

Supplementary Materials: Molecular Characterization of the Enterohemolysin Gene (*ehxA*) in Clinical Shiga Toxin-Producing *Escherichia Coli* Isolates

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Table S1. Association between the presence of *ehxA* and HUS, age of patients, and the duration of bacterial shedding.

<i>ehxA</i>	No. (%)		<i>p</i> -value	No. (%)		<i>p</i> -value	No. (%)		<i>p</i> -value
	HUS (60)	Non-HUS (179)		<10 years of age (104)	≥10 years of age (80)		Short Shedding (68)	Long Shedding (62)	
Positive	53 (88.33)	146 (81.56)	0.22	87 (83.65)	62 (77.50)	0.29	59 (86.76)	49 (79.03)	0.24
Negative	7 (11.67)	33 (18.44)		17 (16.35)	18 (22.50)		9 (13.24)	13 (20.97)	

^a: Short shedding: duration of shedding ≤24 days; Long shedding: duration of shedding >24 days.

Table S2. Association between *ehxA* subtype C and serotypes.

<i>ehxA</i> Subtype	No. (%)		<i>p</i> -value	No. (%)		<i>p</i> -value
	O121:H19 (25)	Non-O121 (174)		O26:H11 (35)	Non-O26 (164)	
C	25 (100.00)	51 (29.31)	<0.001*	35 (100.00)	41 (25.00)	<0.001*
non-C	0 (0.00)	123 (70.69)		0 (0.00)	123 (75.00)	

* Statistically significant difference.

Table S3. Association between the presence of *ehxA + eae + stx₂* and clinical symptoms or serotypes (.doc).

<i>ehxA + eae + stx₂</i>	No. (%)		<i>p</i> -value	No. (%)		<i>p</i> -value
	Non-HUS (146)	HUS (53)		O157:H7 (65)	Non-O157 (134)	
+	47 (32.19)	47 (88.68)	<0.001*	56 (86.15)	38 (28.36)	<0.001*
-	99 (67.81)	6 (11.32)		9 (13.85)	96 (71.64)	

* Statistically significant difference.

Table S4. Metadata of 239 clinical STEC isolates.

Strain Name	<i>ehx</i> A	<i>ehxA</i> Subtype	<i>ehxA</i> Genotype	Gro up	<i>ea</i> e	<i>stx</i> Sub-type	Sero-type	ST	Symp-toms	Age Group	Duration of Bacterial Shedding	Accession Number
SE0301	+	A	GT1	I	-	<i>stx_{2d}</i>	O91:H2 1	442	NBS	<10 years	Short	JABKKD000000000
SE0410	+	A	GT1	I	-	<i>stx_{2d}</i>	O91:H2 1	442	NBS	≥10 years	Short	JABKJJ000000000
SE0411	+	A	GT1	I	-	<i>stx_{2d}</i>	O91:H2 1	442	NBS	≥10 years	Short	JABKJI000000000

SE0701	+	A	GT2	I	-	<i>stx</i> _{2b}	O113:H 4	10	NBS	<10 years	Long	JABKIO000000000
SE0904	+	A	GT2	I	-	<i>stx</i> _{2b}	O146:H 21	442	BD	≥10 years	Long	JABKHA000000000
SE1212	+	A	GT2	I	-	<i>stx</i> _{2b}	O150:H 10	172 4	NBS	<10 years	Short	JABKFJ000000000
SE1214	+	A	GT2	I	-	<i>stx</i> _{2b}	O150:H 10	172 4	NBS	<10 years	NA	JABKFH000000000
SE1215	+	A	GT2	I	-	<i>stx</i> _{2b}	O150:H 10	172 4	NBS	≥10 years	NA	JABKFG000000000
SE1216	+	A	GT2	I	-	<i>stx</i> _{2b}	O150:H 10	172 4	NBS	≥10 years	NA	JABKFF000000000
SE0302	+	A	GT2	I	-	<i>stx</i> _{1c}	O128ab :H2	25	NBS	<10 years	Long	JABKKC000000000
SE1106	+	A	GT2	I	-	<i>stx</i> _{1c}	O4:H16	10	NBS	≥10 years	NA	JABKGI000000000
SE1210	+	A	GT2	I	-	<i>stx</i> _{1c}	O117:H 8	13	NBS	≥10 years	NA	JABKFL000000000
SE0710	+	A	GT2	I	-	<i>stx</i> _{1c}	O117:H 8	13	NBS	≥10 years	NA	JABKHX000000000
SE0906	+	A	GT2	I	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O146:H 21	442	NBS	<10 years	Long	JABKGY000000000
SE0307	+	A	GT2	I	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O128ab :H2	25	NBS	≥10 years	NA	JABKJX000000000
SE0813	+	A	GT2	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2b}	O91:H1 4	33	NBS	≥10 years	Long	JABKHF000000000
SE0308	+	A	GT2	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2b}	O91:H1 4	33	NBS	≥10 years	NA	JABKJW000000000
SE0401	+	A	GT5	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O185:H 28	658	BD	≥10 years	Short	JABKJS000000000
SE0402	+	A	GT6	I	-	<i>stx</i> _{1c}	O5:H19	447	NBS	≥10 years	NA	JABKJR000000000
SE0805	+	A	GT6	I	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O113:H 4	10	NBS	<10 years	Short	JABKHN000000000
SE0703	+	A	GT11	I	-	<i>stx</i> _{1c}	Ont:H4	310 1	NBS	<10 years	NA	JABKIE000000000
SE0605	+	A	GT11	I	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O78:H4	310 1	NBS	<10 years	NA	JABKIJ000000000
SE0606	+	A	GT11	I	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O78:H4	310 1	NBS	≥10 years	Long	JABKII000000000
SE0804	+	A	GT12	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O175:H 21	223	NBS	<10 years	Long	JABKHO000000000
SE1502	+	A	GT16	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O183:H 18	657	BD	≥10 years	NA	JABKDZ000000000
SE1115	+	A	GT16	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O183:H 18	657	BD	≥10 years	Long	JABKFZ000000000
SE1117	+	A	GT17	I	-	<i>stx</i> _{2a}	O126:H 20	58	NBS	≥10 years	NA	JABKFX000000000

