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Composition of Fungal Communities in Soil and Endophytic in Raspberry Production Systems

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Fungi play important roles as decomposers, plant symbionts and pathogens in soil. While endophytes are microorganisms that dwell within plant tissues and have a symbiotic association with the host. The structures of fungal communities in the soil and in endophytic association are dependent up complex interactions with the environment and the host. These two communities have a great influence on plant health and development. Using culture-independent fungal community profiling, we investigated the effects of fertilizer (composted dairy solids + mustard seed meal) on fungal communities in soil and endophytic in a raspberry production system. During the study we evaluated the impact of primer selection ITS1 vs ITS2. We characterized the communities for both spring and fall time periods. The results show that the soil communities are dominated by Ascomycota, and Basidiomycota in soil, while the endophytes were primarily Ascomycota. The relative abundances of certain taxa, such as Capnodiales, were more predominant in composted soil (8%) than the control (4%). There were no significant differences identified in the endophytic communities between the two treatments. Further research should elucidate the specific roles of these fungal taxa in raspberry soils and endophyte, and on the heath of the plant. To advance the ecological management of crop soils, understanding is needed of how beneficial microbial relationships can be fostered in these production systems.