

*Supplementary Information for*

**Insights into the driving factors of methane emission from double-season rice  
field under different fertilization in South China**

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## Supplementary Figures

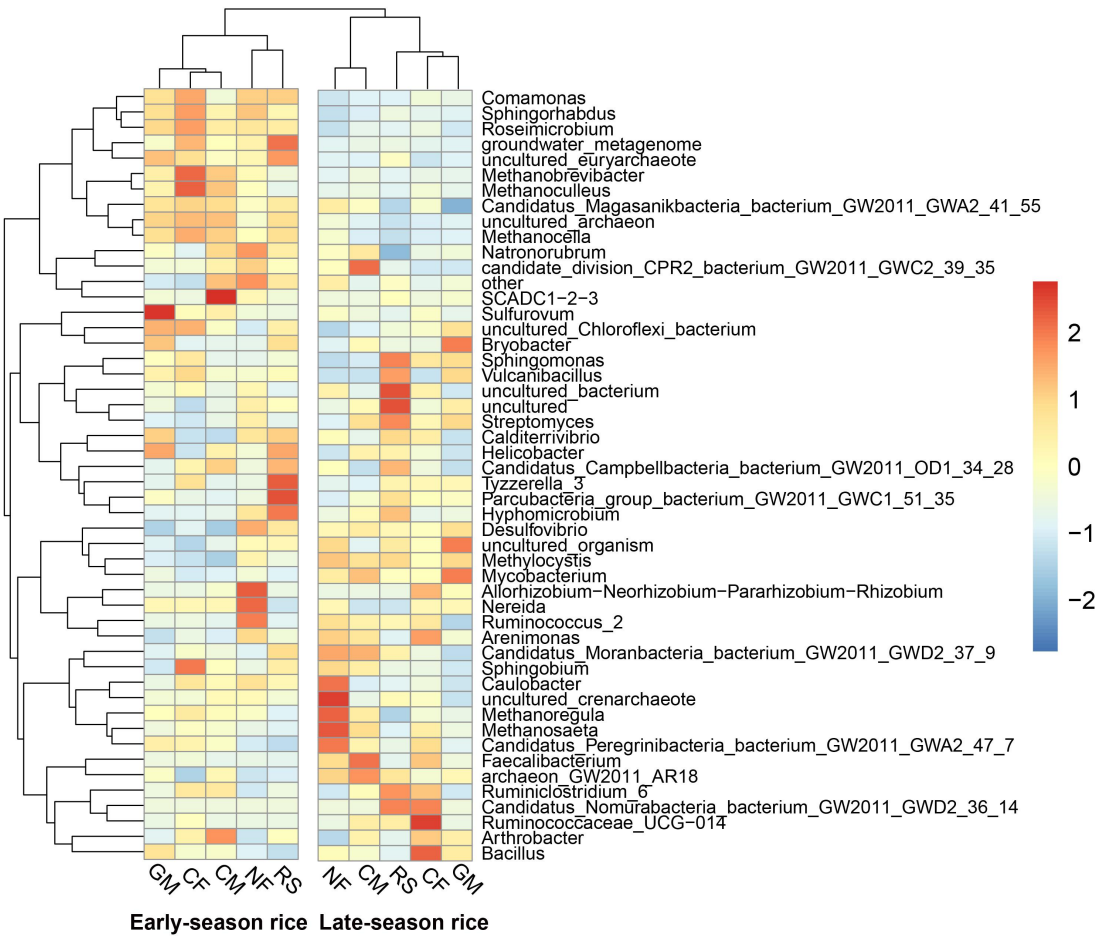
**Figure S1. Microbial composition differences of the top 50 abundant microbial genera between early- and late-season rice in the different fertilization soils.**

**Figure S2. The relative abundance (%) of methanogens from different fertilization soils in early- and late-season rice.** Different letters (a, b, c, d) indicate significant differences in the mean value of each chemical property among different treatments (Duncan's multiple range test,  $P < 0.05$ ).

**Figure S3. The relative abundance (%) of aerobic CH<sub>4</sub>-oxidizing methanotrophs from different fertilization soils in early- and late-season rice.** Different letters (a, b, c, d) indicate significant differences in the mean value of each chemical property among different treatments (Duncan's multiple range test,  $P < 0.05$ ).

