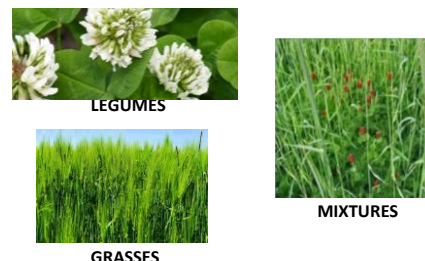


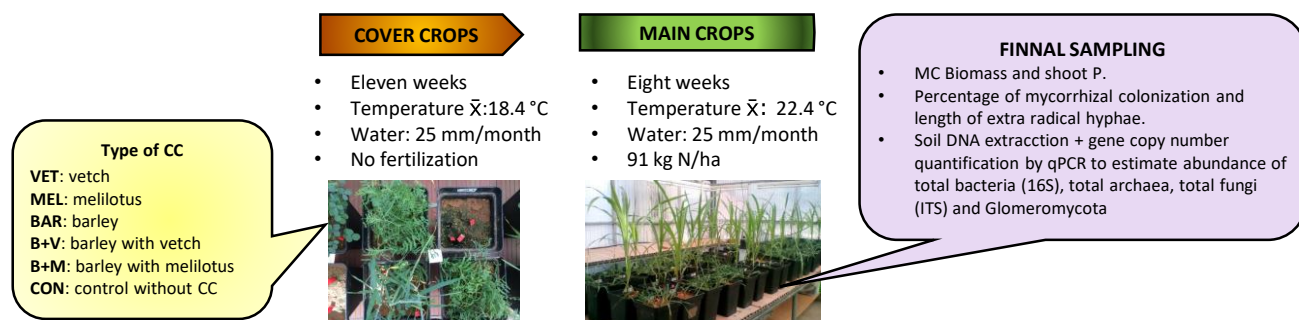
INTRODUCTION

- ❖ Cover crops (CC) promote ecosystem services with which can improve the sustainability of agriculture.
- ❖ The inclusion of CC in the rotations may stimulate arbuscular mycorrhizal fungi (AMF), favoring the mycorrhization of the subsequent main crop (MC).
- ❖ The response of AMF differs with the type of species used as CC, for example, legumes can increase the abundance of AMF, but grasses usually present higher ability to legate them to the next crop. And mixtures of CC species can provide benefits for both families to increase the biodiversity of the soil microbiota.
- ❖ It is necessary to deepen the analysis of the impact of different types of CC on soil microorganisms and how each subsequent MC interacts with this microbiota.



MATERIALS AND METHODS

- ❖ The effect of **five different CC** (TCC) were studied in **two main crop** (MC): **maize** and **wheat** (W), which were sown after the CC in a **greenhouse experiment**.
- ❖ The legacy of CC on the **early stages of the MC** was evaluated.
- ❖ Analysis of variance with a general linear model (Statgraphics Centurion XVIII); Tukey test for a p-value<0.05; analysis of principal components for the biological variables (R software).



RESULTS AND DISCUSSION

- ❖ The results indicated important effects of both the CC and the subsequent MC in most of the variables analyzed, as well as a strong interaction between the two factors of study (Type of CC and Main Crop).
- ❖ Figure 1 shows that the microbiological variables measured in the soil and roots of MC depend on the previously CC used.
- ❖ All CC improved the mycorrhizal colonization in MC, because the CC provided the necessary host during the fallow in contrast with the control.
- ❖ The CC mixtures decreased the abundance of total bacteria and total fungi compared to the control in maize.
- ❖ The CC B+M provided the most differences with respect to the control treatment (without CC). The behavior of B+V as cover crop in maize increased the abundance of bacteria, fungi and glomeromycota compare with the control without cover crop, whereas in wheat the behavior of this treatment was the opposite.
- ❖ In wheat, the results were very different than in maize. This shows the profound effect that the identity of the MC had on the interaction with the legated microbiota after each CC.
- ❖ CC in wheat showed the highest values in colonization, length of hyphae, abundance of total bacteria, total fungi and glomeromycota.
- ❖ The maize aboveground biomass was much higher than wheat one thanks to the high temperatures that facilitate the fixation of the carbon of C4 plants such as maize.
- ❖ In wheat, B+M mixture improved shoot P compared to the control treatment.
- ❖ A deepen study of the performance of main crops will clarify the interaction with cover crops under different conditions.

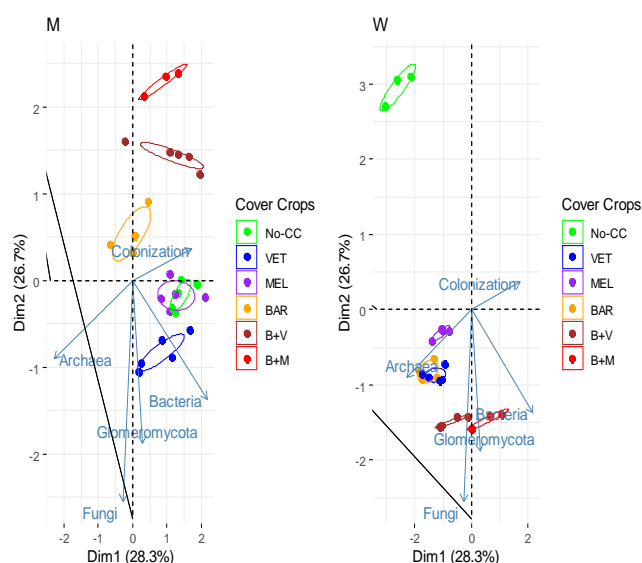


Figure 1. Analysis of principal components for the biological variables in the main crops (a) maize and, (b) wheat in the first and second component (55% of variability).

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