Influence of maintenance practices on plant community properties interacting with ecosystem functions in an agricultural ditch

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TAKE HOME MESSAGE :

- Maintenance practices affect plant community parameters and properties in ditches in the medium term (2 years)
- Evolution of parameters and properties influence ecosystem functions (linked with ecohydraulics)
- Maintenance practices are a lever to pilot ditch ecosystem functions

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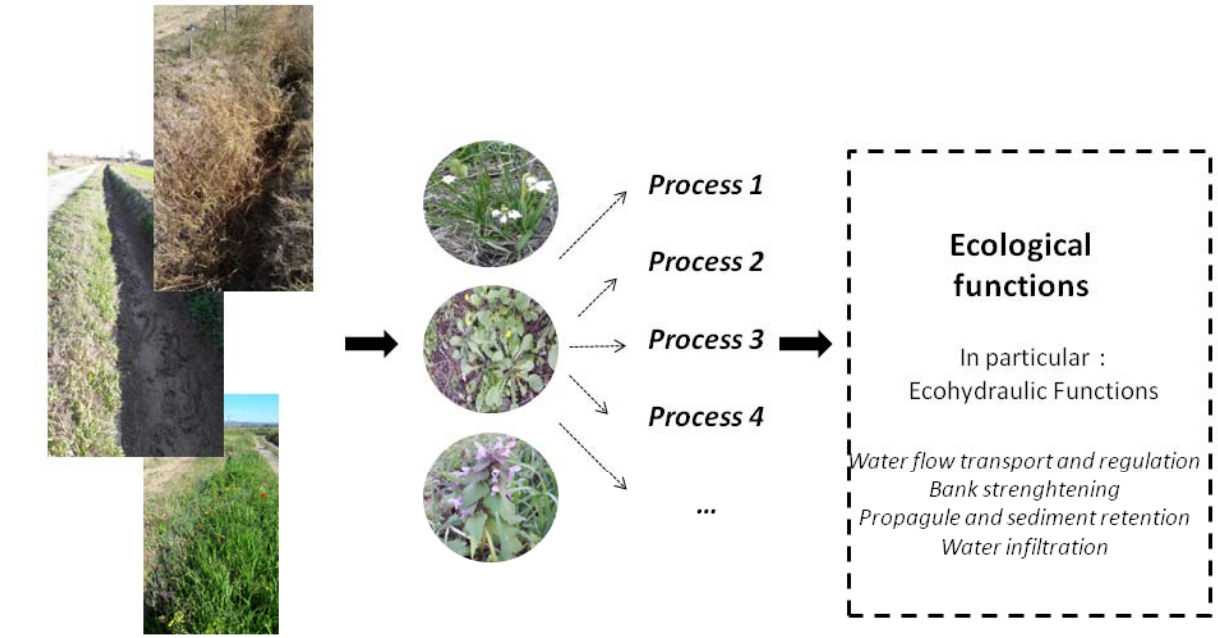
I. Concept :

➢ Studying the medium-term effects (2 years) of maintenance practices on ditch ecosystem functions through the study of evolution of plant community functional parameters and properties

➢ Originality : « Ecohydraulic functions » (*Rudi, 2019 ; Vinatier et al. 2017*) are under study



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II. Experiment :

- Exhaustive survey of ditch vegetation
- On 120m long
- After 2 years of 4 different maintenance practices (*Dollinger et al., 2017*)
- Data agregation on individual plant traits and properties to calculate functional parameters and properties at the **community level** (see *Rudi et al., in press*)

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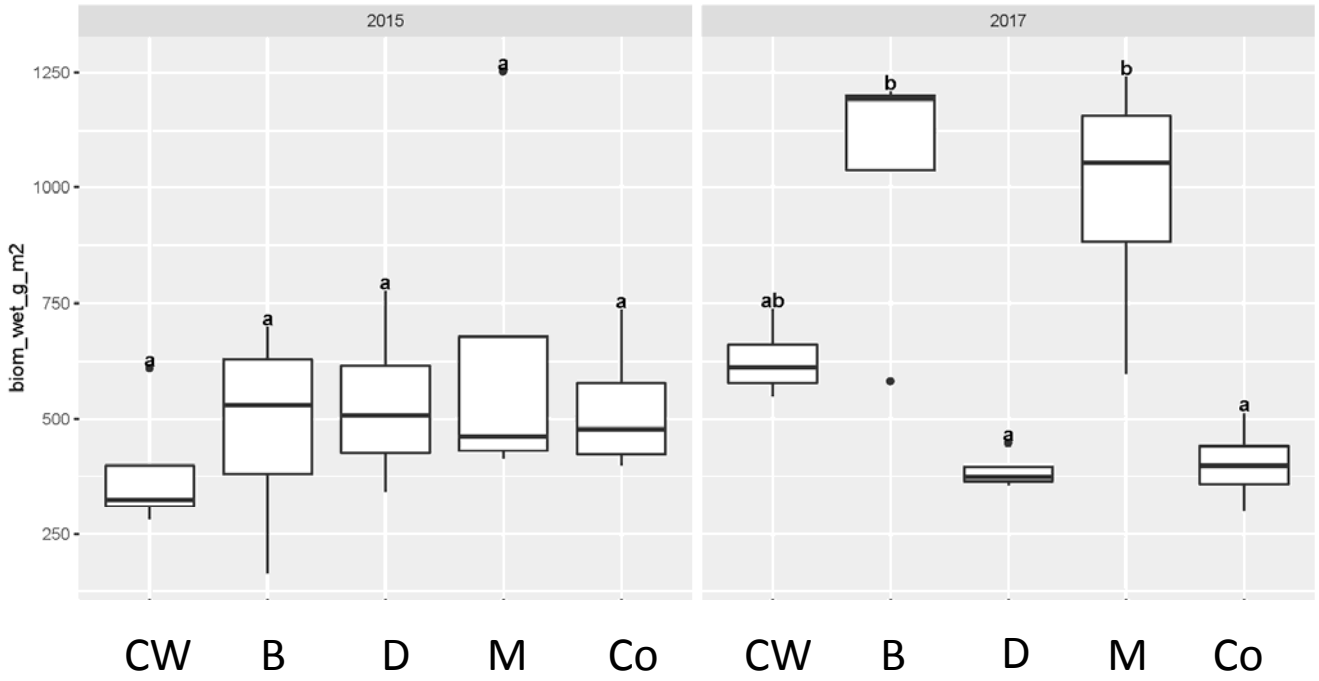
III. Results :

- Maintenance practices have effects on some plant community parameters and properties, and subsequently on ecosystem functions (example below of unpublished results on wet biomass)



CW : Chemical Weeding
B : Burning
D : Dredging
M : Mowing
Co : Control

Barplots of wet biomass for the 4 maintenance practices and the control (2015 and 2017). Vertical bars indicate the standard errors. Letters represent the results of Tukey's all-pair comparisons between treatments from the linear model.

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IV. Conclusion and perspectives :

- Research useful for agroecological management of ditches
- Maintenance practices are a lever for managing « ecohydraulic functions »
- Search for optimization of ecohydraulic functions at the network scale, while considering biodiversity (the survey method allows for biodiversity assessment as well)
- Need to explore other survey methods for plant community functional parameters and properties assessment (see *Vinatier et al., 2018*)

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