SE1301	+	A	GT20	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2d}	O163:H 19	679	NBS	<10 years	Long	JABKFE000000000
SE1310	+	A	GT20	I	-	<i>stx</i> _{1a} + <i>stx</i> _{2d}	O163:H 19	679	NBS	≥10 years	Short	JABKEU000000000
SE1201	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	NA	JABKFU000000000
SE0903	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Long	JABKHB000000000
SE0506	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Short	JABKJB000000000
SE0407	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Long	JABKJM000000000
SE0303	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Long	JABKKB000000000
SE0510	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	Short	JABKIY000000000
SE0512	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	Short	JABKIW000000000
SE0513	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	Short	JABKIV000000000
SE0514	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	≥10 years	Short	JABKIU000000000
SE0515	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	<10 years	Long	JABKIT000000000
SE1315	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	NA	JABKEP000000000
SE0412	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	NA	JABKJH000000000
SE0715	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	NA	JABKHU000000000
SE0309	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKJV000000000
SE0310	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKJU000000000
SE0311	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	≥10 years	Short	JABKJT000000000
SEH9701	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEJ000000000
SEH9702	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEK000000000
SEH0501	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEX000000000
SEH0502	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEY000000000
SEH9703	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEL000000000
SEH0602	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFG000000000

SEH1005	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFQ000000000
SEH9704	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEM000000000
SEH0505	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFB000000000
SEH0302	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWES000000000
SEH0506	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFC000000000
SEH0202	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEQ000000000
SEH0401	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWET000000000
SEH0603	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFH000000000
SEH0901	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFL000000000
SEH1001	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFM000000000
SEH1102	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFS000000000
SEH1406	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWGC000000000
SEH1701	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWGG000000000
SEH1601	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWGF000000000
SEH1801	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWGH000000000
SEH1802	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWGI000000000
SEH0503	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEZ000000000
SEH9501	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEI000000000
SEH0701	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFI000000000
SEH0402	+	B	GT3	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEU000000000
SEH9901	+	B	GT3	II	+	<i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEO000000000
SEH0507	+	B	GT3	II	+	<i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWFD000000000
SEH0508	+	B	GT3	II	+	<i>stx</i> _{2a}	O157:H 7	11	HUS	NA	NA	JABWFE000000000
SEH0403	+	B	GT3	II	+	<i>stx</i> _{2a}	O157:H 7	11	HUS	NA	NA	JABWEV000000000

SE1119	+	B	GT18	II	+	<i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKFBV000000000
SE0803	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Short	JABKHP000000000
SE0404	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Long	JABKJP000000000
SE1704	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	159 5	NBS	<10 years	Short	JABKDK000000000
SE0808	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKHK000000000
SE0809	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKHJ000000000
SE0909	+	B	GT29	II	+	<i>stx</i> _{2c}	O157:H 7	180 4	NBS	<10 years	Long	JABKGW000000000
SE1208	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	764 5	BD	≥10 years	NA	JABKFN000000000
SE0604	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	180 4	BD	≥10 years	Short	JABKIK000000000
SE0503	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Short	JABKJE000000000
SE1302	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Short	JABKFD000000000
SE1303	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	<10 years	Long	JABKFC000000000
SE1204	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	NA	JABKFR000000000
SE0304	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O157:H 7	11	BD	≥10 years	NA	JABKKA000000000
SE0708	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	BD	<10 years	Long	JABKHZ000000000
SE0907	+	B	GT29	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2c}	O157:H 7	11	BD	≥10 years	Short	JABKGX000000000
SE1308	+	B	GT29	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	≥10 years	NA	JABKEW000000000
SE1309	+	B	GT29	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	NBS	≥10 years	NA	JABKEV000000000
SEH0201	+	B	GT29	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O157:H 7	11	HUS	NA	NA	JABWEP000000000
SE0902	+	C	GT7	II	+	<i>stx</i> _{1a}	O84:H2 306	306	NBS	<10 years	Long	JABKHC000000000
SE0408	+	C	GT7	II	+	<i>stx</i> _{1a}	O98:H2 1	306	HUS	≥10 years	Short	JABKJL000000000
SEH9705	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWEN000000000
SEH1002	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFN000000000
SE1001	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	<10 years	Short	JABKGV000000000

SE1401	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	<10 years	Long	JABKEK000000000
SE1402	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	≥10 years	Long	JABKEJ000000000
SE1403	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	<10 years	NA	JABKEI000000000
SE1705	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	<10 years	Long	JABKDJ000000000
SE1503	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	<10 years	NA	JABKDY000000000
SE1005	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	<10 years	Short	JABKGR000000000
SE1108	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	≥10 years	NA	JABKGG000000000
SE0603	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	≥10 years	Short	JABKIL000000000
SE1707	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	<10 years	NA	JABKDH000000000
SE0711	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	≥10 years	Short	JABKHW000000000
SE0712	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	<10 years	Long	JABKIH000000000
SE0814	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	<10 years	NA	JABKHE000000000
SE1606	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	BD	<10 years	Long	JABKDP000000000
SEH0601	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFF000000000
SEH1301	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFW000000000
SEH1404	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWGA000000000
SEH1202	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFO000000000
SEH0301	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWER000000000
SEH1402	+	C	GT8	II	+	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFY000000000
SEH9401	+	C	GT8	II	-	<i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWEH000000000
SE0501	+	C	GT8	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O121:H 19	655	NBS	≥10 years	Short	JABKJG000000000
SEH0504	+	C	GT8	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O121:H 19	655	HUS	NA	NA	JABWFA000000000
SE0508	+	C	GT9	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKJA000000000
SE0901	+	C	GT13	II	+	<i>stx</i> _{1a}	O111:H 8	Na	NBS	<10 years	Short	JABKHS000000000

