Supplementary data: Tables S1, S2 and S3 and Figures S1 and S2

Supplementary data S1. The strategy used for samples from classes of retail outlets in Mpumalanga province

Classification of Supermarket[s1]	No. of Cashiers	Maximum No. of samples to collect/outlet	Number of samples collected:														
			Brisket/Raw beef				Boerewors/Minced		Cold meat			Biltong		Beef	Beef	Total No. of :	
			Beef steak	Liver	Tripe	Chunk	Sausages	Meat	Beef Polony	Russian Polony	Vienna	Moist	Dry	Patties	Burgers	Outlets	Samples
Chain	> 1 outlet	12	12	12	12	12	12	12	13	13	13	12	12	12	13	12	160
Large	6 or more	8—10	10	10	10	10	10	10	10	10	10	9	9	10	10	10	128
Medium	3—5	4—6	6	7	6	6	6	6	7	6	6	6	6	6	6	6	80
Small	1—2	1—2	2	3	3	2	3	3	3	2	2	2	2	2	3	2	32

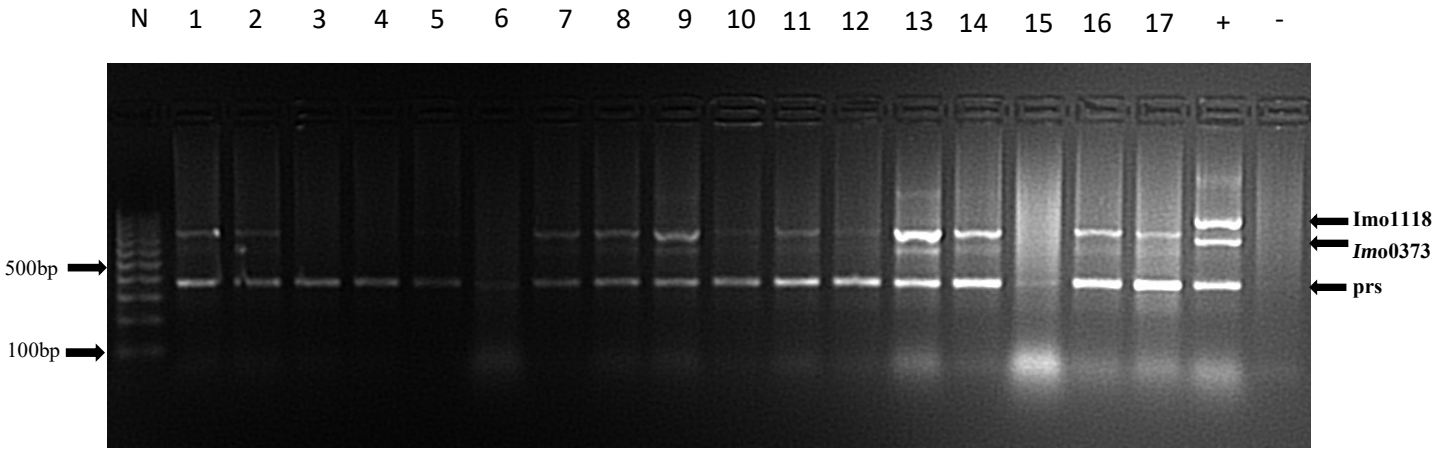
[1]Chain: Over 1 outlet; Large: 6 or more outlets; Medium: 3-5 outlets; and Small: 1-2 outlets

Supplementary data, Table S2. Primers used for mPCR serogrouping in this study (Doumith *et al.*, 2004)

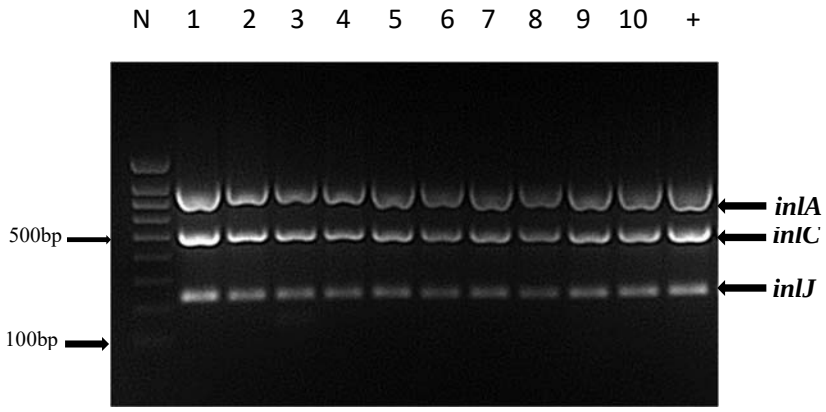
Assay	Primer	Primer sequence (5'→3')	Product sizes (bp)
mPCR1	*orf2110*	*orf2110*-F: AGTGGACAATTGATTGGTGAA	597
		orf2110-R: CATCCATCCCTTACTTTGGAC	
mPCR1	*orf2819*	*orf2819*-F: AGCAAAATGCCAAAACTCGT	471
		orf2819-R: CATCACTAAAGCCTCCCATTG	
mPCR1	*Imo*1118	*lmo1118*-F: AGGGGTCTTAAATCCTGGAA	906
		Imo1118-R: CGGCTTGTTCGGCATACTTA	
mPCR1	*Imo*0737	*lmo0737*-F: AGGGCTTCAAGGACTTACCC	691
		lmo0737-R: ACGATTTCTGCTTGCCATTC	
mPCR1	*Prs*	*prs*- F: GCTGAAGAGATTGCGAAAGAAG	370
		prs-R: CAAAGAAACCTTGGATTTGCGG;	

