| Biofilm ID   | X (µm) | Y (µm) | Z (µm) |
|-------------|--------|--------|--------|
| AC1         | 212.12 | 212.12 | 69.75  |
| AC1+ O157:H7| 212.12 | 212.12 | 157.55 |
| AC2         | 212.12 | 212.12 | 30     |
| AC2+ O157:H7| 212.12 | 212.12 | 49.25  |
| AH1         | 212.12 | 212.12 | 34.60  |
| AH1+ O157:H7| 212.12 | 212.12 | 20.25  |
| AH2         | 212.12 | 212.12 | 22.20  |
| AH2+ O157:H7| 212.12 | 212.12 | 55.47  |
| BC1         | 212.12 | 212.12 | 89.75  |
| BC1+ O157:H7| 212.12 | 212.12 | 94.30  |
| BC2         | 212.12 | 212.12 | 35.1   |
| BC2+ O157:H7| 212.12 | 212.12 | 42.6   |
| BH1         | 212.12 | 212.12 | 73.65  |
| BH1+ O157:H7| 212.12 | 212.12 | 91.16  |
| BH2         | 212.12 | 212.12 | 20.19  |
| BH2+ O157:H7| 212.12 | 212.12 | 24     |
| Organism                                                                 | AC1 | AC1_300 | AC1_O157_300 | AC2 | AC2_300 | AC2_O157_300 | AH1 | AH1_300 | AH1_O157_300 | AH2 | AH2_300 | AH2_O157_300 |
|-------------------------------------------------------------------------|-----|---------|--------------|-----|---------|---------------|-----|---------|--------------|-----|---------|--------------|
| Actinobacteria;c_Actinobacteria;o_Actinomycetales_f_Microbacteriaceae   |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Actinobacteria;c_Actinobacteria;o_Actinomycetales_f_Micrococcaceae      |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Actinobacteria;c_Actinobacteria;o_Actinomycetales_f_Nocardiaceae        |     |         |              |     |         |               |     |         |              |     |         |              |
| Bacteroidetes;c_Flavobacteria;o_Flavobacteriales_f_Flavobacteriaceae    |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Bacteroidetes;c_Flavobacteria;o_Flavobacteriales_f_Weeksellaceae         |     |         |              |     |         |               |     |         |              |     |         |              |
| Firmicutes;c_Bacilo_f_Bacillales_f_Corynebacteriaceae                    |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Firmicutes;c_Bacilo_f_Lactobacillales_f_Lactobacillaceae                 |     |         |              |     |         |               |     |         |              |     |         |              |
| Firmicutes;c_Bacilo_f_Lactobacillales_f_Leuconostocaceae                 |     |         |              |     |         |               |     |         |              |     |         |              |
| Firmicutes;c_Bacilo_f_Lactobacillales_f_Streptococaceae                  |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Firmicutes;c_Clostridialo_f_Clostridiales_f_Clostridiaceae               |     |         |              |     |         |               |     |         |              |     |         |              |
| Firmicutes;c_Erysipelotrichio_f_Erysipelotrichiales_f_Erysipelotrichiace |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Proteobacteria;c_Alphaproteobacteria;o_Rhizobiliotes_f_Bradyrhizobiales |     |         |              |     |         |               |     |         |              |     |         |              |
| Proteobacteria;c_Alphaproteobacteria;o_Rhizobiliotes_f_Rhizobiales       |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Proteobacteria;c_Alphaproteobacteria;o_Sphingomonadales_f_Sphingomonadace|     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Proteobacteria;c_Betaproteobacteria;o_Burkholderiales_f_Comamonadaceae   |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Proteobacteria;c_Betaproteobacteria;o_Burkholderiales_f_Orthobacteriace |     | y       | y            |     | y       | y             |     |         |              |     |         |              |
| Proteobacteria;c_Betaproteobacteria;o_Neisseriales_f_Neisseriaceae       |     |         |              |     |         |               |     |         |              |     |         |              |
| Proteobacteria;c_Epsilonproteobacteria;o_Campylobacteriales_f_Campylobacteriaceae |     |         |              |     |         |               |     |         |              |     |         |              |
| Proteobacteria;c_Gammaproteobacteria;o_Aeromonadales_f_Aeromonadaceae    |     | v       | v            |     | v       | v             |     |         |              |     |         |              |
| Proteobacteria;c_Gammaproteobacteria;o_Alteromonadales_f_Shewanellaceae |     | v       | v            |     | v       | v             |     |         |              |     |         |              |

**Unique Families**

**Shared families in samples that were strong O157:H7 protectors**

**Shared families in samples that were weak O157:H7 protectors**
Supplementary Table 2 (part 2)

| Organism | BC1 | BC1_300 | BC1_O157_300 | BC2 | BC2_300 | BC2_O157_300 | BH1 | BH1_300 | BH1_O157_300 | BH2 | BH2_300 | BH2_O157_300 |
|----------|-----|---------|---------------|-----|---------|---------------|-----|---------|---------------|-----|---------|---------------|
| Actinobacteria;c_Actinobacteria;o_Actinomycetales;f_Microbacteriaceae |     |         |               |     |         |               |     |         |               |     |         |               |
| Actinobacteria;c_Actinobacteria;o_Actinomycetales;f_Micrococcaceae | y   | y       | y             | y   | y       | y             |     |         |               |     |         |               |
| Actinobacteria;c_Actinobacteria;o_Actinomycetales;f_Nocardiaceae | y   | y       | y             |     |         |               |     |         |               |     |         |               |
| Bacteroidetes;c_Flavobacteria;o_Flavobacteriales;f_Flavobacteriaceae | y   | y       | y             | y   | y       | y             |     |         |               |     |         |               |
| Bacteroidetes;c_Flavobacteria;o_Sphingobacteriales;f_Sphingobacteriaceae | y   | y       | y             | y   | y       | y             |     |         |               |     |         |               |

**Unique Families**
- Shared families in samples that were strong O157:H7 protectors

**Shared families**
- Shared families in samples that were weak O157:H7 protectors
Supplementary Figure 1

Examples of drain types samples collected from.

A. Side trap drain with cleanout cover removed (A10, A11).

B. Standard industrial drain with top grate removed (A8, A9).

C. Trench drain with grate removed and cleanout opened (B8, B9, B10, B11).

Areas sampled are indicated by dashed line, with arrow indicating interior surfaces targeted for biofilm collection. Hotbox drain samples from Plant A were collected from side trap drains, while cooler drain samples were collected from standard drains. All drain samples from Plant B were collected from trench drains.