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Characterization of the rumen lipidome and microbiome of steers fed a diet supplemented with flax and echium oil

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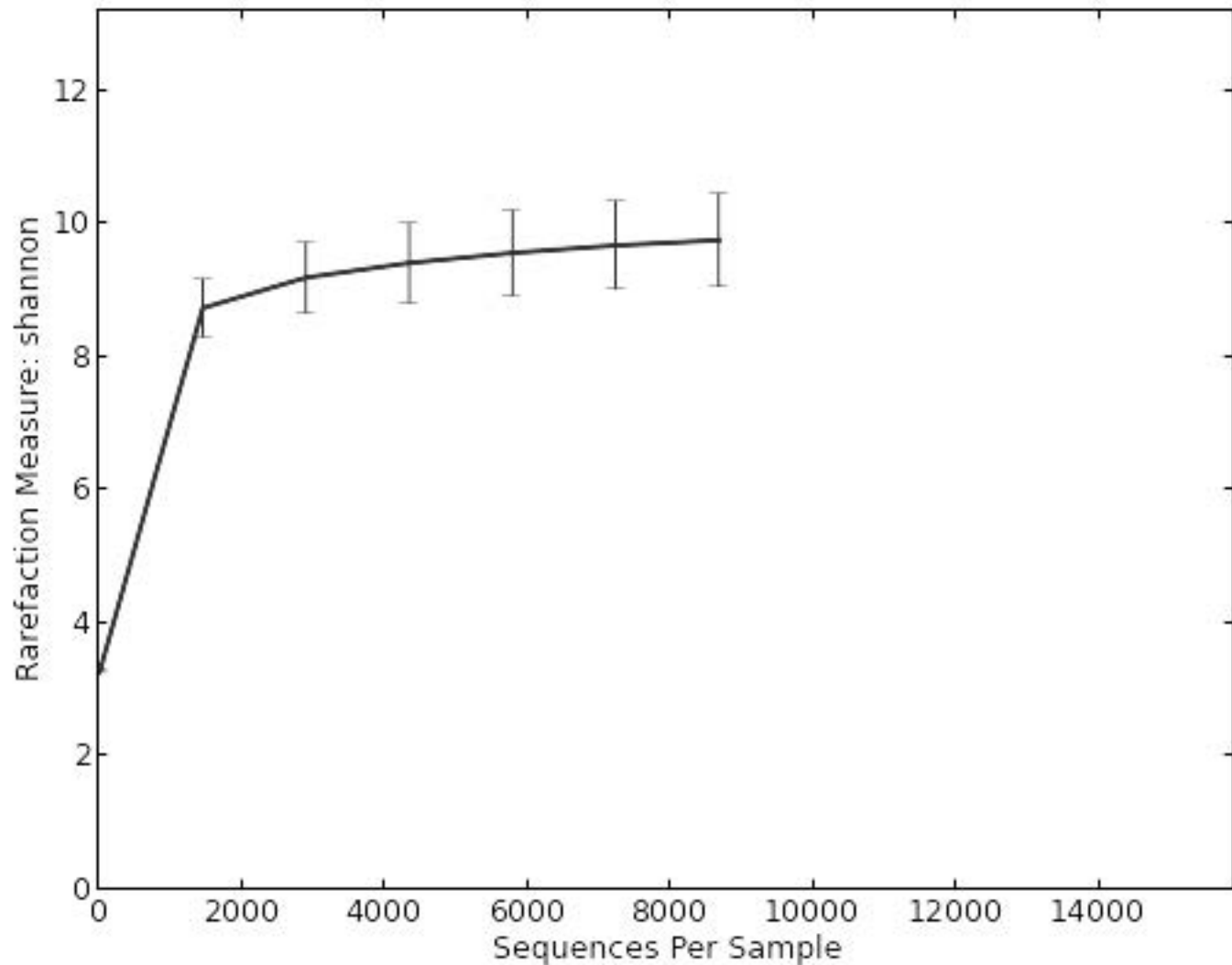
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Supplementary Table 1 Comparison of the bacteria (Phylum level) present within the rumen of steers fed grass silage and sugar beet (GS), or GS supplemented with flax (GSF) or echium oil (GSE) (Data shown are % occurrences within the total reads).

