

**8th Annual Workshop of the
National Reference Laboratories for *E. coli*
in the EU**

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**"Argentine meat: progress about VTEC in beef
production"**

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Healthy Butcher's Shops Program



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Hospital de Berisso

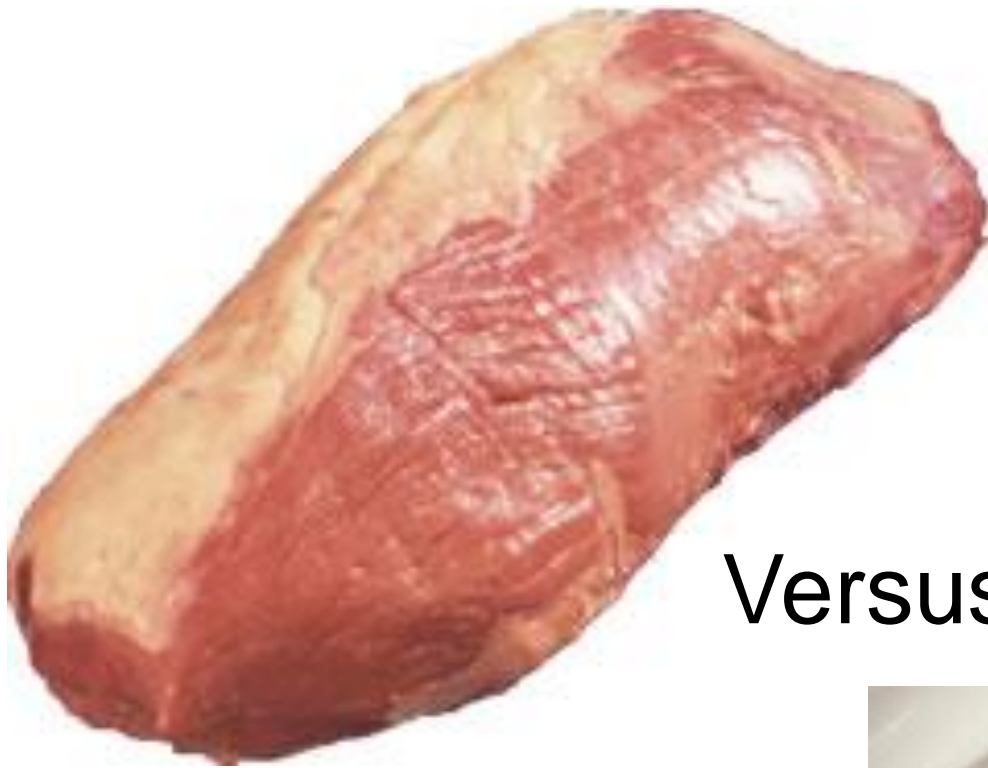
Hospital de Tandil

Hospital de Luján



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LUJÁN





Versus



Argentine Food Code – Ground Beef

Criterio complementario:

Determinación	Resultados	Método de Análisis
Recuento de Aerobios Mesófilos/g	n=5 c=3 m=10 ⁶ M=10 ⁷	ICMSF o equivalente Microorganismos de los Alimentos - Vol I - Técnicas de análisis microbiológicos - Parte II - Enumeración de microorganismos aerobios mesófilos - Métodos de Recuento en Placa
Recuento de Escherichia coli/g	n=5 c=2 m=100 M= 500	ICMSF o equivalente Microorganismos de los Alimentos - Vol I - Técnicas de análisis microbiológicos - Parte II - Bacterias coliformes
Recuento de Staphylococcus aureus coagulasa positivo/g	n=5 c=2 m=100 M= 1000	ICMSF o equivalente Microorganismos de los Alimentos - Vol I - Técnicas de análisis microbiológicos - Parte II - S. aureus - Recuento de estafilococos coagulasa positiva

Criterio obligatorio:

Determinación	Resultados	Método de Análisis
Escherichia coli O157:H7/NM	n=5 c=0 Ausencia/65g	USDA-FSIS Guía de Laboratorio de Microbiología capítulo 5 - Detección, aislamiento e identificación de E. coli O157:H7/NM en productos cárnicos o equivalente
Salmonella spp.	n=5 c=0 Ausencia/10g	Manual de Bacteriología Analítica de FDA (BAM) Capítulo 5 Salmonella o equivalente

Results of non-O157 VTEC

Butcher shop analyzed:	125
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Samples analyzed:	625
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VTEC were isolated in 42 (6,72%) samples

Ground beef with isolated VTEC:	14
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Potentially pathogenic:	5
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Non potentially pathogenic:	9
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Environmental samples with isolated VTEC:	28
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Potentially pathogenic:	16
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Non potentially pathogenic:	12
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Are all VTEC pathogenic?

