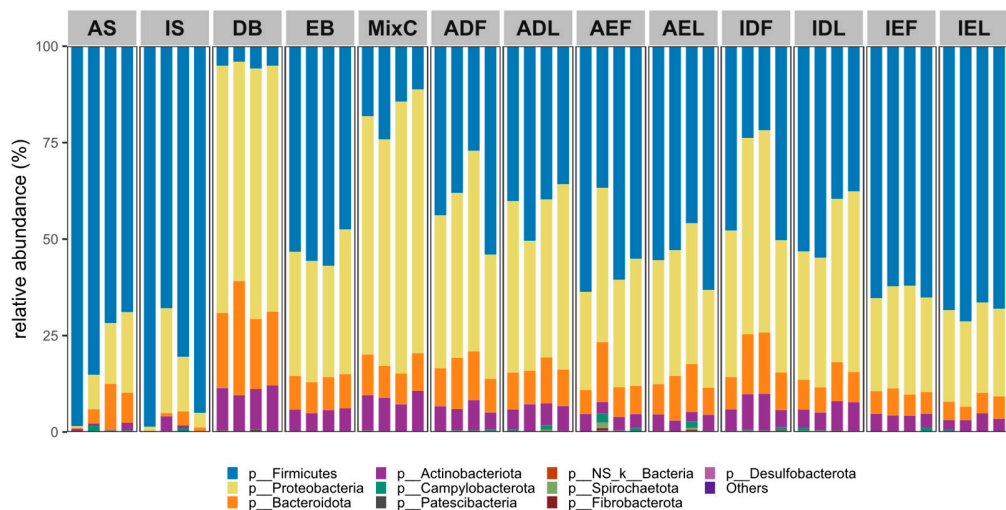
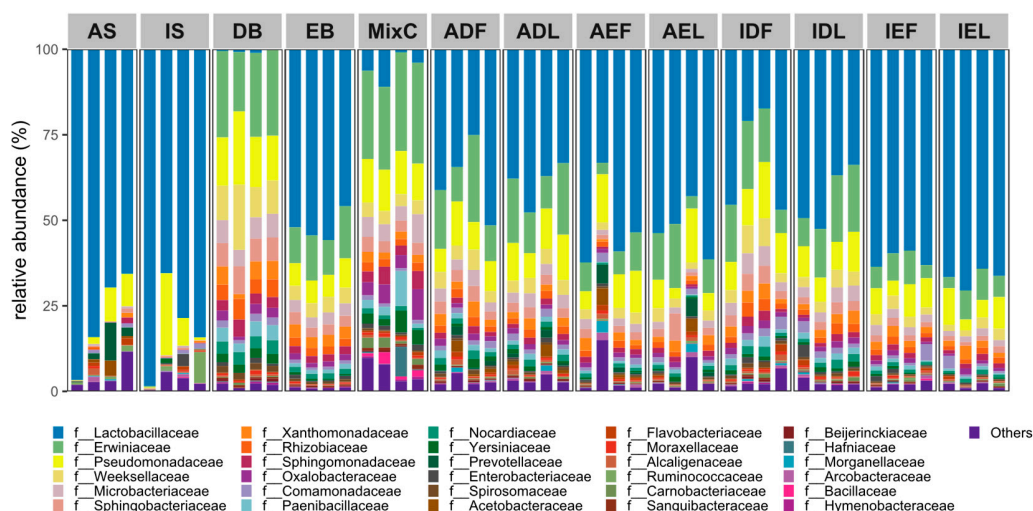