Phylum	Diet			SED	<i>P</i>
	GS	GSF	GSE		
Actinobacteria	0.420 ^a	0.249 ^a	1.164 ^b	0.309	0.046
Bacteroidetes	0.017 ^a	0.045 ^a	1.1160 ^a	0.036	0.493
Chloroflexi	0.000 ^a	0.000 ^a	0.034 ^a	0.029	0.350
Fibrobacteres	0.019 ^a	0.006 ^a	0.038 ^a	0.038	0.714
Firmicutes	94.09 ^a	93.01 ^a	92.28 ^a	9.82	0.161
Lentisphaerae	22.92 ^a	11.69 ^a	33.20 ^a	9.82	0.161
Proteobacteria	0.195 ^a	0.055 ^a	0.243 ^a	0.113	0.290
Spirochaetes	0.000 ^a	0.000 ^a	0.000 ^a	0.00	0.458
Verrucomicrobia	0.100 ^a	0.038 ^a	0.100 ^a	0.086	0.723

Data with different superscripts differed significantly ($P < 0.05$)

Supplementary Table 2 Comparison of the bacteria (Class level) present within the rumen of steers fed grass silage and sugar beet (GS), or GS supplemented with flax (GSF) or echium oil (GSE) (Data shown are % occurrences within the total reads).

Class	Diet			SED	P
	GS	GSF	GSE		
Actinobacteria	0.705 ^a	0.943 ^a	1.116 ^a	0.218	0.246
Alphaproteobacteria	0.022 ^a	0.022 ^a	0.073 ^a	0.035	0.311
Anaerolinea	0.008 ^a	0.016 ^a	0.019 ^a	0.005	0.166
Bacilli	0.041 ^a	0.044 ^a	0.069 ^a	0.019	0.350
Bacteria; other	3.876 ^a	4.298 ^a	4.842 ^a	0.678	0.416
Bacteroidetes; other	0.027 ^a	0.039 ^a	0.034 ^a	0.013	0.683
Bacteroidia	0.145 ^a	0.238 ^a	0.233 ^a	0.077	0.454
Betaproteobacteria	0.060 ^a	0.064 ^a	0.032 ^a	0.014	0.128
Chlamydiae	0.010 ^a	0.010 ^a	0.010 ^a	0.005	0.967
Chloroflexi; other	0.000 ^a	0.000 ^a	0.002 ^a	0.002	0.282
Clostridia	84.22 ^a	82.91 ^a	81.31 ^a	1.685	0.297
Deltaproteobacteria	0.079 ^a	0.090 ^a	0.118 ^a	0.017	0.131
Elusimicrobia	0.001 ^a	0.000 ^a	0.000 ^a	0.000	0.205
Epsilonproteobacteria	0.000 ^a	0.000 ^a	0.000 ^a	0.000	0.124
Erysipelotrichia	0.140 ^a	0.211 ^a	0.297 ^a	0.119	0.466
Fibrobacteria	0.384 ^a	0.518 ^a	0.371 ^a	0.166	0.637
Firmicutes; other	9.282 ^a	9.357 ^a	9.948 ^a	0.319	0.152
Gammaproteobacteria	0.035 ^a	0.024 ^a	0.048 ^a	0.010	0.152
Lentisphaeria	0.021 ^a	0.028 ^a	0.028 ^a	0.007	0.525
Mollicutes	0.000 ^a	0.000 ^a	0.001 ^a	0.001	0.839
Negativicutes	0.412 ^a	0.495 ^a	0.660 ^a	0.129	0.227
Opitutae	0.008 ^a	0.009 ^a	0.010 ^a	0.005	0.876
Proteobacteria; other	0.082 ^a	0.107 ^a	0.075 ^a	0.015	0.152
Sphingobacteria	0.000 ^a	0.000 ^a	0.000 ^a	0.000	0.282
Spirochaetes	0.004 ^a	0.008 ^a	0.012 ^a	0.005	0.372
Synergistia	0.000 ^a	0.000 ^a	0.000 ^a	0.000	0.364
Unclassified; other	0.011 ^a	0.019 ^a	0.012 ^a	0.007	0.560
Verrucomicrobia; other	0.066 ^a	0.047 ^a	0.055 ^a	0.010	0.259
Verrucomicrobia; subdivision 5	0.357 ^a	0.503 ^a	0.619 ^a	0.108	0.128
Verrucomicrobiae	0.000 ^a	0.000 ^a	0.004 ^a	0.003	0.341

Data with different superscripts differed significantly ($P < 0.05$)

Table 3 Supplementary Comparison of the bacteria (Genus level) present within the rumen of steers fed grass silage and sugar beet (GS diet) only. Data shown are % occurrences within the total reads. Only sequences occurring above 0.001% of total read abundance are shown.