SE1007	+	C	GT14	II	+	<i>stx</i> _{2a}	O26:H1 1	29	NBS	<10 years	Long	JABKGP000000000
SE1008	+	C	GT14	II	+	<i>stx</i> _{1a}	O26:H1 1	29	NBS	<10 years	Short	JABKGO000000000
SE1107	+	C	GT15	II	+	<i>stx</i> _{2a}	O180:H 2	301	NBS	≥10 years	NA	JABKGH000000000
SE1205	+	C	GT19	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O165:H 25	119	BD	≥10 years	NA	JABKFQ000000000
SEH0801	+	C	GT21	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O111:H 8	16	HUS	NA	NA	JABWFK000000000
SE1313	+	C	GT21	II	+	<i>stx</i> _{1a}	O111:H 8	16	BD	<10 years	Short	JABKER000000000
SE1316	+	C	GT21	II	+	<i>stx</i> _{1a}	O111:H 8	16	NBS	<10 years	Short	JABKEO000000000
SE1404	+	C	GT22	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O165:H 25	119	NBS	<10 years	Long	JABKEH000000000
SEH1405	+	C	GT22	II	+	<i>stx</i> _{2a} + <i>stx</i> _{2c}	O165:H 25	119	HUS	NA	NA	JABWGB000000000
SEH1501	+	C	GT22	II	+	<i>stx</i> _{2a}	O165:H 25	119	HUS	NA	NA	JABWGE000000000
SE1406	+	C	GT23	II	+	<i>stx</i> _{2a}	O145:H 28	137	NBS	≥10 years	NA	JABKEG000000000
SEH0702	+	C	GT28	II	+	<i>stx</i> _{2a}	O103:H 8	283 6	HUS	NA	NA	JABWFJ000000000
SE0714	+	C	GT30	II	+	<i>stx</i> _{1a}	O145:H 28	32	NBS	<10 years	Short	JABKHV000000000
SEH1101	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	HUS	NA	NA	JABWFR000000000
SEH1003	+	C	GT30	II	+	<i>stx</i> _{2a}	O145:H 28	32	HUS	NA	NA	JABWFO000000000
SEH1403	+	C	GT30	II	+	<i>stx</i> _{1a}	O103:H 2	386	HUS	NA	NA	JABWFZ000000000
SE0504	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKJD000000000
SE0702	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	Long	JABKIF000000000
SE1002	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	≥10 years	Short	JABKGU000000000
SE1701	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	Short	JABKDN000000000
SE0505	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	NA	JABKJC000000000
SE1703	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	NA	JABKDL000000000
SE1203	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	Short	JABKFS000000000
SE0705	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Short	JABKIC000000000

SE1405	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	<10 years	Short	JABKEZ000000000
SE1504	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKDX000000000
SE0806	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKHM000000000
SE1110	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	≥10 years	NA	JABKGE000000000
SE1111	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Short	JABKGD000000000
SE1209	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	NA	JABKFM000000000
SE0511	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Short	JABKIX000000000
SE1408	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	<10 years	Long	JABKEF000000000
SE0810	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Short	JABKHI000000000
SE1409	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	NA	JABKEE000000000
SE1113	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Short	JABKGB000000000
SE1410	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKED000000000
SE1411	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	≥10 years	Long	JABKEC000000000
SE1116	+	C	GT30	II	+	<i>stx</i> _{2a}	O26:H1 1	21	NBS	<10 years	Long	JABKfy000000000
SE1312	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	NA	JABKES000000000
SE1314	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKEQ000000000
SE1608	+	C	GT30	II	-	<i>stx</i> _{1a}	O26:H1 1	21	NBS	≥10 years	Short	JABKDO000000000
SE0716	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKHT000000000
SE0519	+	C	GT30	II	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	NA	JABKIP000000000
SE1213	+	C	GT30	II	+	<i>stx</i> _{2a}	O26:H1 1	21	BD	≥10 years	NA	JABKFI000000000
SEH0404	+	C	GT30	II	+	<i>stx</i> _{2a}	O26:H1 1	21	HUS	NA	NA	JABWEW000000000
SEH1407	+	C	GT30	II	+	<i>stx</i> _{2a}	O26:H1 1	21	HUS	NA	NA	JABWGD000000000
SE1702	+	C	GT30	II	+	<i>stx</i> _{1a} + <i>stx</i> _{2a}	O26:H1 1	21	BD	≥10 years	NA	JABKDM000000000
SE572	+	D	GT26	III	-	<i>stx</i> _{2g}	O187:H 28	200	NBS	<10 years	Short	SAMN09758572

SE574	+	D	GT27	III	-	<i>stx</i> _{2a}	O136:H 12	329	NBS	≥10 years	Short	SAMN09758574
SE0502	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Long	JABKJF000000000
SE1202	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Short	JABKFT000000000
SE1501	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	NA	JABKEA000000000
SE0801	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Long	JABKHR000000000
SE0802	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Short	JABKHQ000000000
SE1304	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	BD	≥10 years	Long	JABKFB000000000
SE1305	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	≥10 years	Short	JABKFA000000000
SE1004	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Long	JABKGS000000000
SE1006	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	≥10 years	Short	JABKGQ000000000
SE0509	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	≥10 years	Long	JABKIZ000000000
SE1109	+	F	GT4	II	+	<i>stx</i> _{1a}	O123:H 2	17	NBS	<10 years	Long	JABKGF000000000
SE0305	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	BD	≥10 years	Short	JABKJZ000000000
SE0807	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	BD	<10 years	Long	JABKHL000000000
SE1603	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Short	JABKDS000000000
SE1505	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Long	JABKDW000000000
SE1112	+	F	GT4	II	+	<i>stx</i> _{1a}	O123:H 2	17	NBS	<10 years	Long	JABKGC000000000
SE1317	+	F	GT4	II	+	<i>stx</i> _{1a}	O123:H 2	17	NBS	<10 years	Long	JABKEN000000000
SE1118	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	Short	JABKFW000000000
SE1318	+	F	GT4	II	+	<i>stx</i> _{1a}	O71:H2	17	NBS	<10 years	Short	JABKEM000000000
SE1413	+	F	GT4	II	+	<i>stx</i> _{1a}	O103:H 2	17	BD	<10 years	Long	JABKEB000000000
SE0516	+	F	GT10	II	+	<i>stx</i> _{2c}	O177:H 25	342	NBS	<10 years	Short	JABKIS000000000
SE0517	+	F	GT10	II	+	<i>stx</i> _{2c}	O177:H 25	342	NBS	<10 years	Short	JABKIR000000000
SE0518	+	F	GT10	II	+	<i>stx</i> _{2c}	O177:H 25	342	NBS	<10 years	Long	JABKIQ000000000

