

**Table S1.** Dominant unclassified bacterial taxa in the ruminal bacteriota of Hanwoo steers fed different forage sources

| Bacterial taxon                             | Dominance | Forage sources         |              |              |              |              |            |           |         |
|---|-----------|------------------------|--------------|--------------|--------------|--------------|------------|-----------|---------|
|   |           | Relative abundance (%) |              |              |              |              |            |           |         |
| Family                                      |           | OAT                    | RYE          | IRS          | BAR          | RSS          | Pooled SEM | LDA score | p-value |
| Lachnospirales UCF                          | RSS       | 0.189                  | 0.516        | 0.021        | 0.137        | <b>0.585</b> | 0.463      | 3.501     | 0.0377  |
| F082  | IRS       | 0.268                  | 0.085        | <b>1.206</b> | 0.741        | 0.167        | 0.996      | 3.784     | 0.0377  |
| UBA929                                      | OAT       | <b>0.101</b>           | 0.028        | 0.047        | 0.096        | 0.035        | 0.064      | 2.807     | 0.0452  |
| Genus                                       | Dominance | OAT                    | RYE          | IRS          | BAR          | RSS          | Pooled SEM | LDA score | p-value |
| Atopobiaceae UCG                            | RSS       | 0.087                  | 0.205        | 0.029        | 0.018        | <b>0.488</b> | 0.205      | 3.402     | 0.0418  |
| Lachnospirales UCG                          | RSS       | 0.189                  | 0.516        | 0.021        | 0.137        | <b>0.585</b> | 0.463      | 3.458     | 0.0377  |
| DSXL01                                      | IRS       | 0.269                  | 0.060        | <b>0.391</b> | 0.206        | 0.147        | 0.170      | 3.274     | 0.0374  |
| Dethiosulfovibrionaceae UCG                 | RSS       | 0                      | 0.139        | 0            | 0.051        | <b>0.172</b> | 0.162      | 3.029     | 0.0479  |
| WRAI01                                      | OAT       | <b>0.101</b>           | 0.028        | 0.047        | 0.096        | 0.035        | 0.064      | 2.705     | 0.0452  |
| Bifidobacteriaceae UCG                      | IRS       | 0                      | 0            | <b>0.090</b> | 0            | 0            | 0.041      | 2.845     | 0.0080  |
| XBD2001                                     | OAT       | <b>0.053</b>           | 0            | 0.015        | 0            | 0            | 0.018      | 2.732     | 0.0165  |
| CAG-603                                     | RYE       | 0                      | <b>0.042</b> | 0.002        | 0            | 0.003        | 0.037      | 2.601     | 0.0337  |
| Species                                     | Dominance | OAT                    | RYE          | IRS          | BAR          | RSS          | Pooled SEM | LDA score | p-value |
| UBA1067 sp004551905                         | BAR       | 0.111                  | 0.070        | 0.229        | <b>0.688</b> | 0.009        | 0.183      | 3.555     | 0.0392  |
| Atopobiaceae UCS                            | RSS       | 0.087                  | 0.205        | 0.029        | 0.018        | <b>0.488</b> | 0.205      | 3.352     | 0.0418  |
| UBA1067 sp900320855                         | BAR       | 0.132                  | 0.095        | 0.357        | <b>0.425</b> | 0.021        | 0.276      | 3.346     | 0.0459  |
| Lachnospirales UCS                          | RSS       | 0.189                  | 0.516        | 0.021        | 0.137        | <b>0.585</b> | 0.463      | 3.418     | 0.0377  |
| <i>Limimorpha</i> sp900318085               | IRS       | 0.268                  | 0.085        | <b>1.206</b> | 0.741        | 0.167        | 0.996      | 3.664     | 0.0377  |
| <i>Anaerobutyricum</i> UCS                  | OAT       | <b>0.253</b>           | 0.009        | 0.076        | 0.121        | 0.067        | 0.137      | 3.065     | 0.0414  |
| <i>Shuttleworthia</i> UCS                   | IRS       | 0.075                  | 0            | <b>0.285</b> | 0.049        | 0            | 0.394      | 3.110     | 0.0423  |
| UBA2450 sp902800025                         | BAR       | 0                      | 0.009        | 0            | <b>0.062</b> | 0            | 0.055      | 2.641     | 0.0274  |
| DSXL01 sp011367845                          | IRS       | 0.269                  | 0.060        | <b>0.391</b> | 0.206        | 0.147        | 0.170      | 3.242     | 0.0374  |
| <i>Butyrivibrio</i> A 168226<br>sp000421405 | IRS       | 0                      | 0.012        | <b>0.151</b> | 0            | 0            | 0.082      | 2.870     | 0.0184  |
| Dethiosulfovibrionaceae UCS                 | RSS       | 0                      | 0.139        | 0            | 0.051        | <b>0.172</b> | 0.162      | 2.905     | 0.0479  |

|                              |     |                     |                     |                     |       |                     |       |       |        |
|------------------------------|-----|---------------------|---------------------|---------------------|-------|---------------------|-------|-------|--------|
| <i>Butyrivibrio</i> A 168226 | OAT | <b><u>0.061</u></b> | 0                   | 0.012               | 0     | 0                   | 0.047 | 2.580 | 0.0212 |
| sp900116875                  |     |                     |                     |                     |       |                     |       |       |        |
| WRAI01 sp009780275           | OAT | <b><u>0.101</u></b> | 0.028               | 0.047               | 0.096 | 0.035               | 0.064 | 2.571 | 0.0452 |
| Bifidobacteriaceae UCS       | IRS | 0                   | 0                   | <b><u>0.090</u></b> | 0     | 0                   | 0.041 | 2.730 | 0.0080 |
| XBD2001 sp900116395          | OAT | <b><u>0.053</u></b> | 0                   | 0.015               | 0     | 0                   | 0.018 | 2.530 | 0.0165 |
| <i>Anaeroplasma</i> UCS      | RSS | 0                   | 0.008               | 0                   | 0     | <b><u>0.020</u></b> | 0.014 | 2.287 | 0.0387 |
| Ga6A1 UCS                    | RSS | 0                   | 0                   | 0                   | 0     | <b><u>0.021</u></b> | 0.014 | 2.402 | 0.0080 |
| UBA2813 sp900319365          | RYE | 0.005               | <b><u>0.112</u></b> | 0.06                | 0.033 | 0.002               | 0.158 | 2.774 | 0.0391 |

UCF, unclassified family; UCG, unclassified genus; UCS, unclassified species

Dominance of each taxon for specific forage feeding were additionally shown as bold and underlined numbers.

OAT, oat hay; RYE, rye silage; IRS, Italian ryegrass silage; BAR, barley forage; RSS, rice straw silage