	Steer number					Average	SED
	1	2	3	5	6		
<i>Corynebacterium</i>	0.003	0.038	0.000	0.001	0.016	0.010	0.016
<i>Microbacterium</i>	0.000	0.000	0.020	0.006	0.000	0.004	0.009
<i>Microbacteriaceae;Other</i>	0.005	0.007	0.020	0.011	0.008	0.009	0.006
<i>Nocardiaceae;Other</i>	0.000	0.002	0.020	0.002	0.000	0.004	0.008
<i>Marmoricola</i>	0.000	0.001	0.000	0.000	0.008	0.002	0.003
<i>Actinomycetales;Other;Other</i>	0.002	0.028	0.000	0.008	0.008	0.008	0.011
<i>Propionibacteriaceae;Other</i>	0.000	0.000	0.000	0.001	0.032	0.005	0.014
<i>Atopobium</i>	0.010	0.043	0.020	0.010	0.032	0.019	0.014
<i>Eggerthella</i>	0.007	0.016	0.000	0.008	0.016	0.008	0.007
<i>Olsenella</i>	0.176	0.933	0.975	0.286	0.845	0.536	0.381
<i>Coriobacteriaceae;Other</i>	0.225	0.723	0.597	0.291	0.494	0.388	0.208
<i>Slackia</i>	0.005	0.085	0.000	0.038	0.064	0.032	0.037
<i>Actinobacteria;Other;Other;Other</i>	0.000	0.016	0.020	0.000	0.000	0.006	0.010
<i>Bacteroidales;Other;Other</i>	0.047	0.250	0.199	0.029	0.072	0.100	0.099
<i>Porphyromonadaceae;Other</i>	0.024	0.047	0.040	0.010	0.032	0.026	0.014
<i>Howardella</i>	0.000	0.007	0.000	0.001	0.008	0.003	0.004
<i>Prevotellaceae;Other</i>	0.030	0.162	0.040	0.023	0.128	0.064	0.064
<i>Prevotella</i>	0.042	0.192	0.159	0.023	0.120	0.089	0.073
<i>Bacteroidetes;Other;Other;Other;Other</i>	0.024	0.109	0.080	0.027	0.072	0.052	0.036
<i>Parachlamydiaceae;Other</i>	0.005	0.001	0.000	0.002	0.000	0.001	0.002
<i>Parachlamydia</i>	0.012	0.004	0.020	0.005	0.000	0.007	0.008
<i>Anaerolineaceae;Other</i>	0.023	0.028	0.020	0.007	0.024	0.017	0.008
<i>Fibrobacter</i>	0.304	1.655	0.756	0.246	0.462	0.571	0.577
<i>Bacillales;Other;Other</i>	0.002	0.000	0.000	0.005	0.000	0.001	0.002
<i>Cohnella</i>	0.000	0.001	0.000	0.000	0.008	0.002	0.003

<i>Paenibacillus</i>	0.002	0.002	0.020	0.007	0.016	0.008	0.008
<i>Leuconostoc</i>	0.000	0.002	0.000	0.007	0.000	0.002	0.003
<i>Weissella</i>	0.007	0.016	0.040	0.016	0.016	0.016	0.012
<i>Lactobacillales;Other;Other</i>	0.000	0.000	0.020	0.002	0.000	0.004	0.009
<i>Streptococcaceae;Streptococcus</i>	0.002	0.014	0.020	0.004	0.008	0.008	0.007
<i>Anaerosporebacter</i>	0.019	0.028	0.060	0.022	0.032	0.027	0.016
<i>Mogibacterium</i>	0.122	0.052	0.080	0.108	0.056	0.070	0.031
<i>Anaerofustis</i>	0.009	0.005	0.020	0.002	0.000	0.006	0.008
<i>Eubacterium</i>	0.229	0.093	0.020	0.217	0.223	0.130	0.095
<i>Eubacteriaceae;Other</i>	0.014	0.025	0.040	0.021	0.064	0.027	0.020
<i>Blautia</i>	0.178	0.084	0.100	0.223	0.199	0.131	0.062
<i>Butyrivibrio</i>	9.154	7.683	6.827	9.622	6.750	6.673	1.323
<i>Clostridium XIVb</i>	0.016	0.004	0.000	0.020	0.048	0.015	0.019
<i>Coprococcus</i>	0.105	0.110	0.119	0.170	0.167	0.112	0.032
<i>Lachnobacterium</i>	0.028	0.015	0.080	0.012	0.016	0.025	0.028
<i>Lachnospiracea_incertae_sedis</i>	1.042	0.360	0.896	0.824	0.598	0.620	0.268
<i>Lactonifactor</i>	0.002	0.001	0.020	0.003	0.000	0.004	0.008
<i>Marvinbryantia</i>	0.000	0.000	0.020	0.000	0.000	0.003	0.009
<i>Moryella</i>	0.723	0.364	0.677	0.723	0.566	0.509	0.152
<i>Oribacterium</i>	0.108	0.071	0.080	0.092	0.167	0.086	0.038
<i>Lachnospiraceae;Other</i>	51.154	33.297	35.888	49.154	44.625	35.686	7.931
<i>Pseudobutyrvibrio</i>	2.600	1.946	2.926	2.692	2.295	2.076	0.380
<i>Robinsoniella</i>	0.000	0.006	0.000	0.001	0.000	0.001	0.003
<i>Roseburia</i>	0.017	0.010	0.000	0.014	0.008	0.008	0.007
<i>Shuttleworthia</i>	0.005	0.002	0.000	0.004	0.000	0.002	0.002
<i>Syntrophococcus</i>	0.010	0.016	0.020	0.005	0.000	0.009	0.008
<i>Clostridiales;Other;Other</i>	13.979	14.515	12.759	14.027	12.280	11.260	0.945
<i>Acetivibrio</i>	0.059	0.120	0.080	0.077	0.064	0.067	0.024
<i>Clostridium IV</i>	0.381	1.023	1.274	0.491	1.474	0.774	0.479
<i>Flavonifractor</i>	0.002	0.015	0.000	0.002	0.000	0.003	0.006