SE1607	+	F	GT24	II	+	<i>stx</i> _{1a}	O103:H 2	17	NBS	<10 years	NA	JABKDV000000000
SE1602	+	F	GT24	II	+	<i>stx</i> _{1a}	O103:H 2	401	NBS	≥10 years	Short	JABKDT000000000
SE1706	+	F	GT25	II	+	<i>stx</i> _{1a}	O5:H9	342	NBS	<10 years	Long	JABKDI000000000
SE1604	+	F	GT25	II	+	<i>stx</i> _{1a}	O5:H9	342	NBS	<10 years	Short	JABKDR000000000
SE0713	-	-	-	-	+	<i>stx</i> _{2a}	O121:H 19	655	NBS	≥10 years	Long	JABKIG000000000
SEH1201	-	-	-	-	+	<i>stx</i> _{2a}	O111:H 8	327	HUS	NA	NA	JABWFT000000000
SE0601	-	-	-	-	+	<i>stx</i> _{1a}	O26:H1 1	21	NBS	<10 years	Long	JABKIN000000000
SE1601	-	-	-	-	+	<i>stx</i> _{1a}	O26:H1 1	21	BD	≥10 years	NA	JABKDU000000000
SEH1203	-	-	-	-	+	<i>stx</i> _{2a}	O109:H 21	40	HUS	NA	NA	JABWFFV000000000
SEH1004	-	-	-	-	+	<i>stx</i> _{2c}	O26:H1 1	29	HUS	NA	NA	JABWFP000000000
SE1101	-	-	-	-	-	<i>stx</i> _{2a}	O104:H 4	678	BD	≥10 years	Short	JABKGN000000000
SE1102	-	-	-	-	-	<i>stx</i> _{2a}	O104:H 4	678	HUS	≥10 years	NA	JABKGM000000000
SE1103	-	-	-	-	-	<i>stx</i> _{2a}	O104:H 4	678	HUS	≥10 years	Long	JABKGL000000000
SE0905	-	-	-	-	-	<i>stx</i> _{2d}	O113:H 4	10	NBS	≥10 years	NA	JABKGZ000000000
SE0704	-	-	-	-	-	<i>stx</i> _{2c}	O8:H9	410	NBS	≥10 years	Short	JABKID000000000
SEH1401	-	-	-	-	+	<i>stx</i> _{2a}	O59:H1 9	113 6	HUS	NA	NA	JABWFX000000000
SE0403	-	-	-	-	-	<i>stx</i> _{1a}	O55:H1 2	101	NBS	<10 years	Long	JABKJQ000000000
SE1003	-	-	-	-	-	<i>stx</i> _{1a}	O115:H 10	10	NBS	<10 years	Short	JABKGT000000000
SE1104	-	-	-	-	-	<i>stx</i> _{2a}	O104:H 4	678	NBS	≥10 years	NA	JABK GK000000000
SE0405	-	-	-	-	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O128ab :H2	811	BD	≥10 years	Long	JABKJO000000000
SE0706	-	-	-	-	-	<i>stx</i> _{2e}	O9:H21	149 4	NBS	≥10 years	NA	JABKIB000000000
SE1105	-	-	-	-	-	<i>stx</i> _{2b}	O146:H 28	738	NBS	≥10 years	NA	JABKGJ000000000
SE0602	-	-	-	-	-	<i>stx</i> _{1c} + <i>stx</i> _{2d}	O76:H1 9	675	NBS	<10 years	Short	JABKIM000000000
SE0406	-	-	-	-	-	<i>stx</i> _{1a}	O55:H1 2	101	NBS	<10 years	Long	JABKJN000000000

SE0707	-	-	-	-	-	<i>stx</i> _{1a}	O117:H 7	504	NBS	≥10 years	NA	JABKIA000000000
SE1306	-	-	-	-	-	<i>stx</i> _{1a}	O96:H1 9	130 3	NBS	<10 years	Long	JABKEY000000000
SE1307	-	-	-	-	-	<i>stx</i> _{1a}	O96:H1 9	130 3	NBS	<10 years	Long	JABKEX000000000
SE0306	-	-	-	-	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O15:H2 7	238 8	NBS	≥10 years	NA	JABKJY000000000
SE0709	-	-	-	-	-	<i>stx</i> _{1c}	O167:H 14	N ^a	NBS	<10 years	NA	JABKHY000000000
SE573	-	-	-	-	-	<i>stx</i> _{2g}	O15:H1 6	325	NBS	≥10 years	Short	SAMN09758573
SE1206	-	-	-	-	-	<i>stx</i> _{1a}	O117:H 7	504	NBS	<10 years	Long	JABKFP000000000
SE1207	-	-	-	-	-	<i>stx</i> _{1c} + <i>stx</i> _{2b}	O146:H 21	N ^a	NBS	<10 years	NA	JABKFO000000000
SE1211	-	-	-	-	-	<i>stx</i> _{1a}	O117:H 7	504	NBS	<10 years	Long	JABKFK000000000
SE0811	-	-	-	-	-	<i>stx</i> _{2b} + <i>stx</i> _{2d}	O112ab :H2	388	NBS	≥10 years	Long	JABKHH000000000
SE0812	-	-	-	-	-	<i>stx</i> _{2a}	O35:H1 0	398	BD	<10 years	Short	JABKHG000000000
SE0409	-	-	-	-	-	<i>stx</i> _{1a}	O117:H 7	504	NBS	<10 years	NA	JABKJK000000000
SE1114	-	-	-	-	-	<i>stx</i> _{2b}	O146:H 28	738	NBS	<10 years	Short	JABKGA000000000
SE1605	-	-	-	-	-	<i>stx</i> _{1c}	Ont:H2 1	40	NBS	<10 years	Long	JABKDQ000000000
SE1311	-	-	-	-	-	<i>stx</i> _{1d}	O8:H19 3	323	NBS	<10 years	Short	JABKET000000000
SE575	-	-	-	-	-	<i>stx</i> _{2e}	O100:H 30	993	NBS	≥10 years	NA	SAMN09758575
SE0815	-	-	-	-	-	<i>stx</i> _{1a}	O156:H 7	504	NBS	≥10 years	NA	JABKHD000000000
SE1709	-	-	-	-	-	<i>stx</i> _{1c}	Ont:H1 6	864 9	NBS	<10 years	Short	JABKDG000000000
SE1412	-	-	-	-	-	<i>stx</i> _{1a}	O117:H 7	504	NBS	≥10 years	Long	JABKEL000000000
E1147- 96	-	-	-	-	-	<i>stx</i> _{2d}	O148:H 8	448	HUS	NA	NA	NA

"-": Negative; "+": Positive; NA: not available.

Age groups : <10 years of age; ≥10 years of age.

Short: duration of shedding ≤24 days; Long: duration of shedding >24 days.

a: new STs identified.

Table S5. 26 reference sequences of six described *ehxA* subtypes.

