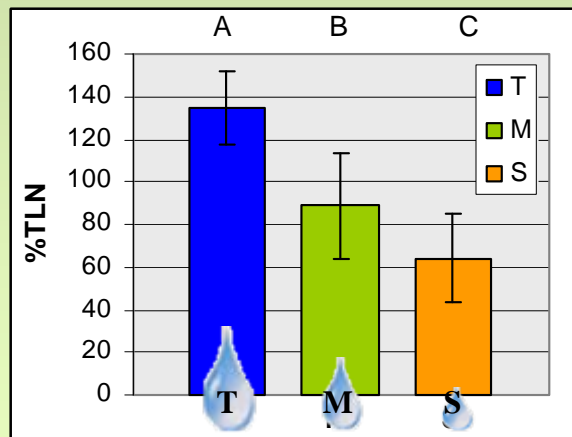
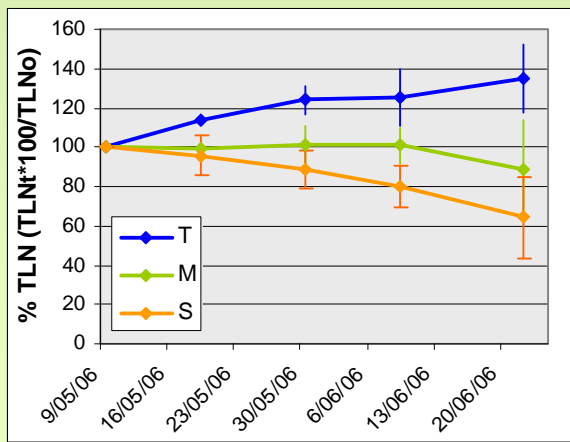
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Intro

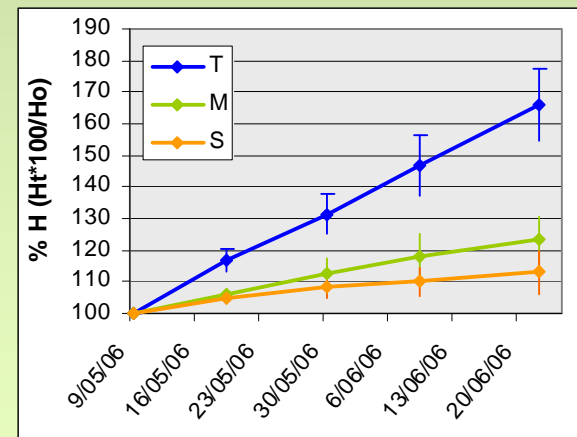
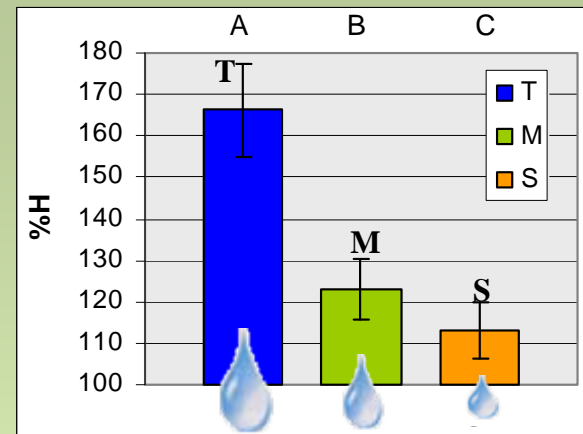
Expér. 2

Summary of results

- Relative height growth %, decreases with drought
- Total leaf number TNL % decreases with drought



ANOVA, $F(2,51) = 50.8$,
 $p < 0.001$; SNK: $\alpha = 0,001$.

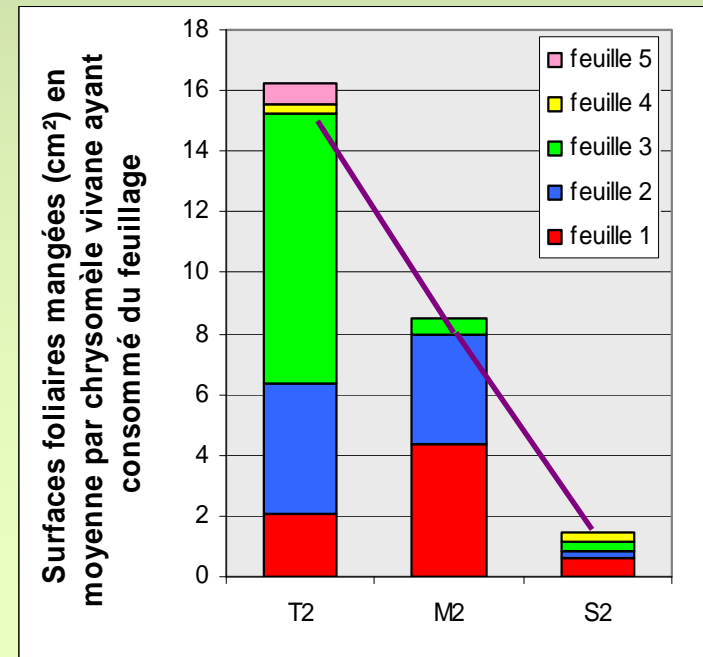
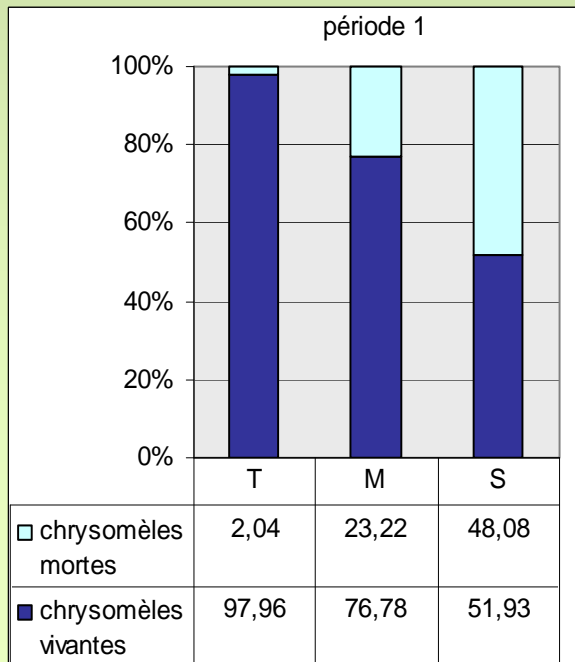


ANOVA, $F(2,62) = 212$,
 $p < 0.001$; SNK: $\alpha = 0,001$.

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Summary of results

- Survival of herbivorous decreases with drought;
- Leaf area consumed by adult decreases with drought , younger leaves are preferred;
- With drought the number of less eaten leaves increases.



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Intro

Exper.

Conclusions

Conclusion

- Hydric stress has a significant impact important on the plant development and morphology
- Physiology of plants undergoing hydric stress has a significant impact on survival and feeding capacity of adult *Chrysomela populi*

Thank you very much for your attention



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