Cases of disease associated with non-O157 VTEC in Argentina

Official data from the Health Ministry (2004-2010)

Prevalent genotype	N = 1242	Serotype
<i>stx</i> ₂ / <i>eae</i>	74,5%	O157:H7/NM
	13,6%	O145:[H27, H-, HNT]
	2,2%	O121:H19
	1,4%	O26:[H2, H11, HNT]

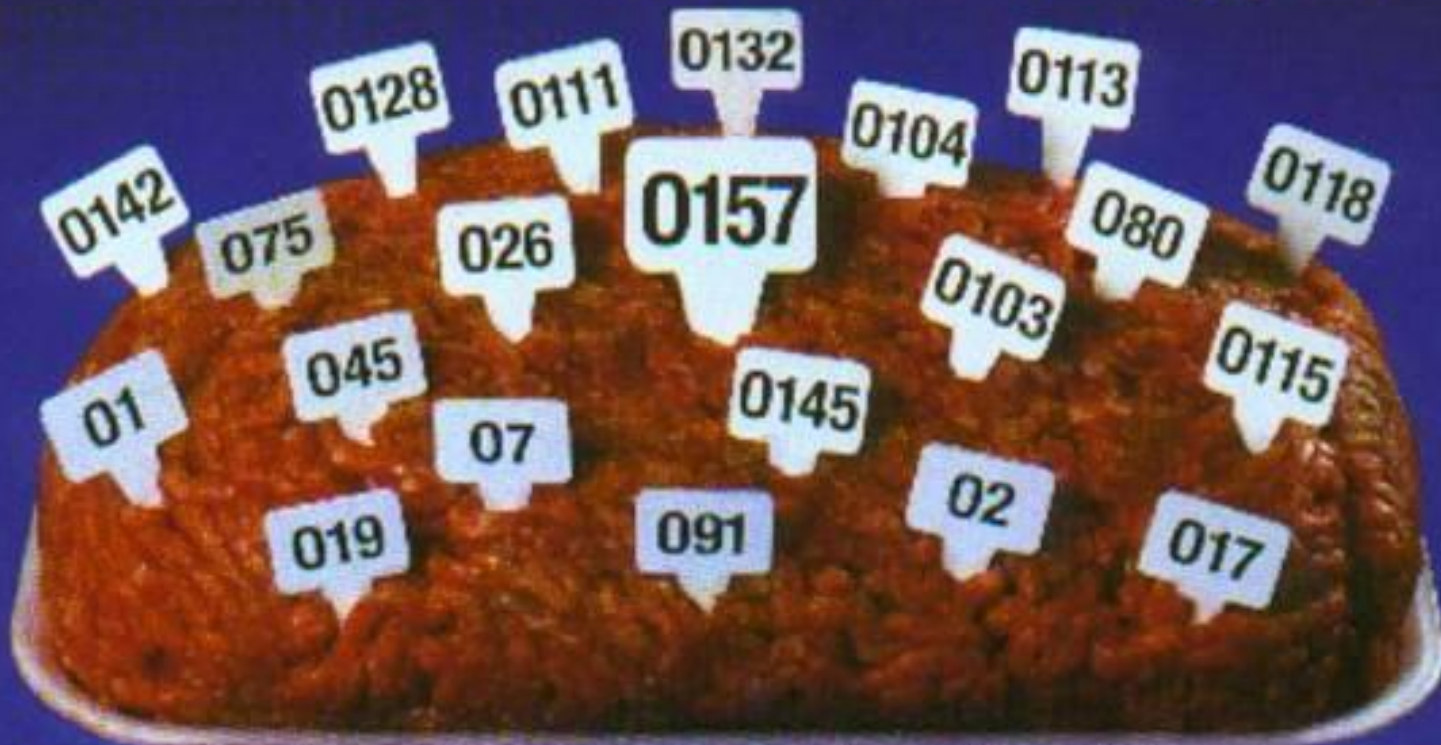
November 2012



International
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Standardization

13136:2012

Microbiology of food and animal feed – Real-time polymerase chain reaction (PCR)-based method for the detection of food-borne pathogens – Horizontal method for the detection of Shiga toxin-producing *Escherichia coli* (STEC) and the determination O157, O111, O26, O103 and O145 serogroups



Introduction

Shiga toxin-producing *Escherichia coli* (STEC) are pathogenic *E. coli*, which can cause diarrhoea as well as more severe diseases in humans such as haemorrhagic colitis and haemolytic uremic syndrome (HUS). Although STEC may belong to a large number of serogroups, those that have been firmly associated with the most severe forms of the disease, in particular HUS, belong to O157, O26, O111, O103, and O145 (Reference [1]).

The following nomenclature has been adopted in this Technical Specification:

- *stx*: Shiga toxin genes (synonymous with *vtx*);
- *Stx*: Shiga toxin (synonymous with *Vtx*: Verocytotoxin);
- STEC: Shiga toxin-producing *Escherichia coli* (synonymous with VTEC: Verocytotoxin-producing *Escherichia coli*).

we are working with five slaughterhouses







The tip of the tail is removed after knockout



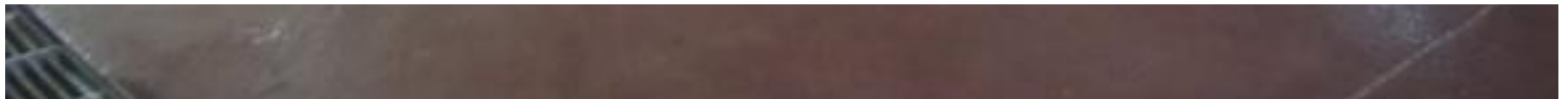


Sanitary steam on the leather





Rotation of disinfectants is systematically used





The hind legs are bagged to prevent splashing





A line to the tail after its leather has been stripped off was implemented





slaughter process: the frequency of cleaning and disinfecting of work tools has been increased

Sanitary steam on the carcasses



we are conducting tests

intervention measures not implemented



electro-chemically activated water

ozonated water

hot water washing (85°C)



we are conducting tests with lactic acid

intervention measures implemented



Thank you very much