Risk of campylobacteriosis from low-throughput poultry slaughterhouses: Appendix

7.1 Sampling methods

Sampling results are provided in Annex I.

7.1.1 FSA survey

In order to answer the risk question, a survey of *Campylobacter* spp. in low-throughput poultry slaughterhouses that had not provided sampling results was set up. Sampling from the low-throughput slaughterhouses followed the Process Hygiene Criteria so as to match the sampling in high-throughput slaughterhouses. Sampling occurred weekly and was contracted out by FSA to Official Veterinarians and Campden BRI.

The samples were taken from the neck skin by the Official Veterinarian at the slaughterhouse after chilling of carcases. The samples were collected weekly for 10 weeks over September 2021 to December 2021 from 11 slaughterhouses.

15 neck skin samples were pooled into 5 x 26g samples for *Campylobacter* testing. Two plants did not provide neck skin samples – V and W – due to the type of processing employed, namely, skinning in feather. The carcases were swabbed instead. 5 ceca samples were also collected weekly from all plants. Plant S only provided caeca samples. The samples were sent to Campden BRI for testing. In brief:

Neck skins from a minimum of 15 poultry carcases were sampled at random after chilling during each sampling session. Before examination, the neck skin samples from at least three poultry carcases from the same flock of origin were pooled into one sample of 26 g.

Skinned in feather – not enough neck skin to sample, so swabbed instead

The samples were transported to the laboratory at a temperature not lower than 1 °C and not higher than 8 °C. The time between the sampling and testing for *Campylobacter* was less than 48 hours, in order to maintain sample integrity.

As laid out in the PHC, the 26 g test portion was transferred to nine volumes (234 ml) buffered peptone water at room temperature. The mixture was then treated in a stomacher or pulsifier for approximately one minute. Foaming was avoided by removing the air from the stomacher bag as much as possible. 10 ml (~ 1 g) of this initial suspension was then transferred to an empty sterile tube and 1 ml of the 10 ml was used for the enumeration of *Campylobacter* on selective plates.

Participating plants: B, H, J, M, N, O, P, Q, R, S, V, W, AF

7.1.2 FBO survey

FBOs are responsible for weekly testing and these need to follow the Process Hygiene Criteria. Results are reported to the FSA as:

- 100CFU/g or below
- above 1000CFU/g
- above 100CFU/g to 1000CFU/g
- 1000CFU/g or below

Full enumeration levels are not provided.

7.2 Slaughterhouse throughput

Table 10: Slaughterhouse throughput, 2021.* plants for which no samples are available.

Slaughterhouse Number	Throughput
A*	140
B	14,810
C*	16,965
D*	19,414
E*	32,250
F*	53,920
G*	62,208
H	96,711
I*	104,065
J	114,903
K*	138,623
L*	147,310
M	149,828

Slaughterhouse Number	Throughput
N	169,652
O*	171,706
P*	213,330
Q	279,009
R	344,612
S	425,870
T*	477,900
U*	605,855
V	774,193
W	823,903
X*	826,289
Y	842,440
Z	919,112
AA	1,068,026
AB	1,659,473
AC	1,660,729
AD*	1,692,356
AE	1,725,677

Slaughterhouse Number	Throughput
AF	2,739,544
AG*	3,962,084
AH	6,006,776
AI*	6,045,432
AJ*	6,082,674
AK	6,207,361
AL	6,955,742
AM*	9,626,354
AN*	14,992,071
AO	16,531,082
AP	16,905,125
AQ	17,228,093
AR	17,772,740
AS	18,616,112
AT	21,337,212
AU	26,596,402
AV	31,008,386
AW	33,898,273

Slaughterhouse Number	Throughput
AX	37,793,556
AY	40,784,759
AZ	47,479,148
BA	47,742,107
BB	50,303,391
BC	50,780,751
BD	65,690,264
BE	93,045,048
BF	94,389,252
BG	103,360,123
BH	109,275,875

7.3 Estimate of contaminated poultry on market

Table 11: Estimate of highly contaminated poultry per year from high-throughput slaughterhouses, based on multiplying throughput data with the observed prevalence of high *Campylobacter* levels.

Slaughterhouse approval number	Proportion samples exceeding 1,000CFU/g	Throughput per year	Estimated highly contaminated poultry per year
AZ	0	47,479,148	0
BD	0.02857143	65,690,264	1,876,865

Slaughterhouse approval number	Proportion samples exceeding 1,000CFU/g	Throughput per year	Estimated highly contaminatedpoultry per year
AT	0.03076923	21,337,212	656,530
AP	0.08	16,905,125	1,352,410
AQ	0.11235955	17,288,093	1,942,482
BF	0.17777778	94,389,252	16,780,312
AS	0.18181818	18,616,112	3,384,748
BC	0.18888889	50,780,751	9,591,920
AU	0.20689655	26,596,402	5,502,704
BA	0.21111111	47,742,107	10,078,889
AO	0.21538462	16,531,082	3,560,541
BE	0.22352941	93,045,048	20,798,305
BH	0.25690608	109,275,875	28,073,637
AX	0.26086957	37,793,556	9,859,189
AV	0.32	31,008,386	9,922,684
BB	0.46268657	50,303,391	23,274,703
AW	0.63291139	33,898,273	21,454,603
Total	-	778,680,077	168,100,520

Table 12: Estimate of highly contaminated poultry per year from low-throughput slaughterhouses, based on multiplying throughput data with the observed prevalence of high *Campylobacter* levels.

Slaughterhouse approval number	Proportion samples exceeding 1000CFU/g	Throughput per year	Estimated highly contaminated poultry per year
AK	0.625	6,207,361	3,879,601
AL	0.4285	6,955,742	2,980,535
B	0.42	14,810	6,220
J	0.4035	114,903	46,363
Q	0.34	279,009	94,863
H	0.3279	96,711	31,712
V	0.3	774,193	232,258
Y	0.25	842,440	210,610
AH	0.2308	6,006,776	1,386,364
N	0.2	169,652	33,930
W	0.18	823,903	148,303
R	0.14	344,612	48,246
M	0.12	149,828	17,979
AF	0.1	2,739,544	273,954
AC	0	1,660,729	-
AA	0	1,068,026	-
S	0	425,870	-
Total	-	28,674,109	9,390,938