<i>Succinimonas</i>	0.002	0.002	0.000	0.005	0.000	0.001	0.002
<i>Succinivibrio</i>	0.003	0.030	0.060	0.004	0.000	0.016	0.026
<i>Cardiobacteriaceae;Other</i>	0.000	0.004	0.000	0.005	0.000	0.001	0.002
<i>Escherichia/Shigella</i>	0.005	0.012	0.020	0.006	0.000	0.007	0.008
<i>Legionella</i>	0.000	0.001	0.020	0.000	0.000	0.004	0.009
<i>Proteobacteria;Other;Other;Other;Other</i>	0.094	0.084	0.080	0.115	0.167	0.090	0.036
<i>Treponema</i>	0.002	0.024	0.020	0.006	0.000	0.009	0.011
<i>Puniceicoccaceae;Other</i>	0.014	0.004	0.000	0.004	0.008	0.005	0.005
<i>Verrucomicrobia;Other;Other;Other;Other</i>	0.058	0.094	0.080	0.025	0.032	0.048	0.030
<i>Subdivision5_genera_incertae_sedis</i>	0.272	0.933	0.916	0.352	0.869	0.557	0.327
<i>Unclassified;Other;Other;Other;Other;Other</i>	0.003	0.075	0.020	0.019	0.008	0.021	0.029

Note cow 4 was unwell during the sampling period for the GS diet and therefore no rumen samples could be retrieved. Please also note that these values were calculated from actual values obtained and do not therefore take into account missing values which means that data in Table 5 which take into account missing values are slightly different. Please also note that only general above 0.001% of total reads are shown in this table.

Table 4 Supplementary Comparison of the bacteria (Genus level) present within the rumen of steers fed grass silage and sugar beet and flax oil (GSF diet). Data shown are % occurrences within the total reads. Only sequences occurring above 0.001% of total read abundance are shown.

