

TABLE S1 Whole-genome sequencing (WGS), serotyping, pathotyping, and *stx* subtyping of STEC isolates from three dairy farms, collected from October 2011 through May 2015. Data were submitted to the European Nucleotide Archive under the project accession no. PRJEB27020 <sup>(a)</sup> or PRJEB28441.

| Run accession no.       | Alias <sup>b</sup>  | Serotype | Virulence <sup>c</sup>         |
|-------------------------|---------------------|----------|--------------------------------|
| ERR2834499              | Ec_Farm1_2011-10_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834500              | Ec_Farm1_2011-10_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834501              | Ec_Farm1_2011-10_E2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834502              | Ec_Farm1_2012-01_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834503              | Ec_Farm1_2012-01_E2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834504              | Ec_Farm1_2014-09_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834505              | Ec_Farm1_2014-09_C2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602174 <sup>a</sup> | Ec_Farm2_2013-10_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602173 <sup>a</sup> | Ec_Farm2_2013-10_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834506              | Ec_Farm2_2014-03_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834507              | Ec_Farm2_2014-03_C2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602181 <sup>a</sup> | Ec_Farm2_2014-03_C3 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834508              | Ec_Farm2_2014-03_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602180 <sup>a</sup> | Ec_Farm2_2014-03_F1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602182 <sup>a</sup> | Ec_Farm2_2014-04_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834509              | Ec_Farm2_2014-04_C2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834510              | Ec_Farm2_2014-05_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602184 <sup>a</sup> | Ec_Farm2_2014-05_F1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834511              | Ec_Farm2_2014-06_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602186 <sup>a</sup> | Ec_Farm2_2014-06_C2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834512              | Ec_Farm2_2014-06_F1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834513              | Ec_Farm2_2014-06_F2 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602187 <sup>a</sup> | Ec_Farm2_2014-08_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834514              | Ec_Farm2_2014-09_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602189 <sup>a</sup> | Ec_Farm2_2014-09_F1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602175 <sup>a</sup> | Ec_Farm3_2014-01_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602179 <sup>a</sup> | Ec_Farm3_2014-02_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602178 <sup>a</sup> | Ec_Farm3_2014-02_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602183 <sup>a</sup> | Ec_Farm3_2014-05_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602185 <sup>a</sup> | Ec_Farm3_2014-06_F1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602190 <sup>a</sup> | Ec_Farm3_2014-07_C1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2602191 <sup>a</sup> | Ec_Farm3_2014-11_E1 | O157:H7  | <i>stx1a, stx2c, eae, hlyA</i> |
| ERR2834515              | Ec_Farm2_2014-10_F1 | O182:H25 | <i>stx1a, eae, hlyA</i>        |
| ERR2834516              | Ec_Farm2_2015-05_C1 | O15:H16  | <i>stx2g, estIa</i>            |
| ERR2834517              | Ec_Farm3_2014-07_M1 | O121:H19 | <i>stx2a, eae, hlyA</i>        |
| ERR2834518              | Ec_Farm3_2014-10_C1 | O84:H2   | <i>stx2c, eae, hlyA</i>        |
| ERR2834519              | Ec_Farm3_2015-05_C1 | O26:H11  | <i>stx1a, eae, hlyA</i>        |

<sup>b</sup>Aliases indicate the following metadata for the isolates: *E. coli*, farm no., isolate collection time (yyyy-mm), source (C=cattle feces, E=farm environment, F=milk filter, M=bulk tank milk), and colony no.

<sup>c</sup>In addition to Shiga Toxin genes (*stx*), the isolates (except the O15:H16 isolate) harbored *eae* and *hlyA*, encoding for intimin and enterohemolysin, respectively. The O15:H16 isolate harbored *estIa*, encoding for heat-stable enterotoxin of enterotoxigenic *E. coli* (ETEC) (1).

