Supplementary Material

Table S1: Corrected P values for Kruskal Wallis test on individual milk samples

Milk

NPI vs NPO	**P value**	**Higher in**
Lactococcus	0.002	NPO
Pseudomonas	0.003	NPO
Acinetobacter	0.008	NPO
Eremococcus	0.012	NPI
Ruminococcus	0.012	NPI
Tumebacillus	0.014	NPO
Prevotella	0.02	NPI
Corynebacteriales uncultured bacterium	0.022	NPI
Ruminococcaceae Incertae Sedis	0.028	NPI
Bacteroidales uncultured bacterium	0.049	NPI

NPI vsPI	**P value**	**Higher in**
Pseudomonas	0.035	PI

NPO vs PO	**P value**	**Higher in**
uncultured *Verrucomicrobia* bacterium	0.005	PO
Exiguobacterium	0.009	PO
Pseudomonas	0.011	NPO
DA101 soil group uncultured bacterium	0.013	PO
Bifidobacterium	0.02	NPO
Lactococcus	0.025	NPO
Candidate division TM7 uncultured bacterium	0.027	PO
Lactobacillus	0.03	NPO
Ruminococcaceae *Incertae Sedis*	0.046	PO

PI vs PO	**P value**	**Higher in**
Bifidobacterium	0.001	PI
Eremococcus	0.001	PI
Facklamia	0.001	PI
Alloiococcus	0.001	PI
Atopostipes	0.001	PI
Trichococcus	0.001	PI
Carnobacteriaceae uncultured	0.002	PI
DA101 soil group uncultured *Verrucomicrobia*	0.002	PO
Corynebacterium	0.003	PI
Exiguobacterium	0.003	PO
DA101 soil group uncultured bacterium	0.003	PO
Lactobacillus	0.004	PI

Ruminococcus	0.009	PI
Flavobacterium	0.009	PO
Massilia	0.012	PO
Sphingomonas	0.014	PO
Psychrobacter	0.019	PI
Prevotella	0.02	PI
Candidatus *Saccharimonas*	0.02	PI
Variovorax	0.02	PO
Tumebacillus	0.021	PO
Hymenobacter	0.022	PO
Dietzia	0.023	PI
Arthrobacter	0.028	PI
Clostridium sensu stricto 1	0.036	PI

NPI= No prep indoor; NPO=No prep outdoor; PI= Prep indoor; PO= Prep outdoor

Table S2: Corrected P values for Kruskal Wallis test on teat swab samples

Teat

NPI vs NPO	P value	Higher in
Trichococcus	0.012	NPI
Incertae Sedis	0.013	NPO
Acidimicrobiales uncultured bacterium	0.014	NPO
Peptostreptococcaceae uncultured	0.015	NPO
Marinospirillum	0.02	NPI
Proteiniphilum	0.021	NPI
Erysipelothrix	0.025	NPI
Exiguobacterium	0.025	NPO
Corynebacterium	0.039	NPI
Psychrobacter	0.039	NPI
Arenimonas	0.039	NPO
Betaproteobacteria uncultured bacterium	0.04	NPO
uncultured *Mycobacteriaceae* bacterium	0.042	NPO
Xanthomonadales uncultured bacterium	0.042	NPO
Eremococcus	0.044	NPI
Blastocatella	0.049	NPO
Verrucomicrobiaceae uncultured	0.049	NPO
Ferruginibacter	0.05	NPO

NPI vs PI	P value	Higher in
Variovorax	0.033	NPI
Bifidobacterium	0.04	PI
Acidimicrobiales uncultured bacterium	0.043	NPI
Devosia	0.043	NPI

NPO vs PO	P value	Higher in
No significant differences	NA	

PI vs PO	P value	Higher in
Proteiniphilum	0.001	PI
Jeotgalicoccus	0.001	PI
Eremococcus	0.001	PI
Facklamia	0.001	PI
Carnobacteriaceae uncultured	0.001	PI
Erysipelothrix	0.001	PI
Marinospirillum	0.001	PI
Blastocatella	0.001	PO
Acidimicrobiales uncultured.bacterium	0.001	PO
uncultured *Mycobacteriaceae* bacterium	0.001	PO
Dyadobacter	0.001	PO
Ferruginibacter	0.001	PO
Devosia	0.001	PO