	Steer number						Average	SED
	1	2	3	4	5	6		
<i>Corynebacterium</i>	0.018	0.017	0.014	0.000	0.002	0.000	0.008	0.008
<i>Microbacterium</i>	0.000	0.000	0.000	0.000	0.006	0.000	0.001	0.002
<i>Microbacteriaceae;Other</i>	0.009	0.008	0.054	0.000	0.028	0.037	0.023	0.019
<i>Atopobium</i>	0.018	0.000	0.000	0.011	0.002	0.000	0.005	0.007
<i>Eggerthella</i>	0.009	0.008	0.000	0.011	0.009	0.000	0.006	0.004
<i>Olsenella</i>	0.457	0.225	0.136	0.239	0.209	0.273	0.257	0.099
<i>Coriobacteriaceae;Other</i>	0.264	0.326	0.313	0.218	0.167	0.186	0.246	0.060
<i>Slackia</i>	0.053	0.017	0.014	0.000	0.016	0.012	0.019	0.016
<i>Bacteroidales;Other;Other</i>	0.014	0.017	0.014	0.014	0.006	0.015	0.013	0.021
<i>Porphyromonadaceae;Other</i>	0.000	0.008	0.014	0.011	0.005	0.037	0.012	0.012
<i>Prevotellaceae;Other</i>	0.035	0.042	0.027	0.033	0.014	0.025	0.029	0.009
<i>Prevotella</i>	0.053	0.067	0.027	0.011	0.014	0.025	0.033	0.020
<i>Bacteroidetes;Other;Other;Other;Other</i>	0.026	0.017	0.000	0.000	0.008	0.025	0.013	0.011
<i>Parachlamydiaceae;Other</i>	0.000	0.000	0.000	0.011	0.003	0.000	0.002	0.004
<i>Parachlamydia</i>	0.000	0.008	0.014	0.011	0.016	0.012	0.010	0.005
<i>Anaerolineaceae;Other</i>	0.018	0.025	0.014	0.011	0.000	0.000	0.011	0.009
<i>Fibrobacter</i>	0.290	0.451	0.014	0.218	0.077	0.261	0.218	0.143
<i>Bacillales;Other;Other</i>	0.009	0.000	0.000	0.011	0.005	0.000	0.004	0.004
<i>Paenibacillaceae 1;Other</i>	0.009	0.025	0.000	0.011	0.002	0.000	0.008	0.009
<i>Paenibacillus</i>	0.026	0.000	0.000	0.000	0.005	0.000	0.005	0.010
<i>Leuconostoc</i>	0.009	0.000	0.000	0.000	0.002	0.000	0.002	0.003
<i>Weissella</i>	0.000	0.000	0.000	0.000	0.008	0.000	0.001	0.003
<i>Lactobacillales;Other;Other</i>	0.000	0.008	0.000	0.000	0.000	0.000	0.001	0.003
<i>Streptococcus</i>	0.009	0.000	0.014	0.000	0.006	0.000	0.005	0.005
<i>Anaerosporobacter</i>	0.035	0.058	0.027	0.044	0.028	0.124	0.053	0.034

<i>Mogibacterium</i>	0.105	0.125	0.068	0.033	0.097	0.062	0.082	0.031
<i>Eubacterium</i>	0.185	0.250	0.449	0.185	0.292	0.112	0.246	0.107
<i>Eubacteriaceae;Other</i>	0.000	0.017	0.000	0.022	0.025	0.025	0.015	0.011
<i>Pseudoramibacter</i>	0.000	0.017	0.000	0.000	0.011	0.000	0.005	0.007
<i>Acetitomaculum</i>	0.009	0.000	0.000	0.000	0.000	0.000	0.001	0.003
<i>Blautia</i>	0.193	0.100	0.218	0.131	0.245	0.199	0.181	0.050
<i>Butyrivibrio</i>	13.550	11.010	9.262	16.001	11.423	16.750	12.999	2.702
<i>Clostridium XIVa</i>	0.000	0.000	0.000	0.000	0.005	0.012	0.003	0.005
<i>Clostridium XIVb</i>	0.026	0.017	0.027	0.022	0.013	0.050	0.026	0.012
<i>Coprococcus</i>	0.228	0.100	0.123	0.272	0.294	0.112	0.188	0.079
<i>Howardella</i>	0.053	0.050	0.027	0.022	0.039	0.037	0.038	0.011
<i>Lachnobacterium</i>	0.026	0.042	0.082	0.011	0.019	0.062	0.040	0.025
<i>Lachnospiracea_incertae_sedis</i>	1.195	1.027	1.117	0.642	0.839	0.845	0.944	0.188
<i>Lactonifactor</i>	0.009	0.008	0.000	0.044	0.005	0.000	0.011	0.015
<i>Moryella</i>	0.501	0.593	0.831	0.544	0.750	0.422	0.607	0.141
<i>Oribacterium</i>	0.228	0.167	0.082	0.120	0.224	0.174	0.166	0.052
<i>Lachnospiraceae;Other</i>	46.722	48.489	52.288	47.970	55.449	46.508	49.571	3.244
<i>Pseudobutyrvibrio</i>	3.322	3.414	3.855	4.125	4.304	4.796	3.969	0.510
<i>Roseburia</i>	0.062	0.017	0.027	0.022	0.055	0.050	0.039	0.017
<i>Shuttleworthia</i>	0.000	0.017	0.000	0.011	0.000	0.000	0.005	0.007
<i>Syntrophococcus</i>	0.009	0.008	0.000	0.011	0.008	0.012	0.008	0.004
<i>Clostridiales;Other;Other</i>	10.773	12.588	12.422	13.465	11.506	11.394	12.025	0.893
<i>Acetivibrio</i>	0.044	0.050	0.014	0.022	0.016	0.050	0.032	0.016
<i>Clostridium IV</i>	0.606	0.459	0.599	0.283	0.300	0.224	0.412	0.153
<i>Oscillibacter</i>	0.018	0.000	0.041	0.000	0.003	0.000	0.010	0.015
<i>Ruminococcaceae;Other</i>	3.225	2.629	2.356	1.829	1.648	2.348	2.339	0.518
<i>Papillibacter</i>	0.000	0.000	0.014	0.000	0.000	0.000	0.002	0.005
<i>Ruminococcus</i>	0.685	0.843	0.191	0.294	0.255	0.497	0.461	0.238
<i>Saccharofermentans</i>	1.503	1.311	0.994	0.653	0.558	0.907	0.988	0.335
<i>Pelospora</i>	0.009	0.000	0.000	0.000	0.003	0.000	0.002	0.003

