Fig. S1-A



Relation between volumetric water content (VWC) and daily temperature range (DTR) along irrigation practices at 0 cm and 15 cm soil depth. The data points are scaled and normalized to minimize the noise.

Fig. S1-B

****

Relationship between (a) Total nitrogen and soil organic matter content across the management practices, crop residue and fertilization (b) total phosphorus and organic matter content across management practices, tillage and irrigation. None-Low indicates zero to small amount of residue added, and Medium-High indicates medium to high amount of residue was added. The regression lines were generated from the predicted values of a mixed effect model in which sampling period and field id were used as random effects. The dashed lines show the statistically non-significant relationship.

Fig. S1-C

****

Principal component analysis (PCA) biplot showing the availability of different elemental nutrients. The PCA scores are grouped by residue and no-till management practices. The shape of the dots indicates different tillage management and color indicates residue retention levels. PC1 and PC2 explain about 60% of the variation in the nutrient data.

Fig. S1-D



Relationship between microbial biomass carbon estimated using chloroform fumigation extraction technique and soil moisture content for agricultural systems across tillage and residue management practices. None-Low indicates zero to small amount of residue added, and Medium-High indicates medium to high amount of residue was added. The shapes of the dots indicate tillage methods, while the colors of the dots indicate residue retention level. The regression lines were generated from the predicted values of a mixed effect model in which sampling period and field id were used as random effects.

Fig S1-E



Relative abundance of main microbial groups estimated through FAME analysis across irrigation and tillage management. We didn’t observe a strong shift in the relative abundances of the main microbial groups with irrigation and tillage practices.

Fig S1-F



Figure 9. Non-metric multidimensional scaling (NMDS) ordination plot showing abundances of different microbial FAME levels. The data are grouped by (a) irrigation and (b) tillage management practices. The dots indicate the centroids and ellipses show the 95% confidence intervals.

Fig S1-G



Relative importance of predictors for a) GWC, b) OM, c) DOC, d) MBC, e) total FAME, f) Bacterial FAME, g) Fungal Fame, and h) AMF FAME measured using random forest model.