Supplementary Material

Occurrence, Antimicrobial Resistance, and Molecular Characterisation of *Campylobacter* Spp. in Intensive Pig Production in South Africa

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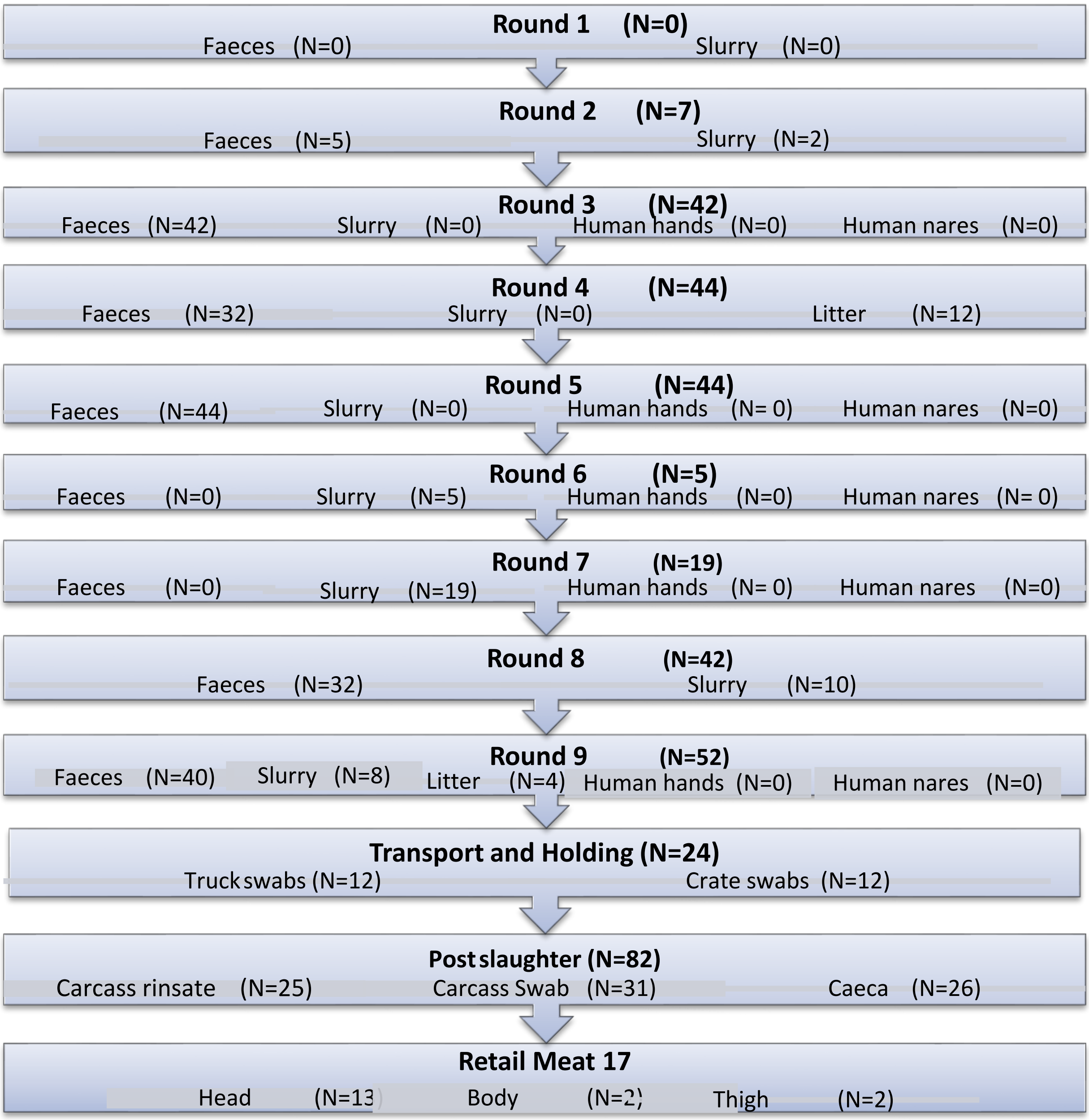

Figure S1: Sampling framework. “N” denotes the number of confirmed *Campylobacter spp.* at each sampling point and source.

Table S1: Primers used for confirmation of *Campylobacter* to genus and species level.

Target gene	**Primer Sequence (5’ – 3’)**	**Product Size (bp)**	**Annealing Temperature (℃)**	**References**
Asp	F-GGTATGATTTCTACAAAGCGAG R-ATAAAAGACTATCGTCGCGTG	500	60	[4]
hipO	F-GAAGAGGGTTTGGGTGGTG R-AGCTAGCTTCGCATAATAACTTG	735	66	[4]
16S rRNA	F-GGATGACACTTTTCGGAGC R-CATTGTAGCACGTGTGTC	816	58	[4]

Table S2: Primers used for the detection of antibiotic resistance genes.