Methylobacterium	0.001	PO
Variovorax	0.001	PO
Stenotrophomonas	0.001	PO
Xanthomonas	0.001	PO
DA101 soil group uncultured bacterium	0.001	PO
Corynebacterium	0.002	PI
Ruminococcus	0.002	PI
Psychrobacter	0.002	PI
uncultured Acidobacteria bacterium	0.002	PO
Clavibacter	0.002	PO
Gaiellales uncultured bacterium	0.002	PO
Chitinophagaceae uncultured	0.002	PO
Exiguobacterium	0.002	PO
Sphingomonas	0.002	PO
Betaproteobacteria SC.I.84 uncultured bacterium	0.002	PO
Arenimonas	0.002	PO
Xanthomonadales uncultured bacterium	0.002	PO
DA101 soil group uncultured *Verrucomicrobia* bacterium	0.002	PO
Verrucomicrobiaceae uncultured	0.002	PO
Bifidobacterium	0.003	PI
Spirochaetaceae uncultured	0.003	PI
Acidobacteria Subgroup 6 uncultured bacterium	0.003	PO
Hymenobacter	0.003	PO
Pedobacter	0.003	PO
WD2101 soil group uncultured bacterium	0.003	PO
Rhizobium	0.003	PO
Chthoniobacter	0.003	PO
Alloiococcus	0.004	PI
Trichococcus	0.004	PI
Rhodococcus	0.004	PO
Bradyrhizobium	0.004	PO
Prevotella	0.005	PI
Brevundimonas	0.005	PO
Massilia	0.005	PO
Spirosoma	0.006	PO
Nocardioides	0.007	PO
Treponema	0.009	PI
Kandleria	0.009	PO
uncultured *Parabacteroides* sp.	0.011	PI
Blautia	0.011	PI
Halomonas	0.015	PI
Cellvibrio	0.026	PO
Peptostreptococcaceae Incertae Sedis	0.03	PO
Lachnospiraceae uncultured	0.032	PI
Anaerotruncus	0.032	PI

Comamonadaceae uncultured	0.047	PO
Atopobium	0.05	PO

NPI= No prep indoor; NPO=No prep outdoor; PI= Prep indoor; PO= Prep outdoor

Table S3: Corrected P values for Kruskal Wallis test on faecal samples

Faeces	**P value**	**Higher in**
Prevotella	0.001	Indoor
Bacteroides	0.002	Indoor
Saprospiraceae uncultured	0.002	Indoor
RF16 uncultured bacterium	0.005	Outdoor
Incertae Sedis	0.005	Outdoor
Ruminococcaceae uncultured	0.009	Outdoor
Lachnospiraceae uncultured	0.012	Indoor
Phascolarctobacterium	0.012	Indoor
Sutterella	0.012	Indoor
Ruminobacter	0.012	Indoor
Spirochaetaceae uncultured	0.012	Indoor
uncultured *Parabacteroides* sp.	0.021	Indoor
Ruminococcus	0.021	Indoor
Treponema	0.021	Indoor
RF9 uncultured bacterium	0.021	Indoor
Peptostreptococcaceae uncultured	0.021	Outdoor
Fibrobacter	0.027	Indoor
Incertae Sedis	0.027	Indoor
Phocaeicola	0.027	Outdoor
Alloprevotella	0.027	Outdoor
Paludibacter	0.036	Outdoor
Prevotellaceae uncultured	0.036	Outdoor
Blautia	0.046	Indoor