Accession No. (Strain Name)	Serogroup	<i>ehxA</i> Sub-type	Sources	Sequence(5'→3')
AB011 549.2 (Sakia)	O157	B	Homo sapiens	<p>ATGACAGTAAATAAAAATAAAGAACATTTTCAATAATGCGACATTGAC- TACAAAATCAGCATTTAATACAG CATCATCAAGCGTACGTTCCGCTGGAAAAAACTCATATTATTAATAC- CTGATAATTATGAAGCTCAGGG CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA- TAGAAATACACCGTACTGAACGAGAT GATACAGCGATTGCAAACCAGTTTTTTGGTGCAGCAGAAAAAGTTGTAG- GATTAACCTGAACGTGGTGTG CAATATTCGCACCACAACCTTGACAAACTTCTGCAGAAGTATCAGAAAAGTT- GGGAGTAAAATAGGAGGAAC CGCTGAAAATGTAGGTAATAATCTGGGAAAAGCCGGAACAG- TTCTCTCAGCACTACAGAATTTTACGGGG ATTGCTTTATCAGGCATGGCTCTTGATGAATTGCTGAGAAAACAACGG- GAAGGAGAGGATATAAGTCAGA ATGATATTGCCAAAAGTAGTATTGAACTTATTAATCAGCTTGTAGATA- CAGTATCAAGTATAAACAGTAC CGTTGATTCATTTTCTGAGCAGCTTAACCAGCTTGGCTCATTTTTATCCAG- TAAACCTCGATTAAGTTCT GTTGGTGGGAAATTACAAAATTTACCAGACCTGGGCCCCCTGGGG- GATGGGCTGGATGTTGTCTCCGGAA TTCTTTCTGCTGTATCAGCAAGCTTTATTCTGGGAAACAGTGACGCACATA- CAGGAACAAAAGCTGCAGC GGGTATCGAACTGACAACTCAGGTTCTTGAAATGTTGGTAAA- GCTGTTTCGCAATATATTCTGGCTCAG AGAATGGCACAGGGGTATCGACAACAGCTG- CAAGTGCGGGTCTGATCACATCGGCTGTTATGCTGGCTA TCAGTCCTCTTTCTTTCTGGCTGCTGCAGATAAATTTGAGCGAGCTAA- GCAGCTTGAATCATATTCTGA ACGATTTAAAAAATTGAATTATGAAGGGGATGCTTTACTCG- CAGCCTTTCATAAAGAAACCGGAGCTATA GATGCAGCCCTGACAACAATAAATACTGTCTGAGTTCTGTATCTGCGG- GAGTTAGTGCAGCCTCCAGTG CATCCCTCATAGGGGGCCCCGATAAGCATGCTGGTGAGTGCATTAACCGG- TACGATATCTGGCATTCTGGA AGCATCAAACAGGCTATGTTTGAGCACGTTGCAGA- GAAATTCGCTGCTCGGATCAATGAATGGGAAAAG GAGCATGGCAAAAATTATTTTGAGAATGGATATGACGCAAGA- CATGCTGCGTTTTTGAAGACTCTCTGT CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAAGAGCAGTCGCAA- TAACCCAGCAACATTGGGA TGAGAAGATCGGTGAACCTGCAGGCATAACCCGTAATGCTGATCGCAG- TCAGAGTGGTAAGGCATATATT AATTATCTGGAAAATGGAGGGCTTTTAGAGGCTCAACCGAAGGAG- TTTACACAACAAGTGTTTGATCCTC</p>

AAAAAGGGACCATAGACCTTTCAACAGGTAATGTATCAAGTGTTTT-
 GACATTTATAACACCAACATTTAC
 CCCAGGAGAAGAAGTTAGAGAAAAGAAAACAGAGTGGTAAA-
 TATGAATATATGACATCTCTTATTGTAAAT
 GGTAAGGATACATGGTCTGTAAAAGGCATAAAAAATCATAAAGGTG-
 TATATGATTATTCAAATTGATTC
 AGTTTGTTGAAAAGAATAACAAACTATCAGGCGAGAA-
 TAATTTCTGAGCTCGGAGATAAAGACGATGT
 GGTTTATTCTGGAGCAGGCTCATCAGAAGTATTTGCTGGTGAAGGTTATGA-
 TACCGTATCTTATAATAAG
 ACGGATGTTGGTAAACTAACAATTGATGCAACAGGAGCATCAAAAC-
 CTGGTGAGTATATAGTTTCAAAA
 ATATGTATGGTGACGTGAAGGTATTGCAGGAAGTCGTTAAGGAACAG-
 GAGGTGTCAGTAGGGAAGCGAAC
 AGAGAAAATACAATATCGTGATTTTGAATTCAGAACCGGTG-
 GAATTCCTTATGATGTAATAGATAATCTT
 CATTCTGTTGAAGAGCTCATTGGCG-
 GAAAACATGATGATGAATTCAAAGGCGGTAAGTTTAATGATATAT
 TCCATGGCGCAGATGGGAACGATTATATCGAAGGTAATTATGG-
 TAATGATCGACTATACGGCGATGATGG
 GGATGATTATATATCCGGAGGACAGGGAGACGACCAGTTATTTGGTGG-
 TAGTGGAACGATAAATTGAGT
 GGAGGGGATGGTAATAATTATCTGACAGGAGGAAGCGG-
 TAATGATGAGCTTCAGGCACACGGAGCTTATA
 ATATTCTGTCAGGTGGTACTGGTGATGATAAACTTTATGGTGGTGGTGG-
 TATTGATCTTCTGGATGGAGG
 GGAAGGTAATGACTATCTGAATGGTGGTTTTGGTAATGA-
 TATTTATGTTTATGGCCAAAATGATGTCAT
 CATAAATTGCAGATGAAGGAGGTAAGGAGATCGTTTGCACCTTATCTGA-
 TATTAGCTTTGATGATATCG
 CATTTAAGAGAGTTGGAAATGATCTTATCATGAATAAA-
 GCCATTAATGGTGTACTTTCATTTAATGAGTC
 AAATGATGTCAATGGGATAACATTTAAAAACTGGTTTGCGAAA-
 GATGCCTCAGGAGCAGATAATCATCTT
 GTTGAGGTTATAACAGATAAAGATGGTCGAGAGATAAAAGTTGATAAGA-
 TACCTCATAATAATAATGAAC
 GGTCAGGTTATATAAAAGCCAGTAA-
 TATAGCATCTGAAAAAACATGGTTAATATCACCAGTGTGGCCAA
 TGATATTAATAAGATTATTTCTTCAGTTTCAGGGTTTCGAT-
 TCAGGTGATGAACGATTAGCATCTTTATAT
 AATTTATCCTTACATCAAACAACACACTCAACAACCTTAAAC-
 GACAACGTCTGA
 ATGACAGTAAATAAAATAAAGAACATTTTCAATAATGCGACATTGAC-
 TACAAAATCAGCATTTAATACAG
 CATCATCAAGCGTACGTTCCGCTGGCAAAAACTCATATTATTAATAC-
 CTGATAATTATGAAGCTCAGGG
 CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA-
 TAGAAATACACCGTACTGAACGAGAT
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AP0109
 54.1
 (11368)

