

## [P2] Farming System

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 2 (Poster) (Farming System)

1:15 PM - 2:00 PM

### [P2-06] Different Tillage Systems rather than Winter Cropping Affect the Corn Growth and Yield, and the Community Composition of Arbuscular Mycorrhizal Fungi

\*Nominated for Presentation Awards

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Several studies have reported that different types of tillage and winter cropping can impact the community structure of arbuscular mycorrhizal fungi (AMF). However, it is unclear that the combined effects of tillage and winter cropping change the AMF communities. Therefore, this study investigated how combined different tillage and winter cropping systems affect the community composition of AMF in the roots of subsequent corn (*Zea mays* L.). In this study, the effects of six treatments consisting of three single winter cover cropping (hairy vetch, daikon radish, and fallow) with rotary tillage or no tillage on the soil biochemical properties, AMF colonization, and growth performance of subsequent corn were evaluated. Our results showed that the dry matter weight and P uptake of corn at the 6 weeks after sowing was higher in the rotary tillage than the no tillage. The AMF colonization in the corn was also higher in the rotary tillage than the no tillage. Moreover, the tillage systems significantly changed the AMF community compositions in the roots. In the rotary tillage, the relative abundance of genus *Scutellospora* was higher than the no tillage. In contrast, the relative abundance of Glomeromycetes was higher in the no tillage than the rotary tillage. These results showed that the AMF compositions were shaped by tillage systems rather than winter cropping. Additionally, the differences in the AMF communities may be one of the factors for affecting the P uptake and yield of corn. Acknowledgement: This work was supported by JSPS KAKENHI Grant Number JP19K06005.