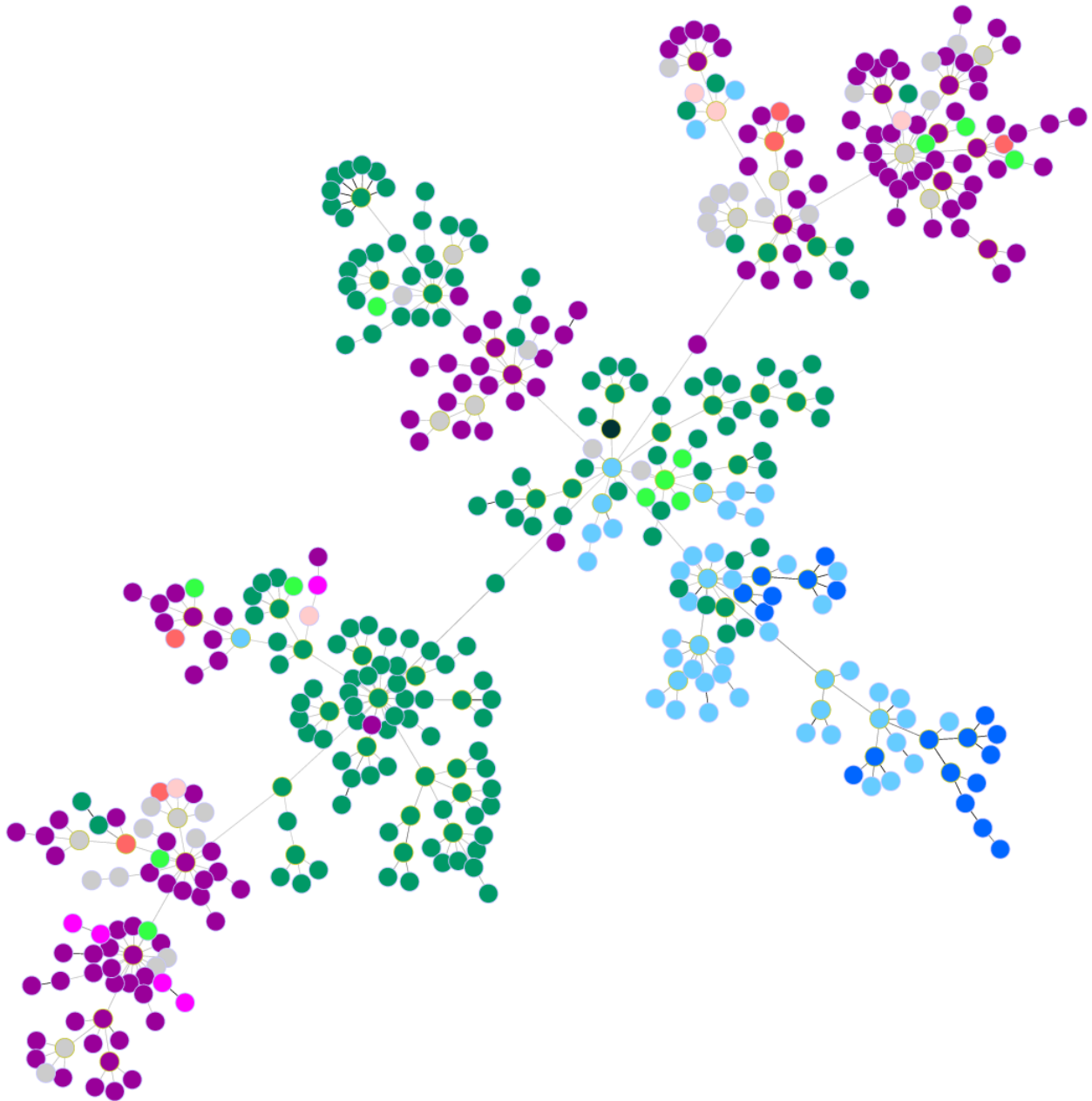


FIG S1 Minimum spanning tree (MST) based on whole-genome multilocus sequence typing (wgMLST) analysis of 32 STEC O157:H7 isolates from this study and 482 globally collected isolates from the INNUENDO database, all representing ST-11 in the 7-loci multilocus sequence typing (MLST). Nodes are colored by geographic regions. Color coding and metadata of the isolates can be found in Data set S1. The isolates of this study (●) grouped with other Finnish isolates (●) in a separate branch from foreign isolates, which predominantly originated from the UK (●) and US (●). The tree was constructed using the goeBURST algorithm in PHYLOViZ (version 2.0) (2).