<i>Proteobacteria;Other;Other;Other;Other</i>	0.097	0.117	0.041	0.098	0.063	0.124	0.090	0.029
<i>Treponema</i>	0.026	0.017	0.000	0.000	0.003	0.000	0.008	0.010
<i>Puniceicoccaceae;Other</i>	0.000	0.000	0.027	0.033	0.003	0.012	0.013	0.013
<i>Verrucomicrobia;Other;Other;Other;Other</i>	0.053	0.050	0.054	0.054	0.027	0.075	0.052	0.014
<i>Subdivision5_genera_incertae_sedis</i>	0.518	0.442	0.218	0.250	0.169	0.249	0.308	0.127
<i>Unclassified;Other;Other;Other;Other;Other</i>	0.018	0.008	0.014	0.000	0.000	0.000	0.007	0.007
<i>Corynebacterium</i>	0.018	0.017	0.014	0.000	0.002	0.000	0.008	0.008
<i>Microbacterium</i>	0.000	0.000	0.000	0.000	0.006	0.000	0.001	0.002
<i>Microbacteriaceae;Other</i>	0.009	0.008	0.054	0.000	0.028	0.037	0.023	0.019
<i>Atopobium</i>	0.018	0.000	0.000	0.011	0.002	0.000	0.005	0.007
<i>Eggerthella</i>	0.009	0.008	0.000	0.011	0.009	0.000	0.006	0.004

Please also note that these values were calculated from actual values obtained and do not therefore take into account missing values which means that data in Table 5 which take into account missing values are slightly different. Please also note that only general above 0.001% of total reads are shown in this table.

Table 5 Supplementary Comparison of the bacteria (Genus level) present within the rumen of steers fed grass silage/sugar beet and echium oil. Data shown are % occurrences within the total reads. Only sequences occurring above 0.001% of total read abundance are shown.

	Steer number					Average	SED
	1	2	4	5	6		
<i>Corynebacterium</i>	0.003	0.000	0.038	0.000	0.004	0.009	0.015
<i>Microbacteriaceae;Other</i>	0.006	0.012	0.005	0.019	0.009	0.010	0.005
<i>Mycobacterium</i>	0.011	0.018	0.006	0.000	0.018	0.011	0.007
<i>Nocardiaceae;Other</i>	0.003	0.000	0.002	0.000	0.000	0.001	0.001
<i>Actinomycetales;Other;Other</i>	0.000	0.018	0.009	0.000	0.007	0.007	0.007
<i>Propionibacteriaceae;Other</i>	0.003	0.006	0.000	0.000	0.000	0.002	0.002
<i>Atopobium</i>	0.000	0.024	0.021	0.019	0.011	0.015	0.009
<i>Eggerthella</i>	0.000	0.012	0.018	0.019	0.013	0.012	0.007
<i>Olsenella</i>	0.213	1.216	0.451	0.186	0.410	0.495	0.375
<i>Coriobacteriaceae;Other</i>	0.219	0.617	0.402	0.465	0.329	0.406	0.133
<i>Slackia</i>	0.017	0.049	0.047	0.037	0.040	0.038	0.011
<i>Bacteroidales;Other;Other</i>	0.026	0.171	0.047	0.037	0.051	0.066	0.053
<i>Porphyromonadaceae;Other</i>	0.000	0.012	0.009	0.000	0.011	0.006	0.005
<i>Paludibacter</i>	0.000	0.012	0.001	0.000	0.000	0.003	0.005
<i>Hallella</i>	0.003	0.000	0.000	0.000	0.000	0.001	0.001
<i>Prevotellaceae;Other</i>	0.017	0.104	0.049	0.000	0.049	0.044	0.035
<i>Prevotella</i>	0.009	0.128	0.028	0.037	0.061	0.053	0.041
<i>Bacteroidetes;Other;Other;Other;Other</i>	0.020	0.061	0.026	0.000	0.023	0.026	0.020
<i>Chlamydiales;Other;Other</i>	0.000	0.012	0.002	0.000	0.000	0.003	0.005
<i>Parachlamydia</i>	0.011	0.000	0.005	0.000	0.000	0.003	0.004
<i>Anaerolineaceae;Other</i>	0.014	0.018	0.007	0.000	0.016	0.011	0.007
<i>Chloroflexi;Other;Other;Other;Other</i>	0.000	0.012	0.000	0.000	0.000	0.002	0.005
<i>Elusimicrobium</i>	0.000	0.000	0.006	0.000	0.000	0.001	0.002
<i>Fibrobacter</i>	0.145	0.825	0.385	0.242	0.314	0.382	0.235
<i>Bacillales;Other;Other</i>	0.003	0.000	0.001	0.000	0.007	0.002	0.003

