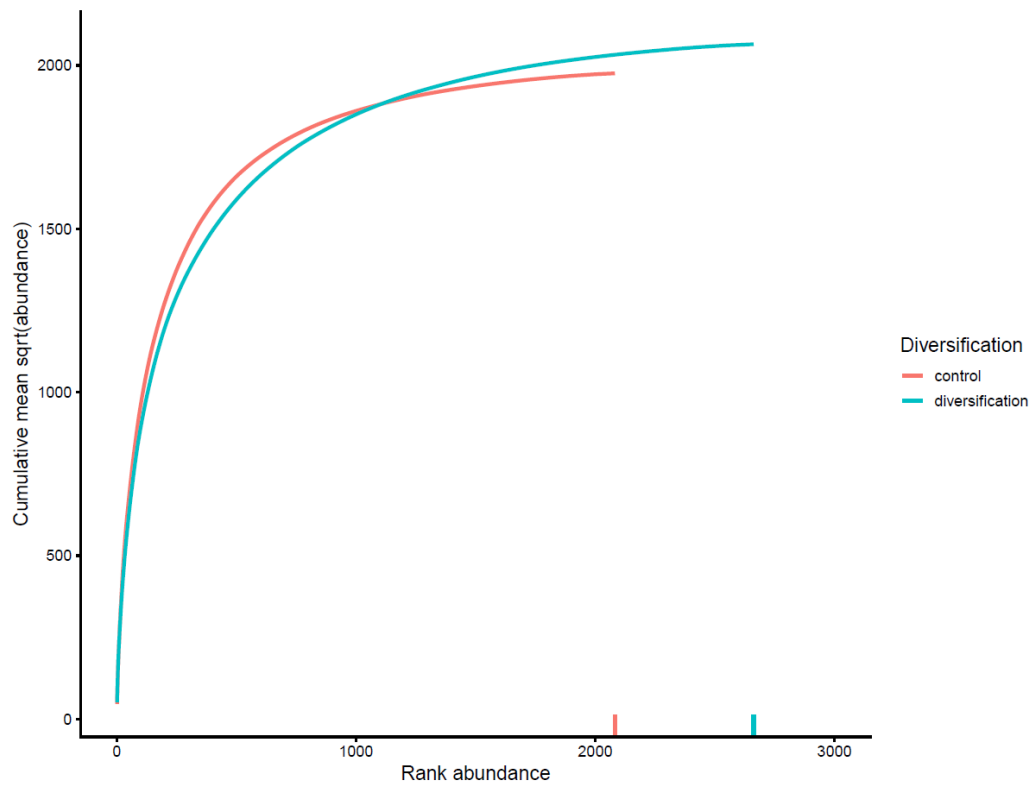
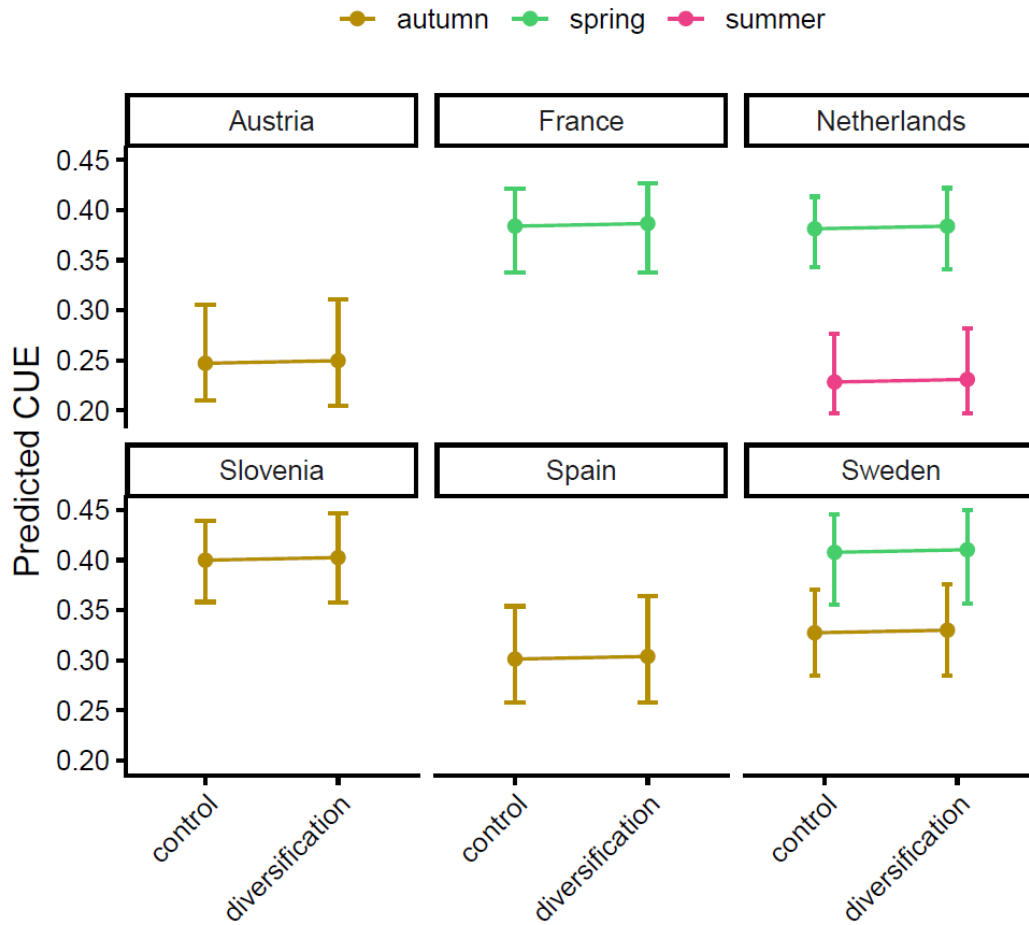