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Homo
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AP0109
 59.1
 (12009)

O103

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Homo
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AP0109
63.1
(11128)

O111

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Homo
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AY258
503.2
(EH41)

O113

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Homo
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CP0060
 28.1
 (RM13
 514)

O145

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Homo
 sapiens

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CP0091
07.1(94
-3024)

O104

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Homo
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 CAGTATCAAGTATAAACAGTAC
 CGTTGATTCATTTTCTGAGCAGCTTAACCAGCTTGGCTCATTTTTATCCAG-
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 CAGGAACAAAAGCTGCAGC
 GGGTATCGAACTGACAACCTCAGGTTCTTGAAATGTTGGTAAA-
 GCTGTTTCGCAATATATTCTGGCTCAG
 AGAATGGCACAGGGGTTATCGACAACAGCTG-
 CAAGTGCGGGTCTGATCACATCGGCTGTTATGCTGGCTA
 TCAGTCCCTTTCTTTCCTGGCTGCTGCAGATAAATTTGAGCGAGCTAA-
 GCAGCTTGAATCATATTCTGA
 ACGATTTAAAAAATTGAATTATGAAGGGGATGCTTTACTCG-
 CAGCCTTTCATAAAGAAACCGGAGCTATA
 GATGCAGCCCTGACAACAATAAATACTGTCTGAGTTCTGTATCTGCGG-
 GAGTTAGTGCAGCCTCCAGTG
 CATCCCTCATAGGGGCCCCGATAAGCATGCTGGTGAGTGATTAACCGG-
 TACGATATCTGGCATTCTGGA
 AGCATCAAACAGGCTATGTTTGAGCACGTTGCAGA-
 GAAATTCGCTGCTCGGATCAATGAATGGGAAAAG
 GAGCATGGCAAAAATTATTTGAGAATGGATATGACGCAAGA-
 CATGCTGCGTTTTTGAAGACTCTCTGT
 CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAGAGCAGTCGAA-
 TAACCCAGCAACATTGGGA
 TGAGAAGATCGGTGAACTTGCAGGCATAACCCGTAATGCTGATCGCAG-
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 AATTATCTGGAAAATGGAGGGCTTTTAGAGGCTCAACCGAAGGAG-
 TTTACACAACAAGTGTGATCCTC
 AAAAAGGGACCATAGACCTTTCAACAGGTAATGTATCAAGTGTTTT-
 GACATTTATAACACCAACATTTAC

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O157

B

Cattle

CCCAGGAGAAGAAGTTAGAGAAAGAAAACAGAGTGGTAAA-
 TATGAATATATGACATCTCTTATTGTAAAT
 GGTAAGGATACATGGTCTGTAAAAGGCATAAAAAATCATAAAGGTG-
 TATATGATTATTCAAATTGATTC
 AGTTTGTGAAAAGAATAACAAACTATCAGGCGAGAA-
 TAATTTCTGAGCTCGGAGATAAAGACGATGT
 GGTTTATTCTGGAGCAGGCTCATCAGAAGTATTTGCTGGTGAAGGTTATGA-
 TACCGTATCTTATAATAAG
 ACGGATGTTGGTAAACTAACAATTGATGCAACAGGAGCATCAAAAC-
 CTGGTGAGTATATAGTTTCAAAAA
 ATATGTATGGTGACGTGAAGGTATTGCAGGAAGTCGTTAAGGAACAG-
 GAGGTGTCAGTAGGGAAGCGAAC
 AGAGAAAATACAATATCGTGATTTTGAATTCAGAACCGGTG-
 GAATTCCTTATGATGTAATAGATAATCTT
 CATTCTGTTGAAGAGCTCATTGGCG-
 GAAAACATGATGATGAATCAAAGCGGTAAGTTTAATGATATAT
 TCCATGGCGCAGATGGGAACGATTATATCGAAGGTAATTATGG-
 TAATGATCGACTATACGGCGATGATGG
 GGATGATTATATATCCGGAGGACAGGGAGACGACCAGTTATTTGGTGG-
 TAGTGAAACGATAAATTGAGT
 GGAGGGGATGGTAATAATTATCTGACAGGAGGAAGCGG-
 TAATGATGAGCTTCAGGCACACGGAGCTTATA
 ATATTCTGTCAGGTGGTACTGGTGATGATAAACTTTATGGTGGTGGTGG-
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 TATTTATGTTTATGGGCAAACTATGGTCAT
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 TATTAGCTTTGATGATATCG
 CATTTAAGAGAGTTGGAAATGATCTTATCATGAATAAAA-
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 AAATGATGTCAATGGGATAACATTTAAAACTGGTTTGGCAAAA-
 GATGCCTCAGGAGCAGATAATCATCTT
 GTTGAGGTTATAACAGATAAAGATGGTCGAGAGATAAAAGTTGATAAGA-
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 GGTCAGGTTATATAAAAAGCCAGTAA-
 TATAGCATCTGAAAAAACATGGTTAATATCACCAGTGTTACCAA
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 TCAGGTGATGAACGATTAGCATCTTTATAT
 AATTTATCCTTACATCAAAACAACACACTCAACAACCTTTAAC-
 GACAACTGCTGA
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 TACAAAATCAGCATTTAATACAG
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 CTGATAATTATGAAGCTCAGGG
 CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA-
 TAGAAATACACCGTACTGAACGAGAT
 GATACAGCGATTGCAAACCAGTTTTTTGGTGCAGCAGAAAAAGTTGTAG-
 GATTAECTGAACGTGGTGTG
 CAATATTCGCACCACAACCTTGACAACTTCTGCAGAAGTATCAGAAAGTT-
 GGGAGTAAAATAGGAGGAAC

EF2049
 19.1
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 47)