Target gene	Primer Sequence (5’ – 3’)	Product Size (bp)	Annealing Temperature(℃)	References
23S rRNA at position 2074	F-TTAGCTAATGTTGCCCGTACCG R-AGTAAAGGTCCACGGGGTCTCG	485	59	[29]
23S rRNA at position 2075	F-TTAGCTAATGTTGCCCGTACCG R-TAGTAAAGGTCCACGGGGTCGC	486	59	[29]
gyrA (C. coli)	F-GAAGAATTTTATATGCTATG R-TCAGTATAAC GCATCGCAGC	235	53	[4]
gyrA (C. jejeuni)	F-ACGCAAGAGAGATGGTT R-TCAGTATAACGCATCGCAGC	270	45	[4]
cmeB	F-GACGTAATGAAGGAGAGCCA R-CTGATCCACTCCAGCTATG	1166	50	[29]
tet(O)	F-GGCGTTTTGTTTATGTGCG R-ATGGACAACCCGACAGAAGC	559	49	[4]
blaOXA$_{-61}$	F-AGAGTATAATACAAGCG R-TAGTGAGTTGTCAAGCC	372	54	[4]

Table S3: Primers used for the detection of virulence genes.

Target gene	**Primer Sequence (5’ – 3’)**	**Product Size (bp)**	**Annealing Temperature (°C)**	**References**
cadF	F-TTGAAGGTAATTTAGATATG R-CTAATACCTAAAGTTGAAAC	400	43	[30]
ciaB	F-TGCGAGATTTTTCGAGAATG R-TGCCCGCCTTAGAACTTACA	527	54	
dnaJ	F-ATTGATTTTGCTGCGGGTAG R-ATCCGCAAAAGCTTCAAAAA	177	50	
pldA	F-AAGAGTGAGGCGAAATTCCA R-GCAAGATGGCAGGATTATCA	385	46	
cdtA	F-CCTTGTGATGCAAGCAATC R-ACACTCCATTTGCTTTCTG	370	49	
cdtB	F-GTTAAAATCCCCTGCTATCAACCA R-GTTGGCACTTGGAATTTGCAAGGC	495	51	
cdtC	F-CGATGAGTTAAAACAAAAAGATA R-TTGGCATTATAGAAAATACAGTT	182	48	

Table S4: Antibiotic resistance (%) of *C. coli* (*n* = 277) across the farm-to-fork continuum.

	Farm			**Transport**	**Abattoir**			**Retail**
Antibiotic Panel	**Faeces**	**Litter**	**Slurry**	**Truck/ Crates**	**Carcass Swab**	**Carcass Rinsate**	**Caecal**	**Retail Meat**
Ampicillin	34%	2%	4%	5%	8%	8%	7%	1%
Nalidixic acid	13%	1%	6%	0%	3%	4%	0%	0%
Ciprofloxacin	26%	3%	8%	2%	3%	4%	5%	3%
Erythromycin	46%	5%	6%	6%	8%	8%	7%	4%
Tetracycline	45%	6%	10%	6%	1%	3%	7%	3%
Gentamycin	10%	0%	2%	0%	0%	0%	0%	0%
Streptomycin	40%	4%	9%	6%	8%	8%	7%	4%

Table S5: Antibiotic resistance (%) of *C. jejuni* (n = 67) across the farm-to-fork continuum.

	Farm			**Transport**	**Abattoir**			**Retail**
Antibiotic Panel	**Faeces**	**Litter**	**Slurry**	**Truck/ Crates**	**Carcass Swab**	**Carcass Rinsate**	**Caecal**	**Retail Meat**
Ampicillin	57%	0%	13%	6%	0%	2%	3%	3%
Nalidixic acid	16%	0%	8%	0%	2%	2%	0%	0%
Ciprofloxacin	43%	0%	13%	0%	2%	3%	2%	5%
Erythromycin	67%	0%	13%	6%	2%	3%	3%	5%
Tetracycline	67%	0%	13%	6%	2%	2%	3%	3%
Gentamycin	8%	0%	3%	0%	2%	0%	0%	0%
Streptomycin	63%	0%	13%	6%	2%	2%	3%	5%

Table S6: Prevalence (%) of virulence genes detected in *C. coli* (*n* = 277) across the farm-to-fork continuum

Virulence genes	**Farm**			**Transport**	**Abattoir**			**Retail**
	Faeces	**Litter**	**Slurry**	**Truck and Crates**	**Carcass Swab**	**Carcass Rinsate**	**Ceacal**	**Retail Meat**
cadF	2%	0%	3%	0%	1%	1%	0%	0%
dnaJ	26%	6%	8%	3%	7%	8%	1%	4%
ciaB	23%	2%	6%	3%	7%	4%	4%	2%
pldA	11%	3%	1%	0%	0%	0%	0%	1%
cdtA	32%	6%	7%	3%	7%	6%	3%	1%
cdtB	17%	1%	0%	1%	1%	1%	1%	1%
cdtC	21%	2%	5%	5%	8%	5%	5%	2%

Table S7: Prevalence (%) of virulence genes detected in *C. jejuni* (n = 67) across the farm-to-fork continuum.

Virulence genes	**Farm**			**Transport**	**Abattoir**			**Retail**
	Faeces	**Litter**	**Slurry**	**Transport Crates**	**Carcass Swab**	**Carcass Rinsate**	**Ceacal**	**Retail Meat**
cadF	0%	0%	0%	0%	1%	0%	0%	0%
dnaJ	51%	0%	7%	1%	1%	0%	0%	3%
ciaB	37%	0%	6%	3%	1%	1%	1%	0%
pldA	22%	0%	4%	0%	0%	0%	0%	0%
cdtA	58%	0%	13%	3%	1%	1%	3%	0%
cdtB	7%	0%	1%	0%	1%	0%	0%	1%
cdtC	27%	0%	7%	3%	1%	1%	3%	3%