**Figure S4. The correlation between the abundance of CH<sub>4</sub> metabolism genes (*mcrA* and *pmoA*) and cumulative CH<sub>4</sub> emissions.**

Figure S1



**Figure S2**

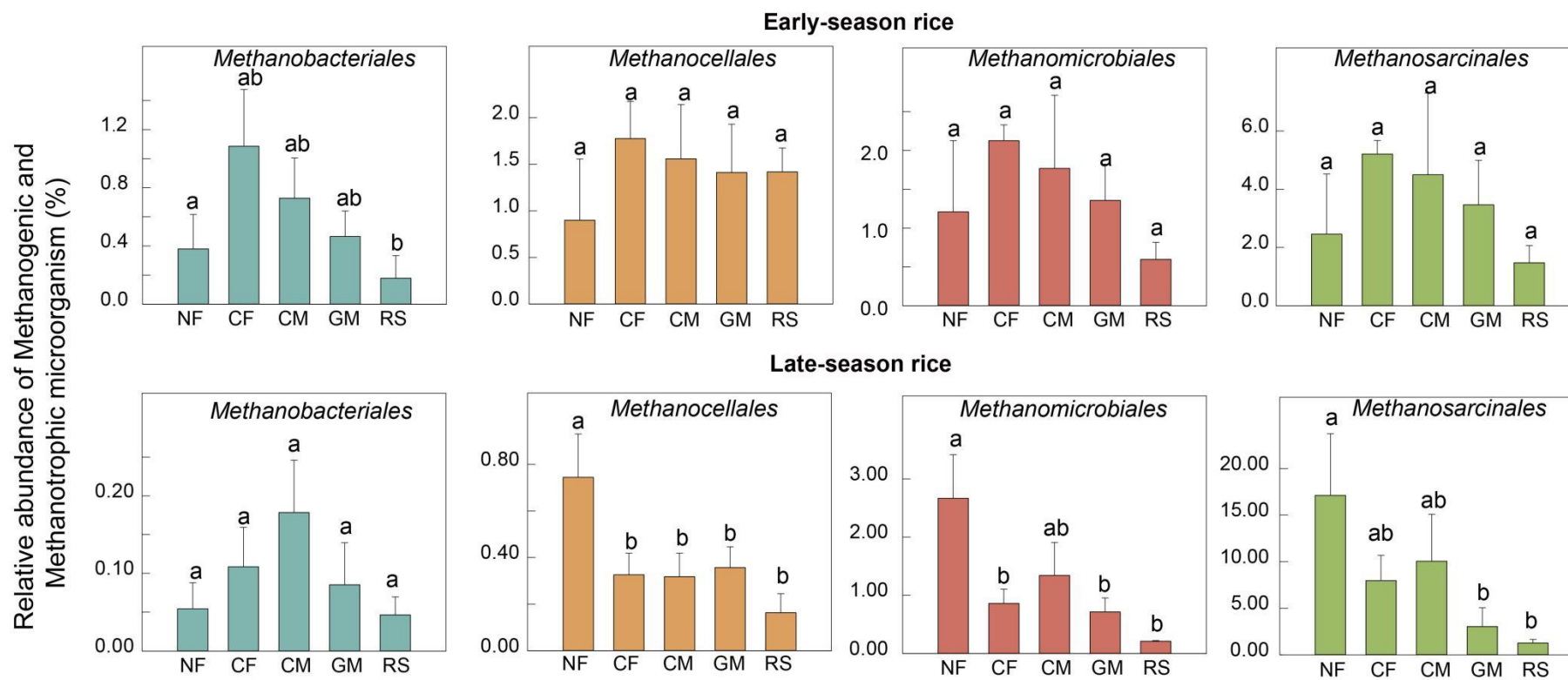


Figure S3

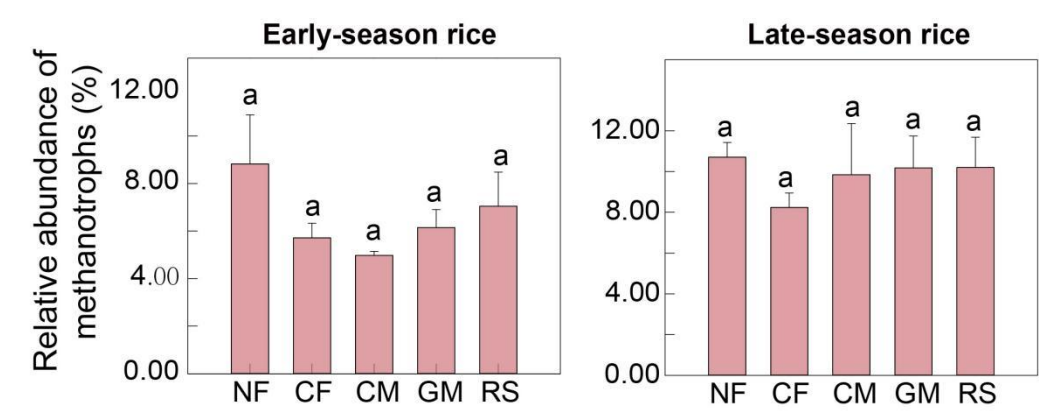


Figure S4