TABLE S2 WGS and MLST of *C. jejuni* isolates from three dairy farms, collected from February 2014 through May 2015. Data were submitted to the European Nucleotide Archive under project accession no. PRJEB28441. The isolates represent different pulsotypes in pulsed-field gel electrophoresis (PFGE), except the ones denoted with <sup>(b)</sup> after sequence type.

| Run accession no. | Alias <sup>a</sup>  | Sequence type (ST) | Clonal complex (CC) |
|-------------------|---------------------|--------------------|---------------------|
| ERR2834463        | Cj_Farm1_2014-02_C1 | 1080 <sup>b</sup>  | -                   |
| ERR2834464        | Cj_Farm1_2014-03_C1 | 45                 | ST-45 CC            |
| ERR2834465        | Cj_Farm1_2014-05_C1 | 1080               | -                   |
| ERR2834466        | Cj_Farm1_2014-12_C1 | 1080 <sup>b</sup>  | -                   |
| ERR2834467        | Cj_Farm2_2014-03_C1 | 5559               | -                   |
| ERR2834468        | Cj_Farm2_2014-04_C1 | 677                | ST-677 CC           |
| ERR2834469        | Cj_Farm2_2014-04_C2 | 45                 | ST-45 CC            |
| ERR2834470        | Cj_Farm2_2014-05_C1 | 692                | ST-692 CC           |
| ERR2834471        | Cj_Farm2_2014-06_C1 | 11                 | ST-45 CC            |
| ERR2834472        | Cj_Farm2_2014-06_C2 | 48                 | ST-48 CC            |
| ERR2834473        | Cj_Farm2_2014-07_C1 | 1701               | ST-45 CC            |
| ERR2834474        | Cj_Farm2_2014-07_C2 | 1701               | ST-45 CC            |
| ERR2834475        | Cj_Farm2_2014-07_C3 | 1938               | -                   |
| ERR2834476        | Cj_Farm2_2014-08_C1 | 267                | ST-283 CC           |
| ERR2834477        | Cj_Farm2_2014-08_C2 | 45                 | ST-45 CC            |
| ERR2834478        | Cj_Farm2_2014-08_C3 | 677                | ST-677 CC           |
| ERR2834479        | Cj_Farm2_2014-09_C1 | 45                 | ST-45 CC            |
| ERR2834480        | Cj_Farm2_2014-11_C1 | 7435               | -                   |
| ERR2834481        | Cj_Farm3_2014-02_C1 | 45                 | ST-45 CC            |
| ERR2834482        | Cj_Farm3_2014-02_C2 | 925                | ST-21 CC            |
| ERR2834483        | Cj_Farm3_2014-05_C1 | 45                 | ST-45 CC            |
| ERR2834484        | Cj_Farm3_2014-05_C2 | 991                | ST-692 CC           |
| ERR2834485        | Cj_Farm3_2014-06_C1 | 4080               | -                   |
| ERR2834486        | Cj_Farm3_2014-06_C2 | 9407               | ST-952 CC           |
| ERR2834487        | Cj_Farm3_2014-07_C1 | 538                | ST-45 CC            |
| ERR2834488        | Cj_Farm3_2014-07_C2 | 883 <sup>b</sup>   | ST-21 CC            |
| ERR2834489        | Cj_Farm3_2014-08_C1 | 538                | ST-45 CC            |
| ERR2834490        | Cj_Farm3_2014-09_F1 | 883 <sup>b</sup>   | ST-21 CC            |
| ERR2834491        | Cj_Farm3_2014-10_C1 | 583                | ST-45 CC            |
| ERR2834492        | Cj_Farm3_2014-10_C2 | 925                | ST-21 CC            |
| ERR2834493        | Cj_Farm3_2014-11_C1 | 9408               | -                   |
| ERR2834494        | Cj_Farm3_2015-01_C1 | 883                | ST-21 CC            |
| ERR2834495        | Cj_Farm3_2015-03_C1 | 991                | ST-692 CC           |
| ERR2834496        | Cj_Farm3_2015-03_C2 | 883                | ST-21 CC            |
| ERR2834497        | Cj_Farm3_2015-05_C1 | 883 <sup>b</sup>   | ST-21 CC            |
| ERR2834498        | Cj_Farm3_2015-05_C2 | 991                | ST-692 CC           |