<i>Cohnella</i>	0.006	0.000	0.000	0.037	0.000	0.009	0.014
<i>Paenibacillaceae 1;Other</i>	0.003	0.006	0.000	0.000	0.000	0.002	0.002
<i>Paenibacillus</i>	0.000	0.006	0.001	0.019	0.005	0.006	0.007
<i>Thermoactinomyces</i>	0.009	0.000	0.000	0.000	0.000	0.002	0.003
<i>Lactobacillaceae;Other</i>	0.000	0.006	0.002	0.000	0.002	0.002	0.002
<i>Pediococcus</i>	0.000	0.006	0.000	0.000	0.000	0.001	0.002
<i>Leuconostoc</i>	0.000	0.000	0.006	0.000	0.005	0.002	0.003
<i>Weissella</i>	0.003	0.024	0.009	0.093	0.007	0.027	0.034
<i>Lactobacillales;Other;Other</i>	0.000	0.000	0.001	0.000	0.005	0.001	0.002
<i>Streptococcus</i>	0.003	0.024	0.005	0.000	0.042	0.015	0.016
<i>Anaerosporebacter</i>	0.028	0.012	0.020	0.037	0.016	0.023	0.009
<i>Helcococcus</i>	0.000	0.000	0.002	0.019	0.000	0.004	0.007
<i>Mogibacterium</i>	0.125	0.079	0.075	0.000	0.069	0.070	0.040
<i>Anaerofustis</i>	0.000	0.006	0.005	0.037	0.005	0.011	0.013
<i>Eubacterium</i>	0.265	0.165	0.152	0.297	0.266	0.229	0.059
<i>Eubacteriaceae;Other</i>	0.017	0.018	0.022	0.000	0.027	0.017	0.009
<i>Blautia</i>	0.151	0.141	0.194	0.167	0.184	0.167	0.020
<i>Butyrivibrio</i>	8.136	7.662	10.853	9.147	8.968	8.953	1.094
<i>Clostridium XIVa</i>	0.006	0.000	0.000	0.000	0.002	0.001	0.002
<i>Clostridium XIVb</i>	0.048	0.037	0.013	0.000	0.004	0.020	0.019
<i>Coprococcus</i>	0.174	0.079	0.121	0.242	0.099	0.143	0.058
<i>Howardella</i>	0.026	0.000	0.022	0.000	0.022	0.014	0.011
<i>Lachnobacterium</i>	0.023	0.031	0.006	0.019	0.014	0.018	0.008
<i>Lachnospiracea_incertae_sedis</i>	0.652	1.069	0.545	0.688	0.900	0.771	0.189
<i>Lactonifactor</i>	0.009	0.000	0.005	0.000	0.005	0.004	0.003
<i>Moryella</i>	0.638	0.483	0.390	0.483	0.641	0.527	0.098
<i>Oribacterium</i>	0.048	0.073	0.109	0.074	0.126	0.086	0.028
<i>Lachnospiraceae;Other</i>	54.727	34.124	45.007	51.236	46.915	46.402	7.009
<i>Pseudobutyrvibrio</i>	2.311	1.827	2.791	3.328	2.610	2.574	0.499
<i>Robinsoniella</i>	0.003	0.000	0.001	0.000	0.005	0.002	0.002