## Supplemental materials

A

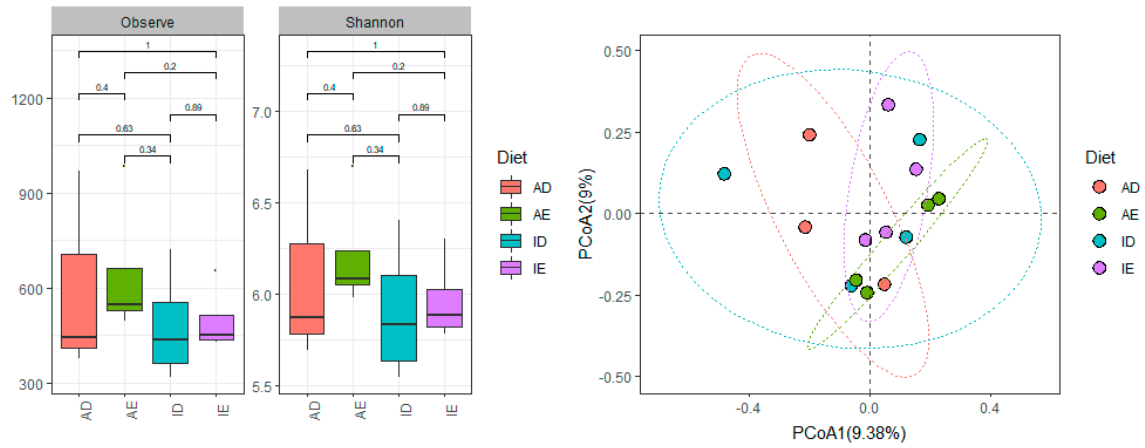


B

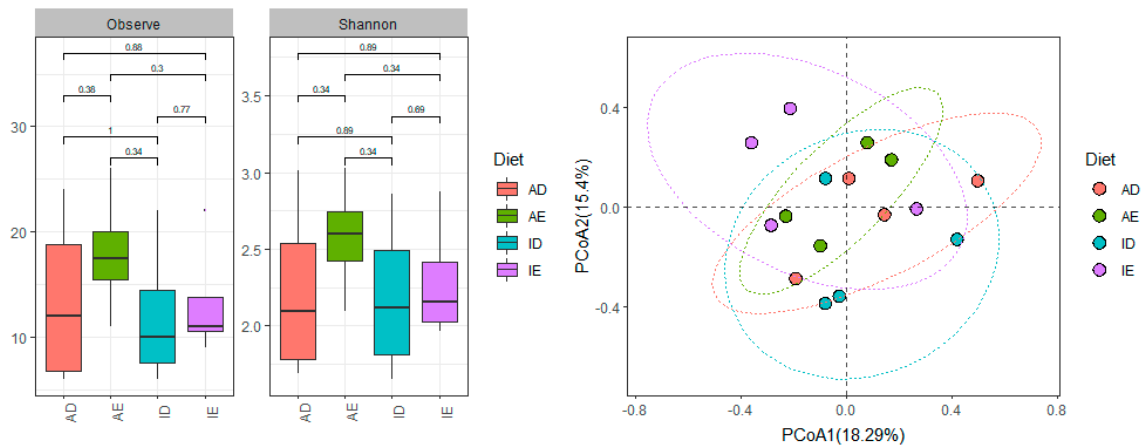


**Figure S1.** Relative abundance of bacterial communities at phylum (A) and family (B) taxonomical levels of the experimental feeds and total mixed rations (TMR). AS: acid-treated silage; IS: inoculant-treated silage; DB: dried barley; EB: crimped and ensiled barley; MixC: supplementary concentrate; ADF: fresh TMR produced with acid-treated silage and dry barley; ADL: 2-day old TMR produced with acid-treated silage and dry barley; AEF: fresh TMR produced with acid-treated silage and ensiled barley; AEL: 2-day old TMR produced with acid-treated silage and ensiled barley; IDF: fresh TMR produced with inoculant-treated silage and dry barley; IDL: 2-day old TMR produced with inoculant-treated silage and dry barley; IEF: fresh TMR produced with inoculant-treated silage and ensiled barley; IEL: 2-day old TMR produced with inoculant-treated silage and ensiled barley.

