| Phylum               | Treatment* |     |     |     |     | SEM | Sow | Wean | Sow x Wean |
|---------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----------|
|                     | BB         | BS  | SB  | SS  |     |     |     |     |           |
| Firmicutes          | 11.269     | 13.340 | 16.995 | 13.160 | 1.650 | 0.124 | 0.727 | 0.102 |
| Bacteroidetes       | 5.537      | 7.994 | 10.666 | 19.552 | 1.439 | <0.001 | 0.005 | 0.438 |
| TM7                 | 0.013      | 0.033 | 0.029 | 0.060 | 0.080 | 0.806 | 0.773 | 0.968 |
| Peptostreptococcaceae | 0.255   | 0.510 | 0.393 | 0.180 | 0.254 | 0.719 | 0.957 | 0.391 |
| Actinobacteria      | 0.012      | 0.059 | 0.100 | 0.300 | 0.136 | 0.444 | 0.581 | 0.915 |
| Spiroplacales       | 0.227      | 0.278 | 0.189 | 0.098 | 0.196 | 0.579 | 0.836 | 0.697 |
| Peptococcaceae      | 0.013      | 0.025 | 0.009 | 0.015 | 0.055 | 0.908 | 0.888 | 0.989 |
| Lactobacillaceae    | 28.310     | 16725 | 31.313 | 23197 | 2.225 | 0.024 | 0.001 | 0.181 |
| Veillonellaceae     | 0.192      | 0.118 | 0.087 | 0.116 | 0.158 | 0.761 | 0.936 | 0.770 |
| Peptococcaceae      | 0.060      | 0.032 | 0.049 | 0.020 | 0.088 | 0.894 | 0.762 | 0.957 |
| Hellacobacteraceae  | 0.102      | 0.091 | 0.022 | 0.292 | 0.146 | 0.919 | 0.517 | 0.479 |
| Campylobacteraceae  | 8.559      | 2.842 | 0.800 | 0.783 | 0.646 | 0.003 | 0.495 | 0.062 |
| S24-7               | 3.368      | 3.321 | 3.732 | 2.257 | 0.793 | 0.588 | 0.327 | 0.354 |
| BS11                | 0.006      | 0.497 | 0.012 | 0.024 | 0.117 | 0.779 | 0.516 | 0.633 |
| p-2534-18B5         | 0.504      | 1.167 | 0.017 | 0.179 | 0.262 | 0.170 | 0.397 | 0.685 |
| RF16                | 0.161      | 0.335 | 0.048 | 0.006 | 0.143 | 0.408 | 0.838 | 0.660 |
| Porphyromonadaceae  | 1.360      | 0.592 | 0.225 | 0.145 | 0.309 | 0.075 | 0.470 | 0.836 |
| Bacteroidaceae      | 0.031      | 0.414 | 0.026 | 0.005 | 0.118 | 0.544 | 0.902 | 0.573 |
| Prevotellaceae      | 7.673      | 5.289 | 2.567 | 6.586 | 1.033 | 0.051 | 0.188 | 0.006 |
| Paraprevotellaceae  | 3.018      | 5.343 | 2.143 | 1.901 | 0.770 | 0.024 | 0.424 | 0.227 |
| F16                 | 0.009      | 0.017 | 0.058 | 0.072 | 0.082 | 0.607 | 0.896 | 0.949 |
| Succinivibrionaceae | 0.041      | 0.051 | 0.010 | 0.075 | 0.089 | 0.858 | 0.697 | 0.751 |
| Pasteurellaceae     | 0.024      | 0.062 | 0.017 | 0.077 | 0.091 | 0.983 | 0.635 | 0.916 |
| Enterbacteriaceae   | 2.173      | 1.164 | 0.121 | 0.131 | 0.365 | 0.015 | 0.774 | 0.709 |
| Alcaligenaceae      | 0.020      | 0.008 | 0.001 | 0.002 | 0.035 | 0.812 | 0.980 | 0.934 |
| Spirochaetaceae     | 0.925      | 3.022 | 1.840 | 0.575 | 0.538 | 0.275 | 0.981 | 0.015 |
| Coriobacteriaceae   | 2.373      | 1.502 | 1.249 | 1.717 | 0.581 | 0.480 | 0.845 | 0.286 |
| Fibrobacteraceae    | 0.020      | 0.110 | 0.015 | 0.008 | 0.076 | 0.687 | 0.883 | 0.745 |
| Deferrribacteraceae | 0.244      | 0.048 | 0.293 | 0.045 | 0.164 | 0.974 | 0.288 | 0.936 |
| Desulfovibrionaceae | 0.115      | 0.322 | 0.153 | 0.397 | 0.215 | 0.813 | 0.346 | 0.972 |
| Christensenellaceae | 0.623      | 1.165 | 0.749 | 0.990 | 0.417 | 0.983 | 0.370 | 0.729 |
| Genus                      | Ruminococcaceae | Genus | Ruminococcus | 0.061 | 0.465 | 0.393 | 0.360 | 0.241 | 0.473 | 0.387 | 0.347 |
|----------------------------|-----------------|-------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
|                            | Roseburia       | 1.239 | 1.151 | 1.562 | 1.378 | 0.515 | 0.606 | 0.802 | 0.948 |
|                            | Dorea           | 1.483 | 2.343 | 1.370 | 1.188 | 0.560 | 0.315 | 0.673 | 0.424 |
|                            | SMB53           | 0.023 | 0.149 | 0.071 | 0.098 | 0.125 | 0.860 | 0.579 | 0.697 |
|                            | Turicibacter    | 0.019 | 0.214 | 0.174 | 0.659 | 0.205 | 0.366 | 0.310 | 0.768 |