O90

C

Cattle
 and
 sheep

CGCTGAAAATGTAGGTAATAATCTGGGAAAAGCCGGAACAG-
TTCTCTCAGCACTACAGAATTTTACGGGG
ATTGCTTTATCAGGCATGGCTCTTGATGAATTGCTGAGAAAACAACGG-
GAAGGAGAGGATATAAGTCAGA
ATGATATTGCCAAAAGTAGTATTGAACTTATTAATCAGCTTGTAGATA-
CAGTATCAAGTATAAACAGTAC
CGTTGATTCATTTTCTGAGCAGCTTAACCAGCTTGGCTCATTTTTATCCAG-
TAAACCTCGCTTAAGTTCT
GTTGGTGGGAAATTACAAAATTTACCAGACCTGGGCTCCCTGGGG-
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TTCTTTCTGCTGTATCAGCAAGCTTTATTCTGGGAAACAGTGACGCACATA-
CAGGAACAAAAGCTGCAGC
GGGTATCGAACTGACAACTCAGGTTCTTGAAATGTTGGTAAA-
GCTGTTTCGCAATATATTCTGGCTCAG
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CAAGTGCGGGTCTGATCACATCGGCTGTTATGCTGGCTA
TCAGTCCTCTTTCTTTCTGGCTGCTGCAGATAAATTTGAGCGAGCTAA-
GCAGCTTGAATCATATTCTGA
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CAGCCTTTCATAAAGAAACCGGAGCTATA
GATGCAGCCCTGACAACAATAAATACTGTCCTGAGTTCTGTATCTGCGG-
GAGTTAGTGCAGCCTCCAGTG
CATCCCTCATAGGGGCCCCCGATAAGCATGCTGGTGAGTGCATTAACCGG-
TACGATATCTGGCATTCTGGA
AGCATCAAAACAGGCTATGTTTGAGCACGTTGCAGA-
GAAATTCGCTGCTCGGATCAATGAATGGGAAAAG
GAGCATGGCAAAAATTATTTTGAGAATGGCTATGACGCAAGA-
CATGCTGCGTTTTTGAAGACTCTCTGT
CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAGAGCAGTCGCAA-
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TGAGAAGATCGGTGAACCTGCAGGCATAACCCGTAATGCTGATCGCAG-
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AATTATCTGGAAAATGGAGGGCTTTTAGAGGCTCAACCGAAGGAG-
TTTACACAACAAGTGTGATCCTC
AAAAAGGGACCATAGACCTTTCAACAGGTAATGTATCAAGTGTTTT-
GACATTTATAACACCAACATTTAC
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TATATGATTATTCAAATGATTG
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GGTTTATTCTGGAGCAGGCTCATCAGAAGTATTT-
GCTGGTGAAGGTCATGATACCGTATCTTATAATAAG
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GAGGTGTCAGTAGGGAAGCGAAC
AGAGAAAATACAATATCGTGATTTTGAATTCAGAACCGGTG-
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CATTCTGTTGAAGAGCTCATTGGCG-
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 TAATGATCGACTATACGGCGATGATGG
 GGATGATTATATATCCGGAGGACAGGGAGACGACCAGTTATTTGGTGG-
 TAGTGGAACGATAAATTGAGT
 GGAGGGGATGGTAATAATTATCTGACAGGAGGAAGCGG-
 TAATGATGAGCTTCAGGCACACGGAGCTTATA
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 TATTAGCTTTGATGATATCG
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 GTTGAGGTTATAACAGATAAAGATGGTCGAGAGATAAAAAGTTGATAAGA-
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 GGTCAGGTTATATAAAAAGCCAGTAA-
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 TCAGGTGATGAACGATTAGCATCTTTATAT
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 GACAACGTCTGA
 ATGACAGTAAATAAAAATAAAGAACATTTTCAATAATGCGACATTGAC-
 TACAAAATCAGCATTTAATACAG
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 CTGATAATTATGAAGCTCAGGG
 CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA-
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 GATACAGCGATTGCAAACCAGTTTTTTGGTGCAGCAGAAAAAGTTGTAG-
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 GGGAGTAAAATAGGAAGAAC
 CGCTGAAAATGTAGGTAATAATCTGGGAAAAGCCGGAACAG-
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 ATTGCTTTATCAGGCATGGCTCTTGATGAATTGCTGAGAAAACAACGG-
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 CAGTATCAAGTATAAACAGTAC
 CGTTGATTCATTTTCTGAGCAGCTTAACCAGCTTGGCTCATTTTTATCCAG-
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 GTTGGTGGGAAATTACAAAATTTACCAGACCTGGGCTCCCTGGGG-
 GATGGGCTGGATGTTGTCTCCGGAA
 TTCTTTCTGCTGTATCAGCAAGCTTTATTCTGGGAAACAGTGACGCACATA-
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 GGGTATCGAACTGACAACCTCAGGTTCTTGGAAATGTTGGTAAA-
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EF2049
 20.1
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C

Cattle
 and
 sheep

AGAATGGCACAGGGGTTATCGACAACAGCTG-
CAAGTGCGGGTCTGATCACATCGGCTGTTATGCTGGCTA
TCAGTCCTCTTTCTTTCTGGCTGCTGCAGATAAATTTGAGCGAGCTAA-
GCAGCTTGAATCATATTCTGA
ACGATTTAAAAAATTGAATTATGAAGGGGATGCTTTACTCG-
CAGCCTTTCATAAAGAAACCGGAGCTATA
GATGCAGCCCTGACAACAATAAATACTGTCTGAGTTCTGTATCTGCGG-
GAGTTAGTGCAGCCTCCAGTG
CATCCCTCATAGGGGCCCGATAAGCATGCTGGTGAAGTGCATTAACCGG-
TACGATATCTGGCATTCTGGA
AGCATCAAAACAGGCTATGTTTGAGCACGTTGCAGA-
GAAATTCGCTGCTCGGATCAATGAATGGGAAAAG
GAGCATGGCAAAAATTATTTTGAGAATGGCTATGACGCAAGA-
CATGCTGCGTTTTTAGAAGACTCTCTGT
CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAGAGCAGTCGCAA-
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AATTATCTGGAAAATGGAGGGCTTTTAGAGGCTCAACCGAAGGAG-
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GACATTTATAACACCAACATTTAC
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GGTAAGGATACATGGTCTGTAAAAGGCATAAAAAATCATAAAGGTG-
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TTCTGAACTCGGAGATAAAGACGATGT
GGTTTATTCTGGAGCAGGCTCATCAGAAGTATTT-
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AGAGAAAATACAATATCGTGATTTTGAATTCAGAACCGGTG-
GAATTCCTTATGATGTAATAGATAATCTT
CATTCTGTTGAAGAGCTCATTGGCG-
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 AGAATGGCACAGGGGTTATCGACAACAGCTG-
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 TCAGTCCTCTTTCTTTCCTGGCTGCTGCAGATAAATTTGAGCGAGCTAA-
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 ACGATTTAAAAAATTGAATTATGAAGGGGATGCTTTACTCG-
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 GATGCAGCCCTGACAACAATAAATACTGTCTGAGTTCTGTATCTGCGG-
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 CATCCCTCATAGGGGCCCGATAAGCATGCTGGTGAGTGCATTAACCGG-
 TACGATATCTGGCATTCTGGA
 AGCATCAAACAGGCTATGTTTGAGCACGTTGCAGA-
 GAAATTCGCTGCTCGGATCAATGAATGGGAAAAG
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 CATGCTGCGTTTTTAGAAGACTCTCTGT