<sup>a</sup>Aliases indicate the following metadata for the isolates: *C. jejuni*, farm no., isolate collection time (yyyy-mm), source (C=cattle feces, F=milk filter), and colony no.

| Farm 1 | PFGE         | ST    | CC | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Dec | Feb |
|--------|--------------|-------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | 1.01         | 45    | 45 |     | ■   |     |     |     |     |     |     |     |     |     |
|        | 1.02 (=3.07) | 45    | 45 |     |     |     | ■   |     |     |     |     |     |     |     |
|        | 1.03         | 1080* | -  | ■   | ■   |     |     |     | ■   |     |     | ■   | ■   |     |
|        | 1.04         | 1080* | -  |     |     |     | ■   |     |     |     |     |     |     |     |

| Farm 2 | PFGE         | ST   | CC  | Mar | Apr | May | Jun | Jul | Aug | Sep | Nov | Jan | Mar | May |
|--------|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | 2.01         | 11   | 45  |     |     |     | ■   |     |     |     |     |     |     |     |
|        | 2.02         | 45   | 45  | ■   | ■   | ■   |     |     |     |     |     |     |     |     |
|        | 2.03         | 45   | 45  |     |     |     |     | ■   | ■   | ■   | ■   |     |     |     |
|        | 2.04         | 45   | 45  |     |     |     |     |     |     | ■   |     |     |     |     |
|        | 2.05         | 1701 | 45  |     |     |     |     | ■   |     |     |     |     |     |     |
|        | 2.06         | 1701 | 45  |     |     |     |     | ■   | ■   |     |     |     |     |     |
|        | 2.07         | 48   | 48  | ■   |     | ■   | ■   |     |     |     |     |     |     |     |
|        | 2.08         | 267  | 283 |     |     |     |     | ■   | ■   | ■   |     |     |     | ■   |
|        | 2.09         | 677  | 677 |     | ■   |     |     |     |     |     |     |     |     |     |
|        | 2.10         | 677  | 677 |     |     |     |     | ■   | ■   |     |     |     |     |     |
|        | 2.11         | 692  | 692 |     |     | ■   |     |     |     | ■   |     |     |     |     |
|        | 2.12         | 1938 | -   |     |     |     |     | ■   |     |     |     |     |     |     |
|        | 2.13 (=3.16) | 4080 | -   |     |     |     |     |     |     |     | ■   |     |     |     |
|        | 2.14         | 5559 | -   | ■   |     | ■   |     |     |     |     |     |     |     |     |
|        | 2.15         | 7435 | -   |     |     |     |     |     |     |     | ■   |     |     |     |