<i>Roseburia</i>	0.040	0.000	0.015	0.037	0.036	0.026	0.016
<i>Shuttleworthia</i>	0.003	0.006	0.004	0.000	0.004	0.003	0.002
<i>Syntrophococcus</i>	0.006	0.000	0.007	0.000	0.005	0.004	0.003
<i>Clostridiales;Other;Other</i>	14.746	12.861	13.668	13.869	13.195	13.668	0.644
<i>Acetivibrio</i>	0.034	0.238	0.118	0.056	0.047	0.099	0.076
<i>Clostridium IV</i>	0.327	1.747	0.698	0.260	0.739	0.754	0.532
<i>Flavonifractor</i>	0.003	0.000	0.001	0.000	0.004	0.002	0.001
<i>Oscillibacter</i>	0.009	0.018	0.027	0.000	0.022	0.015	0.010
<i>Ruminococcaceae;Other</i>	1.748	7.234	3.348	2.119	3.989	3.688	1.950
<i>Papillibacter</i>	0.003	0.006	0.001	0.000	0.004	0.003	0.002
<i>Pseudoflavonifractor</i>	0.000	0.006	0.000	0.000	0.002	0.002	0.002
<i>Ruminococcus</i>	0.327	1.674	0.813	0.558	0.856	0.846	0.456
<i>Saccharofermentans</i>	0.752	4.155	2.471	1.264	2.208	2.170	1.172
<i>Pelospora</i>	0.000	0.006	0.001	0.000	0.002	0.002	0.002
<i>Clostridia;Other;Other;Other</i>	0.703	1.747	1.147	0.967	0.972	1.107	0.350
<i>Bulleidia</i>	0.011	0.281	0.123	0.019	0.047	0.096	0.101
<i>Catenibacterium</i>	0.040	0.287	0.012	0.000	0.061	0.080	0.106
<i>Erysipelotrichaceae;Other</i>	0.068	0.299	0.184	0.056	0.081	0.138	0.093
<i>Acidaminococcaceae;Other</i>	0.000	0.000	0.004	0.000	0.002	0.001	0.001
<i>Succinoclasticum</i>	0.142	0.813	0.365	0.335	0.401	0.411	0.220
<i>Veillonellaceae;Other</i>	0.026	0.165	0.067	0.074	0.061	0.079	0.046
<i>Schwartzia</i>	0.000	0.000	0.006	0.000	0.004	0.002	0.003
<i>Selenomonas</i>	0.023	0.098	0.025	0.019	0.022	0.037	0.030
<i>Firmicutes;Other;Other;Other;Other</i>	9.488	11.102	9.863	9.760	9.661	9.975	0.577
<i>Victivallis</i>	0.020	0.012	0.016	0.000	0.038	0.017	0.012
<i>Bacteria;Other;Other;Other;Other;Other</i>	2.784	6.599	4.258	2.919	4.368	4.186	1.373
<i>Alphaproteobacteria;Other;Other;Other</i>	0.003	0.012	0.013	0.000	0.004	0.006	0.005
<i>Devosia</i>	0.003	0.012	0.001	0.000	0.007	0.005	0.004
<i>Alcaligenes</i>	0.068	0.049	0.038	0.056	0.060	0.054	0.010
<i>Burkholderiales;Other;Other</i>	0.006	0.000	0.001	0.000	0.000	0.001	0.002

<i>Vampirovibrio</i>	0.026	0.000	0.004	0.093	0.029	0.030	0.033
<i>Desulfovibrionaceae;Other</i>	0.014	0.116	0.043	0.000	0.036	0.042	0.040
<i>Deltaproteobacteria;Other;Other;Other</i>	0.003	0.012	0.005	0.000	0.007	0.005	0.004
<i>Succinivibrionaceae;Other</i>	0.009	0.000	0.000	0.000	0.000	0.002	0.003
<i>Succinimonas</i>	0.000	0.000	0.010	0.000	0.004	0.003	0.004
<i>Succinivibrio</i>	0.003	0.012	0.015	0.000	0.002	0.006	0.006
<i>Cardiobacteriaceae;Other</i>	0.003	0.006	0.002	0.019	0.020	0.010	0.008
<i>Escherichia/Shigella</i>	0.003	0.000	0.007	0.000	0.007	0.003	0.003
<i>Luteimonas</i>	0.000	0.000	0.000	0.019	0.000	0.004	0.007
<i>Proteobacteria;Other;Other;Other;Other</i>	0.085	0.061	0.088	0.037	0.085	0.071	0.020
<i>Treponema</i>	0.000	0.018	0.005	0.000	0.004	0.005	0.007

Note cow 3 data was removed due to the low number of pyrosequences obtained (<2,000). Please also note that these values were calculated from actual values obtained and do not therefore take into account missing values which means that data in Table 5 which take into account missing values are slightly different. Please also note that only general above 0.001% of total reads are shown in this table.