## A Bacteria

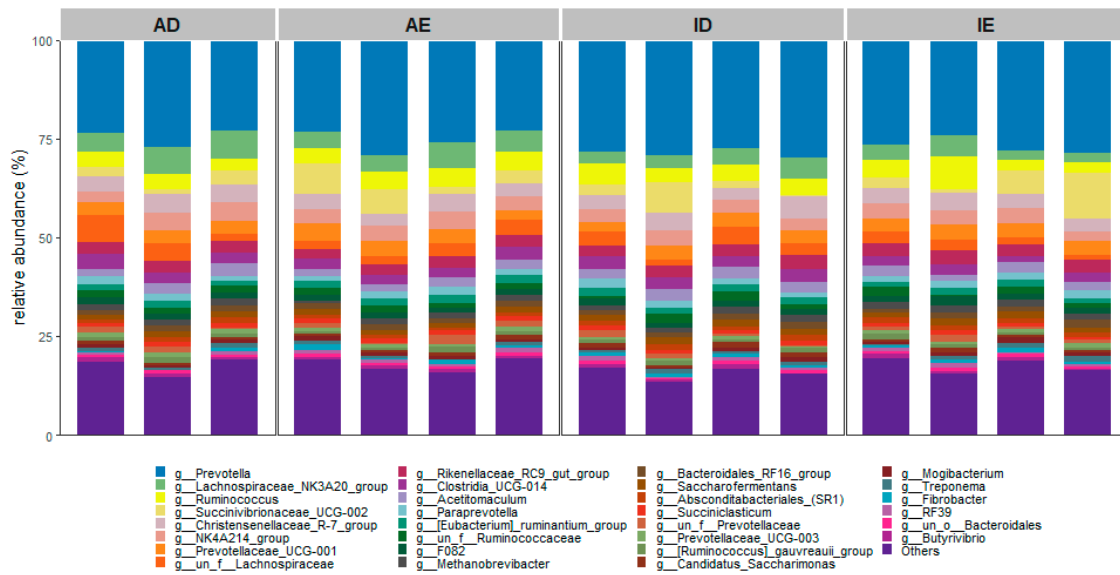


## B Archaea

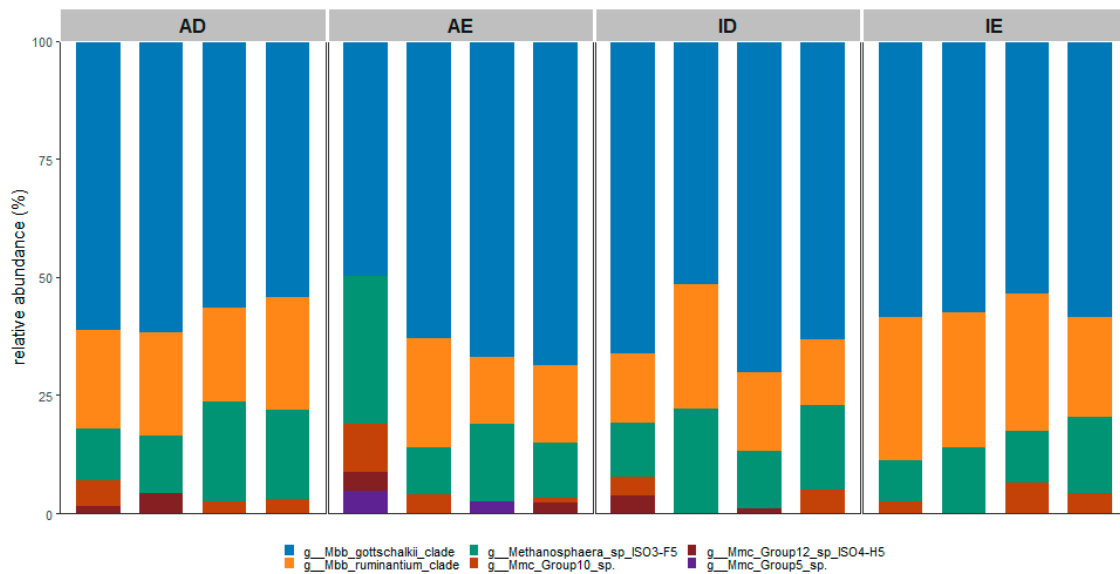


**Figure S2.** The rumen bacterial (A) and archaeal (B) alpha diversity expressed as observed number of ASVs and Shannon diversity index. Significance of pairwise differences was estimated using non-parametric Wilcoxon test. Beta diversity is presented as the principal coordinate analysis of Bray-Curtis dissimilarities, when animals were grouped based on offered diets. AD - TMR produced with acid-treated silage and dry barley; AE - TMR produced with acid-treated silage and ensiled barley; ID - TMR produced with inoculant-treated silage and dry barley; IE - TMR produced with inoculant-treated silage and ensiled barley.