| Farm 3 | PFGE         | ST   | CC  | Feb | May | Jun | Jul | Aug | Sep | Oct | Nov | Jan | Mar | May |
|--------|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | 3.04         | 925  | 21  | ■   |     |     |     |     |     |     |     |     |     |     |
|        | 3.05         | 925  | 21  |     |     |     |     |     |     | ■   |     |     |     |     |
|        | 3.01         | 883* | 21  |     |     |     | ■   | ■   | ■   | ■   | ■   | ■   | ■   | ■   |
|        | 3.02         | 883* | 21  |     |     |     |     |     |     |     |     | ■   |     | ■   |
|        | 3.03         | 883* | 21  |     |     |     |     |     |     |     |     |     | ■   |     |
|        | 3.06         | 45   | 45  | ■   | ■   |     |     |     |     |     |     |     |     |     |
|        | 3.07         | 45   | 45  |     | ■   | ■   |     |     |     |     | ■   |     |     |     |
|        | 3.08         | 538  | 45  |     |     |     | ■   |     | ■   |     |     |     |     |     |
|        | 3.09         | 538  | 45  |     |     |     |     | ■   | ■   |     |     |     |     |     |
|        | 3.10         | 583  | 45  |     |     |     |     |     |     | ■   |     |     |     |     |
|        | 3.11 (=2.08) | 267  | 283 |     |     |     |     | ■   |     |     |     |     |     |     |
|        | 3.12         | 991  | 692 | ■   | ■   |     |     |     |     |     |     |     |     |     |
|        | 3.13         | 991  | 692 |     |     |     |     |     |     |     |     |     | ■   |     |
|        | 3.14         | 991  | 692 |     |     |     |     |     |     |     |     |     |     | ■   |
|        | 3.15         | 9407 | 952 |     |     | ■   |     |     |     |     |     |     |     |     |
|        | 3.16         | 4080 | -   | ■   |     | ■   |     |     | ■   |     |     | ■   |     |     |
|        | 3.17 (=2.14) | 5559 | -   |     |     | ■   |     |     |     |     |     |     |     |     |
| 3.18   | 9408         | -    |     |     |     |     |     |     |     | ■   |     |     |     |     |

FIG S2 Occurrence of *C. jejuni* PFGE and MLST types on three dairy farms from February 2014 through May 2015. Gray indicates detection of the pulsotype. Dark gray indicates selection of a representative isolate for WGS. Asterisk (\*) denotes persistent MLST STs on the basis of wgMLST analysis.