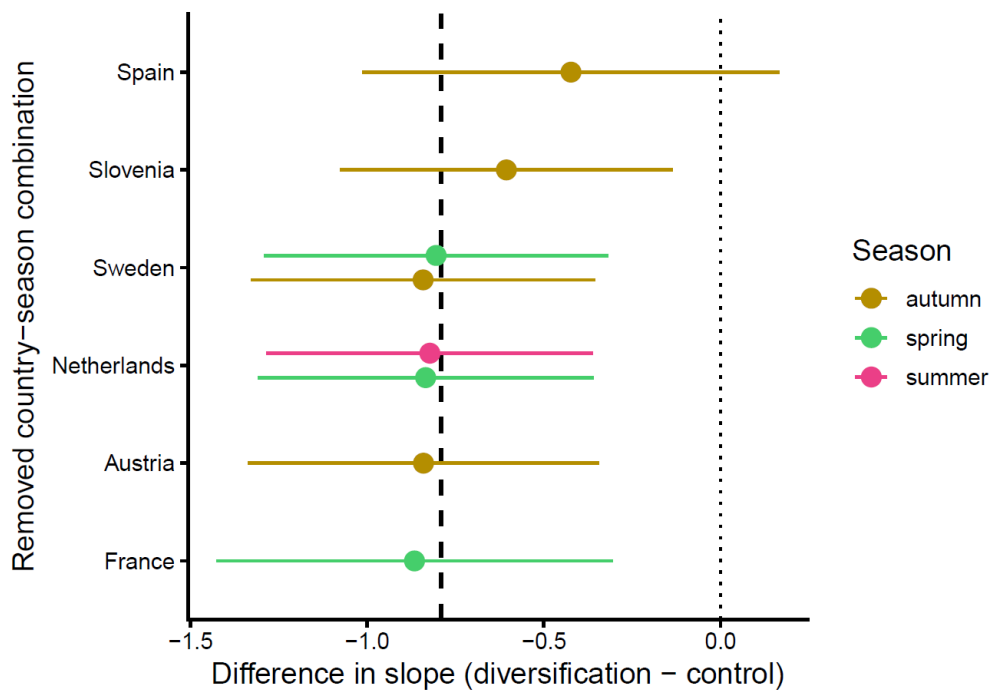
Supplementary material



Supplementary Figure S1. Cumulative rank-abundance curves of fungal communities under control and crop diversification treatments. Taxa are ordered by decreasing relative abundance, from dominant (left) to rare (right).



Supplementary Figure S2. Leave-one-country-season-out sensitivity analysis of the interaction between standardized fungal Shannon diversity and crop diversification on C respiration. Points show the estimated difference in Shannon-C respiration slopes between diversified and control soils after removing each country-season combination, and error bars indicate 95% confidence intervals. The dashed vertical line represents the full-model estimate, while the dotted vertical line marks zero, corresponding to no difference in slopes between diversified and control soils. Confidence intervals that do not overlap the zero line indicate statistically significant differences.



Supplementary Figure S3. Points represent model-based predictions of CUE for each country-season combination. Predictions are shown at the mean standardized fungal Shannon diversity value (0). Error bars indicate 95% confidence intervals obtained by parametric bootstrapping (1,000 iterations). Lines connect crop diversification levels within each season to illustrate the direction and magnitude of diversification effects.