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F

Cattle
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 sheep

CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAGAGCAGTCGCAA-
 TAACCCAGCAACATTGGGA
 TGAGAAGATCGGTGAACCTGCAGGCATAACCCGTAATGCTGATCGCAG-
 TCAGAGTGGTAAGGCATATATT
 AATTATCTGGAAAATGGAGGGCTTTTAGAGGCTCAACCGAAGGAG-
 TTTACACAACAAGTGTGATCCTC
 AAAAAGGGACCATAGACCTTTCAACAGGTAATGTATCAAGTGTGTTT-
 GACATTTATAACACCAACATTTAC
 CCCAGGAGAAGAAGTTAGAGAAAAGAAAACAGAGTGGTAAA-
 TATGAATATATGACATCTCTTATTGTAAAT
 GGTAAGGATACATGGTCTGTAAAAGGCATAAAAAATCATAAAGGTG-
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 TAATTTCTGAGCTCGGAGATAAAGACGATGT
 GGTGTTATTCTGGAGCAGGCTCATCAGAAGTATTT-
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 ACGGATGTTGGTAAACTAACAATTGATGCAACAGGAGCATCAAAAC-
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 ATATGTATGGTGACGTGAAGGTATTGCAGGAAGTCGTTAAGGAACAG-
 GAGGTGTCAGTAGGGAAGCGAAC
 AGAGAAAATACAATATCGTGATTTTGAATTCAGAACCGGTG-
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 CATTCTGTTGAAGAGCTCATTGGCG-
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 CATTTAAGAGAGTTGGAAATGATCTTATCATGAATAAA-
 GCCATTAATGGTGTACTTTCATTTAATGAGTC
 AAATGATGTCAATGGGATAACATTTAAAAACTGGTTTGCGAAA-
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 GTTGAGGTTATAACAGATAAAGATGGTCGAGAGATAAAAGTTGATAAAA-
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 GGTCAGGTTATATAAAAAGCCAGTAA-
 TATAGCATCTGAAAAAACATGGTTAATATCACCAGTGTGCCAA
 TGATATTAATAAGATTATTTCTTCAGTTTCAGGATTCGAT-
 TCAGGTGATGAACGATTAGCATCTTTATAT
 AATTTATCCTTACATCAAAACAACACACTCAACAACCTTTAAC-
 GACAACCTGCTGA
 ATGACAGTAAATAAAATAAAGAACATTTTCAACAATGCGACATCGAC-
 TACAAAATCAGCATTTAATACAG

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O98

A

Cattle
and
sheep

(AGR1
51)

CATCATCAAGCGTACGTTCCGCTGGAAAAAACTCATATTATTAATAC-
CTGATAATTATGAAGCTCAGGG
CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA-
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GATACAGCGATTGCAAACCAGTTTTTTGGTACAGCAGAAAAAGTTGTAG-
GATTAECTGAACGTGGTGTG
CAATATTCGCACCACAACCTTGACAACTTCTGCAGAAGTATCAGAAAAGTT-
GGGAGTAAAATAGGAGGAAC
CGCTGAAAATGTAGGTAATAATCTGGGAAAAGCCGGAACAG-
TTCTCTCAGCACTACAGAATTTTACGGGG
ATTGCTTTATCAGGCATGGCTCTTGATGAATTGCTGAGAAAACAACGG-
GAAGGAGAGGATATAAGTCAGA
ATGATATTGCCAAAAGTAGTATTGAACTTATTAATCAGCTTGTAGATA-
CAGTATCAAGTATAAACAGTAC
CGTTGATTCATTTTCTGAGCAGCTTAACCAGCTTGGCTCATTTTTATCCAG-
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GTTGGTGGAAAATTACAAAATTTACCAGACCTGGGCCCTGGGG-
GATGGGCTGGATGTTGTCTCCGGAA
TTCTTTCTGCTGTATCAGCAAGTTTTATTCTGGGAAACAGTGACGCACATA-
CAGGAACAAAAGCTGCAGC
GGGTATCGAACTGACAACCTCAGGTTCTTGAAATGTTGGTAAA-
GCTGTTTCGCAATATATTCTGGCTCAG
AGAATGGCACAGGGATTATCGACAACAGCTG-
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CAGCCTTTCATAAAGAAAGCGGAGCTATA
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GAGTTAGTGCAGCCTCCAGTG
CATCCCTCATAGGGGCCCCCGATAAGCATGCTGGTGAGTGCATTAACCGG-
TACGATATCTGGCATTCTGGA
TGCATCAAAACAGGCTATGTTTGAGCACGTTGCAGA-
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CTTTGCTTGCTGATTTTTCTCGTCAGCATGCAGTAGAAAGAGCTGTCCGAA-
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 GAGGTGTCAGTAGGGAAGAGAAC
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 TCCATGGTGCAGATGGGAACGATTATATCGAAGGTAATTATGG-
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 TATTAGCTTTGATGATATCG
 CATTAAAGAAAGTTGGAAATGATCTTATCATGAATAAA-
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 AGTCAGGTTATATAAAAACCCAGTAA-
 TATAGCATCTGAAAAAACAATGGTTAATATCACCAGTGTGGCCAA
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 TCAGGTGATGAACGATTAGCATCTTTATAT
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 GACAACGTCTGA
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 TACAAAATCAGCATTTAATACAG
 CATCATCAAGCGTACGTTCCGCTGGAAAAAACTCATATTATTAATAC-
 CTGATAATTATGAAGCTCAGGG
 CGTGGGTATTAATGAGTTGGTCAAAGCTGCTGATGAGCTTGGAA-
 TAGAAATACACCGTACTGAACGAGAT
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 GATTAACCTGAACGTGGTGTGG
 CAATATTCGCACCACAACCTTGACAACTTCTGCAGAAGTATCAGAAAGTT-
 GGGAGTAAAATAGGAGGAAC
 CGCTGAAAATGTAGGTAATAATCTGGGAAAAGCCGGAACAGTTCTCTCAC-
 CACTACAGAATTTTACGGGG
 ATTGCTTTATCAGGCATGGCTCTTGATGAATTGCTGAGAAAACAACGG-
 GAAGGAGAGGATATAAGTCAGA
 ATGATATTGCCAAAAGTAGTATTGAACTTATTAATCAACTTGTAGATA-
 CAGTATCAAGTATAAACAGTAC

EF2049
 23.1
 (AGR1
 58)

O101

E

Cattle
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Cattle
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