O157 enterohaemorrhagic
*E. coli* in raw beef minced meat
“Filet américain” in Belgium.

Georges Daube and coll.
University of Liège, Veterinary Medicine
Food Microbiology
Sart-Tilman, Bât B43bis, 4000 Liege, Belgium
Tel : 32/4/366.40.15. Fax : 32/4/366.40.16.
E-mail : Georges.Daube@ulg.ac.be

**DEFINITION**

“FILET AMÉRICAIN” =
RAW BEEF MINCED MEAT +
SPECIAL SAUCE (OIL, EGGS,
MUSTARD, VINEGAR, SPICES,
VEGETABLES, ONIONS,
PRESERVATIVES)
MAIN CONSIDERED STEPS

- Farming
- Slaughtering
- Cooling and storage of the carcasses
- Cutting and packaging
- Storage after cutting
- Mincing
- Storage, packaging and delivery
- Consumption
- Diseases related to EHEC O157

FARMING

- 1) Prevalence of positive farms: 5.6% (n = 195)
- 2) Percentage of EHEC O157 shedding adult cattle: 4.2% (n = 260)
- 3) Number of EHEC O157 / g faeces: unknown

Objectives:
- Reduce the level and the rate of carriage in farms and/or before slaughterhouse
SLAUGHTERING

1) Prevalence of EHEC O157 contaminated carcasses: 0.5 % (n = 6000)
2) Number of *E. coli* on carcasses: 90 % with < 10 cfu/cm²
3) Number of EHEC O157 on 2 positives carcasses: 1 cfu/cm² & 200 cfu / cm²

**Objectives:**
- Reduce the level of carcass contamination
- Perhaps, elimination of carcasses with visual faecal contamination of the raw product fabrications

CUTTING AND MINCING

1) Kind of cutting pieces
2) Number of cutting pieces from different animals per box of ground beef
3) Number of cutting boxes mixed for the mincing
4) Cross-contamination between several successive batches

**Objectives:**
- Reduce the level of contamination of all batches
- Reduce the number of positive batches

*or/and*
CONSUMPTION

- Amount of “filet américain” eaten/year/consumer: **2,2 Kg**
- Estimated number of “filet américain” consumers: <5 years: 83,160; 5-65 years: 4,120,030; >65 years: 1,107,567
- Amount of “filet américain” eaten in one meal: **125 g**
- Average number of this kind of meal per year: **18.**

**Objectives:**
- Reduce the consumption in the high risk populations by a better information
- Good respect of the cooling chain to avoid to increase the contamination level

DISEASES

1) Incidence of VTEC in hospital coprocultures: **1,02 % VTEC (0,2 % O157) (n=17,296)**
2) Incidence of Haemolytic Uremic Syndrome:
   **Sporadic cases (0,42 / 100.00 inhabitants)**
3) Number of death following HUS: **4 deaths / 42 cases**

**Objectives:**
- Understanding why we don’t have Belgian epidemic outbreaks or more sporadic cases with this risk consumption behaviour
- Study of the importance of raw beef in Belgian EHEC diseases
CONCLUSIONS

1. Prevention of EHEC in ready-to-eat raw materials is very difficult and need an integrated strategy on all the food production chain.
2. For the raw beef products, the main objective must be to reduce the contamination level at each step by hygienic or mixing measures.
3. For high risk populations, these preventive measures are actually insufficient in order to avoid problems and consumer information must be extended.
4. More efficient preventive strategies as irradiation or steam pasteurisation of carcasses must be studied for raw beef meat production.