Supplementary data, Table S3. Primers used for mPCR virulence profiling in this study (Rawool et al., 2017)

Assay	Primer	Primer sequence (5'→3')	Product sizes (bp)
mPCR1	*inlB*	*inlB*-F: GATATTGTGCCACTTTCAGGTT	376
		inlB-R: CCTCTTTCAGTGGTTGGGTT	
mPCR1	*plcA*	*plcA*-F: CTGCTTGAGCGTTCATGTCTCATCCC	1484
		plcA-R: ATGGGTTTCACTCTCCTTCTAC	
mPCR1	*hlyA*	*hly*-F: GTTAATGAACCTACAAGACCTTCC	457
		hly-R: ACCGTTCTCCACCATTCCCA	
mPCR1	*actA*	*actA*-F: TCGCCGCGGAAATTAAAAAAAGA	839
		actA-R: ACGAAGGAACCGGGCTGCTAG	
mPCR1	*Iap*	*iap*-F: ACAAGCTGCACCTGTTGCAG	131
		iap-R: TGACAGCGTGTGTAGTAGCA	
mPCR2	*inlA*	*inlA*-F: ACGAGTAACGGGACAAATGC	800
		inlA-R: CCCGACAGTGGTGCTAGATT	
mPCR2	*inlC*	*inlC*-F: AATTCCCACAGGACACAACC	517
		inlC-R: CGGGAATGCAATTTTTCACTA	
mPCR2	*inlJ*	*inlJ-F*: TGTAACCCCGCTTACACACAGTT	238
		inlJ-R: AGCGGCTTGGCAGTCTAATA	



Supplementary data Figure S1: Serogrouping of *L. monocytogenes* isolates using an mPCR assay. Primers for *prs*, *imo0373*, and *imo1118* genes were used. PCR amplicons were resolved and visualized on a 3% agarose gel. **Lane N**:100bp DNA ladder, **Lanes 1-2, 5, 7-14, 16-17**: *L. monocytogenes* serotypes, **Lanes 3,4,6,15**: Untypable isolates, + (positive control, ATCC 19111), and – (Negative control).



Supplementary data, Figure S2: Detection of virulence genes in *L. monocytogenes* isolates using the mPCR assay. Primers for *inlA, inlC* and *inlJ* were used. PCR amplicons were resolved and visualized on a 3% agarose gel**. Lane N:** 100bp DNA ladder**, Lanes 1-12:** *L. monocytogenes* isolates, + (positive control, *L. monocytogenes* ATCC 19111 was used) and 100bp molecular marker was used.

Supplementary data, Table S4 Prevalence of *L. monocytogenes* and other *Listeria* species in beef and beef-based products

Type of sample (n=20)	No. of samples tested (n=400)	No. (%) positive for:		*p-value*
		L. monocytogenes	***Listeria* spp.[1]**	
Beef brisket	24	2 (8.3)	10 (41.7)	0.008
Beef burger	16	2 (12.5)	2 (12.5)	1
Beef chuck	16	3 (18.8)	5 (31.3)	0.414
Beef heart	4	0 (0.0)	2 (50.0)	0.429
Beef kidney	6	2 (33.3)	2 (33.3)	1
Beef tongue	3	1 (33.3)	0 (0.0)	1
Beef liver	31	1 (3.2)	10 (32.3)	0.003
Beef lungs	8	0 (0.0)	3 (37.5)	0.2
Minced beef	45	3 (6.7)	16 (35.6)	0.001
Beef short rib	11	1 (9.1)	6 (54.6)	0.022
Beef spleen	3	0 (0.0)	1 (33.3)	1
Beef steak	22	0 (0.0)	0 (0.0)	NA
Beef stew pieces	31	2 (6.5)	9 (29.0)	0.002
Beef stir-fry	5	0 (0.0)	0 (0.0)	1
Beef tripe	26	2 (7.7)	11 (42.3)	0.004
'Biltong'	31	3 (9.7)	6 (19.4)	0.279
Boerewors	45	3 (6.7)	17 (37.8)	<0.001
'Polony'	29	2 (6.9)	10 (34.5)	0.01
'Russian'	18	2 (11.1)	3 (16.7)	0.63
Vienna	26	4 (15.4)	7 (26.9)	0.308
p-value		<0.0001	< 0.0001	