## A Bacteria

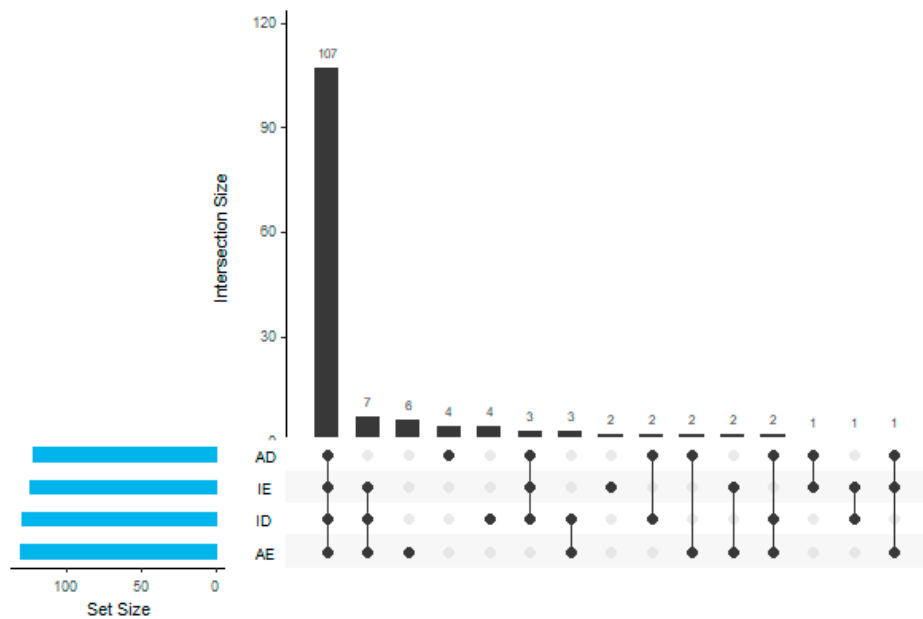


## B Archaea

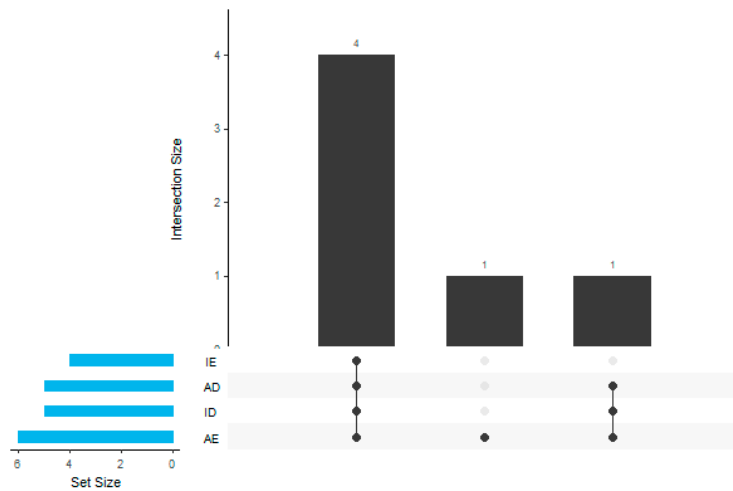


**Figure S3.** The rumen bacterial (A) composition at genus level and archaeal (B) composition at species level. AD: TMR produced with acid-treated silage and dry barley; AE: TMR produced with acid-treated silage and ensiled barley; ID: TMR produced with inoculant-treated silage and dry barley; IE: TMR produced with inoculant-treated silage and ensiled barley.

## A Bacteria



## B Archaea



**Figure S4.** The rumen bacteria (**A**) at genus level and archaea (**B**) at species level shared between the diets. AD: TMR produced with acid-treated silage and dry barley; AE: TMR produced with acid-treated silage and ensiled barley; ID: TMR produced with inoculant-treated silage and dry barley; IE: TMR produced with inoculant-treated silage and ensiled barley.