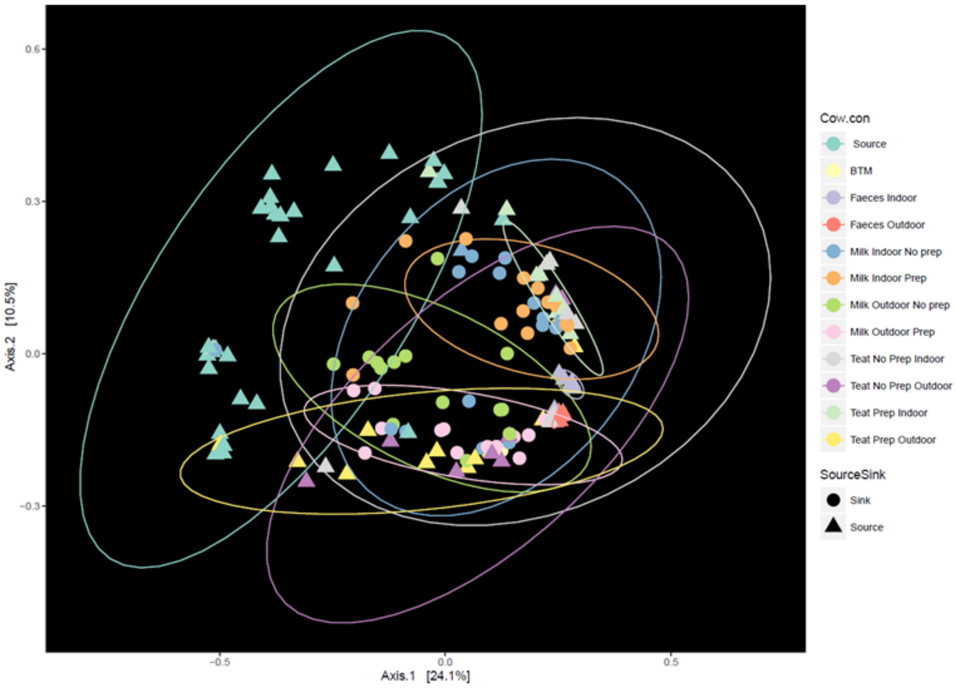
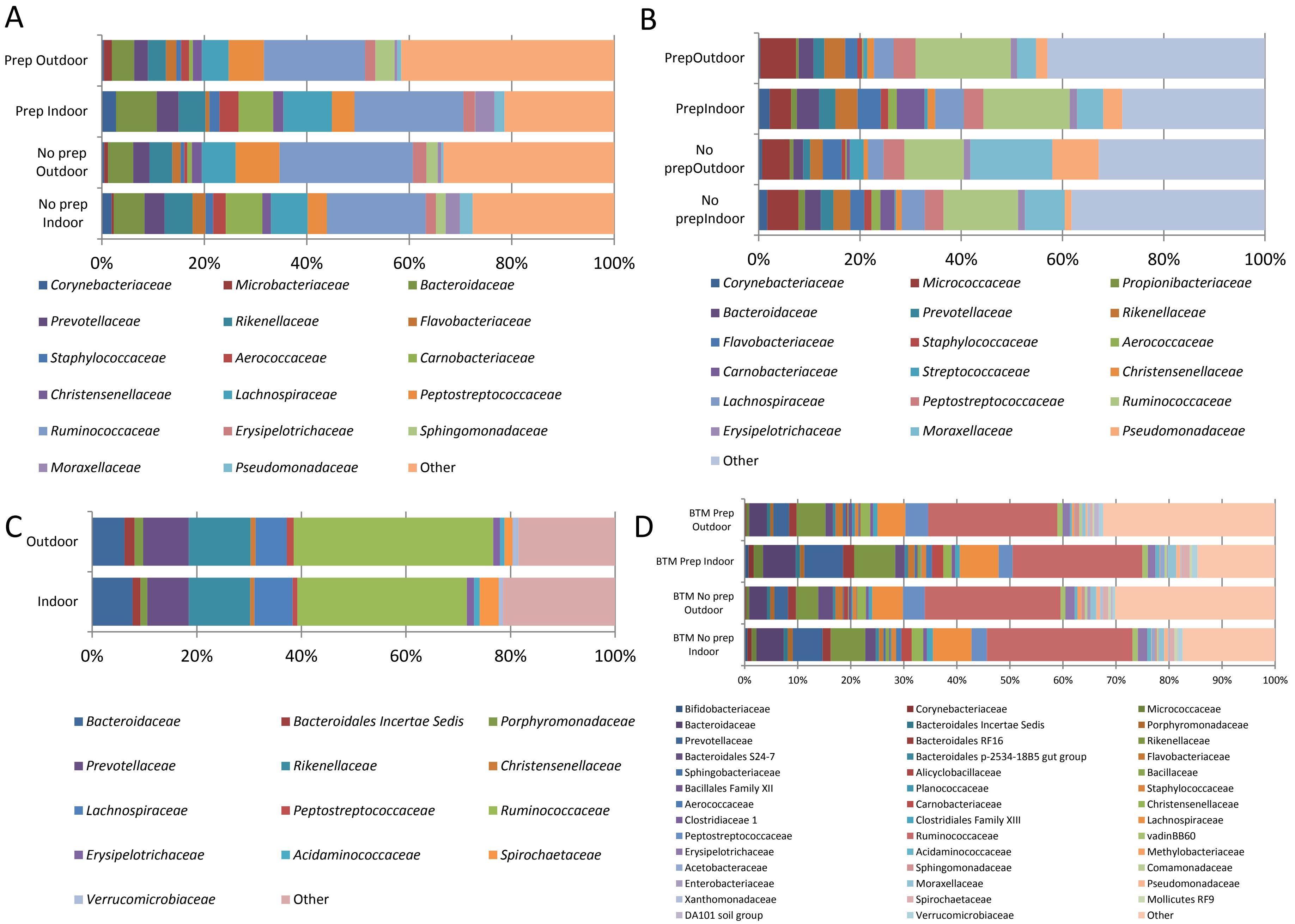
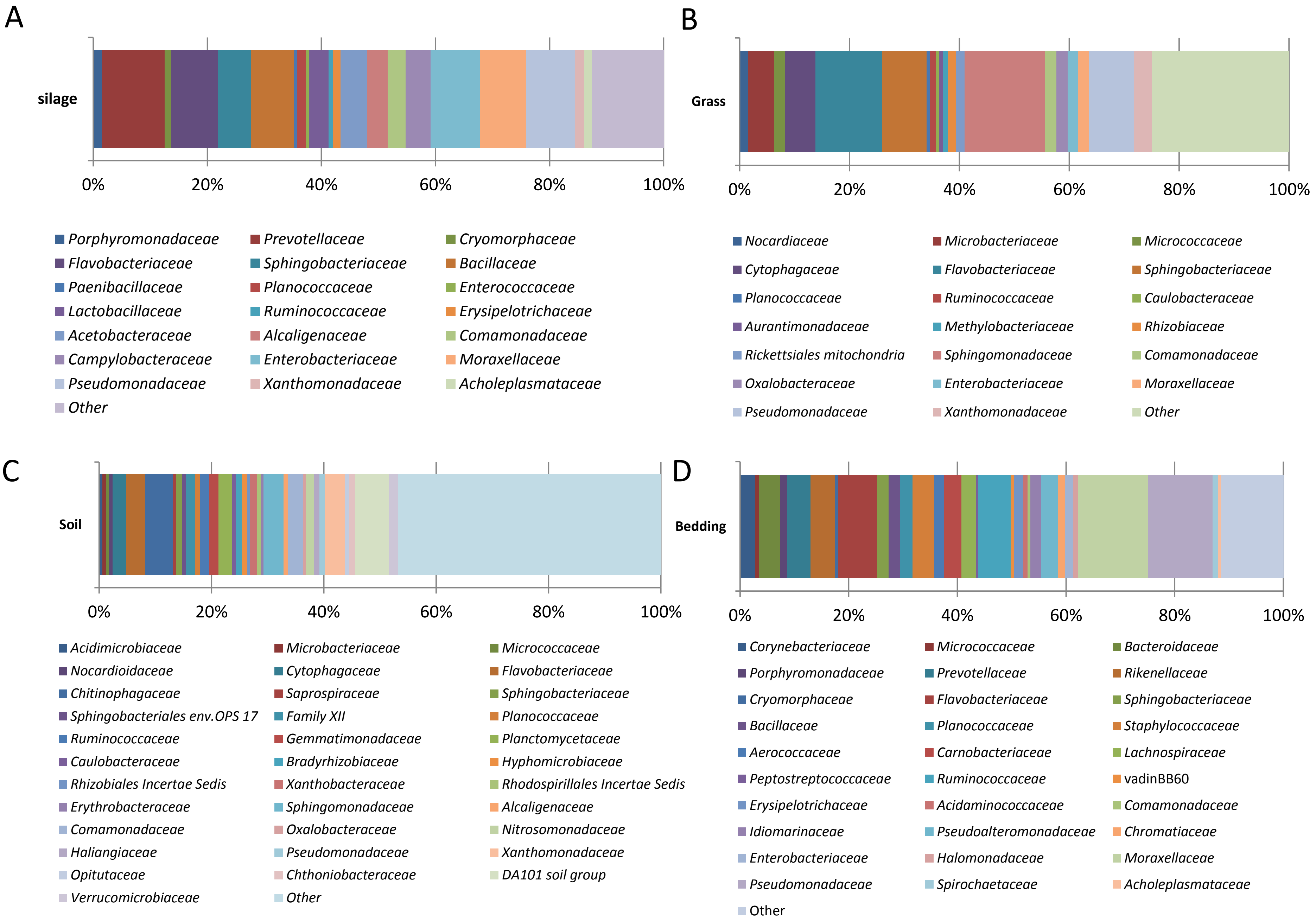


Fig S1: Bray-Curtis PCoA of all samples coloured by farming practice and shaped based on source or sink. The cyan colour indicates environmental samples (soil, bedding, grass and silage).



Supplementary Figure 2: Family present in (A) teat surface samples, (B) individual milk samples, (C) faecal samples and (D) BTM samples



Supplementary Figure 3: Family present in environmental samples, (A) Silage, (B) Grass, (C) Soil and (D) Bedding samples