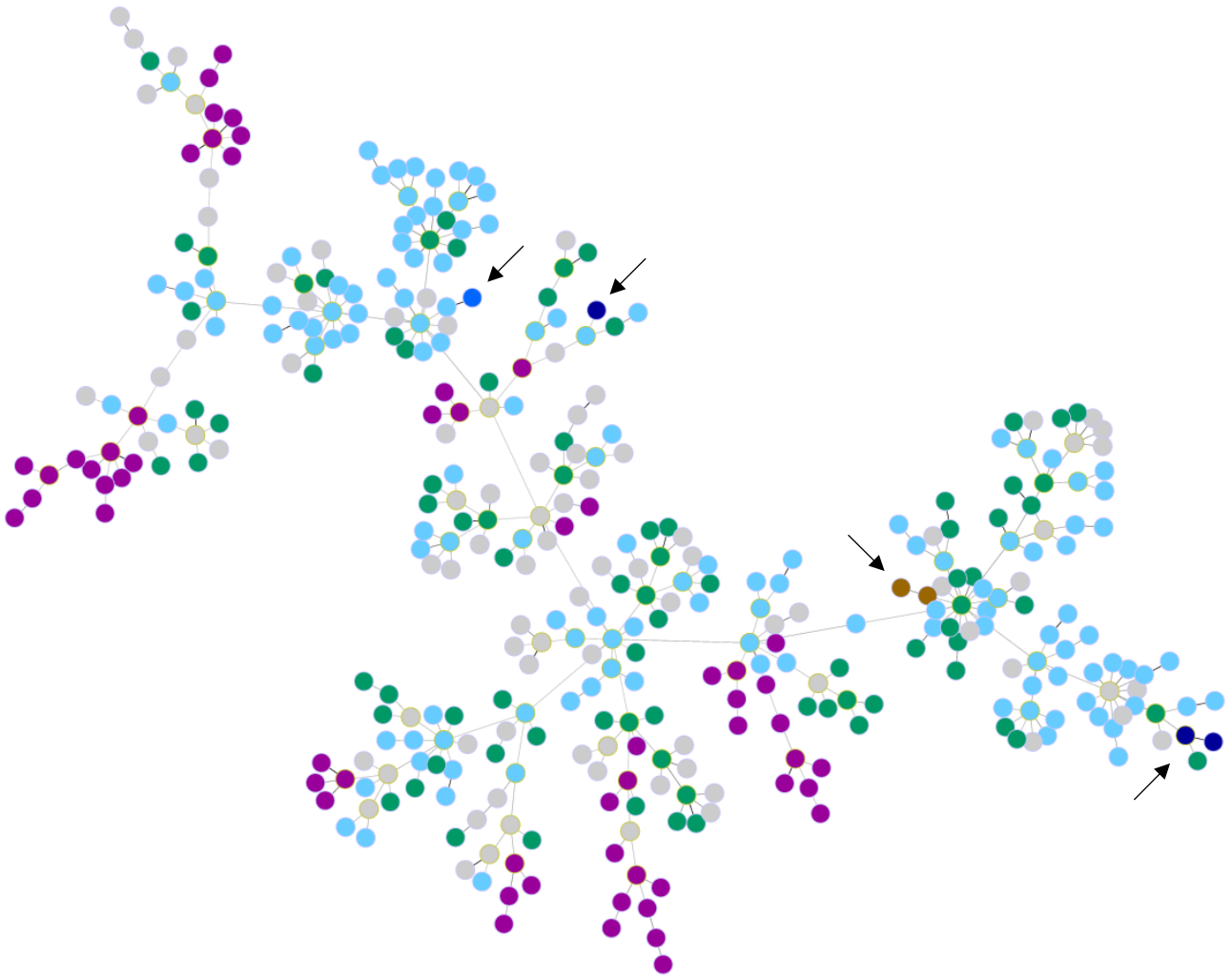


FIG S3 MST based on wgMLST analysis of six ST-45 *C. jejuni* isolates from this study and 436 ST-45 isolates from the INNUENDO database. Nodes are colored by geographic regions. Color coding and metadata of the isolates can be found in Data set S2. Dissimilarity was observed between the isolates collected from farm 2 (●) in spring and fall and between the isolates from three different farms (farm 1: ●, farm 3: ●).

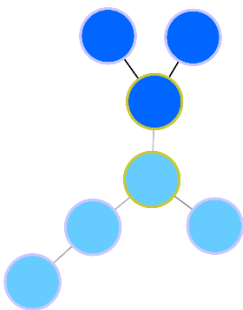


FIG S4 MST based on wgMLST analysis of three ST-1080 *C. jejuni* isolates from this study (farm 1: ●) and four ST-1080 isolates from the INNUENDO database (●), all originating from Finland. Bold links indicate short pairwise distances (PWD 1 or 2). Metadata of the isolates can be found in Data set S3.



FIG S5 MST based on wgMLST analysis of five ST-883 *C. jejuni* isolates from this study (farm 3: ●) and 66 ST-883 isolates from the INNUENDO database. Color coding and metadata of the isolates can be found in Data set S4. Bold links indicate short distances (PWD 1 or 2). Nodes represent unique allelic profiles. The five isolates of farm 3 represent two unique allelic profiles that differed with PWD of 1.

## References

1. Antikainen, J, Tarkka, E, Haukka, K, Siitonen, A, Vaara, M, Kirveskari, J. 2009. New 16-plex PCR method for rapid detection of diarrheagenic *Escherichia coli* directly from stool samples. *Eur J Clin Microbiol Infect Dis* 28:899–908.
2. Nascimento, M, Sousa, A, Ramirez, M, Francisco, AP, Carrico, JA, Vaz, C. 2017. PHYLOViZ 2.0: providing scalable data integration and visualization for multiple phylogenetic inference methods. *Bioinformatics* 33:128–129.