|                            | Eubacterium     | 0.074 | 0.108 | 0.145 | 0.049 | 0.135 | 0.968 | 0.826 | 0.651 |
|                            | p-75-a5         | 0.026 | 0.116 | 0.075 | 0.031 | 0.106 | 0.951 | 0.892 | 0.586 |
|                            | PSB-M-3         | 0.019 | 0.026 | 0.043 | 0.007 | 0.066 | 0.943 | 0.835 | 0.769 |
|                            | Butyribovibrio  | 0.052 | 0.193 | 0.092 | 0.096 | 0.143 | 0.966 | 0.661 | 0.680 |
|                            | Streptococcus   | 0.022 | 0.075 | 0.017 | 0.032 | 0.082 | 0.840 | 0.734 | 0.918 |
|                            | Lactobacillus   | 45.526| 33.565| 55.967| 51.153| 3.038 | 0.000 | 0.009 | 0.127 |
|                            | Phascolarctobacterium | 0.092 | 0.061 | 0.134 | 0.108 | 0.139 | 0.753 | 0.837 | 0.950 |
|                            | Mitsuokella     | 0.166 | 0.062 | 0.022 | 0.069 | 0.119 | 0.642 | 0.970 | 0.607 |
|                            | Anaerovibrio    | 0.047 | 0.140 | 0.025 | 0.034 | 0.104 | 0.648 | 0.760 | 0.860 |
|                            | Peptococcus     | 0.101 | 0.072 | 0.096 | 0.044 | 0.123 | 0.874 | 0.743 | 0.896 |
|                            | Helicobacter    | 0.200 | 0.161 | 0.039 | 0.632 | 0.206 | 0.927 | 0.368 | 0.296 |
|                            | Compolyobacter  | 12.409| 5.383 | 0.152 | 1.532 | 0.835 | 0.0003| 0.246 | 0.021 |
|                            | Parabacteroides | 1.657 | 0.991 | 0.391 | 0.320 | 0.388 | 0.049 | 0.561 | 0.799 |
|                            | Bacteroides     | 0.046 | 0.733 | 0.074 | 0.012 | 0.162 | 0.470 | 0.853 | 0.364 |
|                            | YRC22           | 0.022 | 0.568 | 0.074 | 0.004 | 0.138 | 0.640 | 0.968 | 0.446 |
|                            | Prevotell-1     | 12.372| 10.641| 5.921 | 14.433| 1.455 | 0.152 | 0.020 | 0.002 |
|                            | Prevotella-2    | 3.649 | 8.394 | 2.541 | 3.299 | 0.919 | 0.014 | 0.032 | 0.238 |
|                            | CF231           | 0.994 | 0.783 | 1.640 | 0.604 | 0.440 | 0.804 | 0.213 | 0.437 |
|                            | Succinivibrio   | 0.059 | 0.103 | 0.021 | 0.158 | 0.124 | 0.883 | 0.529 | 0.721 |
|                            | Actinobacillus  | 0.040 | 0.119 | 0.037 | 0.161 | 0.127 | 0.950 | 0.495 | 0.919 |
|                            | Sutterella      | 0.030 | 0.014 | 0.002 | 0.004 | 0.045 | 0.766 | 0.992 | 0.916 |
|                            | Treponema       | 1.507 | 5.829 | 3.653 | 1.236 | 0.745 | 0.299 | 0.669 | 0.001 |
|                            | Slackia         | 0.100 | 0.162 | 0.116 | 0.101 | 0.154 | 0.901 | 0.898 | 0.817 |
|                            | Collinsella     | 1.023 | 1.169 | 0.846 | 1.299 | 0.464 | 0.924 | 0.528 | 0.739 |
|                            | Fibrobacter     | 0.035 | 0.207 | 0.035 | 0.018 | 0.108 | 0.621 | 0.821 | 0.622 |
|                            | Mucispirillum   | 0.347 | 0.095 | 0.564 | 0.093 | 0.218 | 0.841 | 0.192 | 0.827 |
|                            | Desulfovibrio   | 0.179 | 0.577 | 0.306 | 0.801 | 0.294 | 0.583 | 0.185 | 0.894 |
|                            | Clostridium     | 0.767 | 1.655 | 0.613 | 0.308 | 0.391 | 0.122 | 0.945 | 0.229 |
|                            | Ruminococcus    | 6.015 | 8.283 | 5.494 | 3.799 | 1.076 | 0.037 | 0.900 | 0.091 |
|                            | Faecalibacterium| 0.126 | 0.651 | 0.081 | 0.621 | 0.250 | 0.825 | 0.108 | 0.858 |
|                            | Oscillospina    | 2.250 | 3.332 | 4.556 | 2.244 | 0.778 | 0.567 | 0.561 | 0.055 |
|                            | Lachnospira     | 0.682 | 2.398 | 3.277 | 2.083 | 0.629 | 0.068 | 0.287 | 0.032 |
|                            | Coprococcus     | 1.503 | 4.753 | 3.419 | 3.801 | 0.806 | 0.280 | 0.032 | 0.068 |