

Pioneering a Global Expertise

Technical leadership in accordance with EU legislation



Starting point for **Salmonella** awareness
(Ms. Edwina Currie, Junior Health Minister UK)



Development of MDM Attenuation Technology for live vaccines

1988 1990 1992 1994 1995 1998 1999 2001 2002 2003 2004 2005 2006 2007 2009 2010 2011 2012 2013 2015 2016...

The first live vaccine attenuated for chickens (breeders, layers, broilers)

The first SE-live vaccine for chickens approved in the EU

Reliable diagnostic tool for differentiation of live vaccine strains

The first bivalent live vaccine against SE and ST, for chickens, turkeys and ducks

Salmonella 360°

The first education program addressing *Salmonella* from a holistic perspective

Efficacy studies against emerging Monophasic *S. Typhimurium* (Küroy *et al.*, 2015)



EU Council Directive 92/117

- Monitoring in food-production animals
- Development of control plans
- Specific measures (inc. slaughter) for SE and ST
- Measures for feed quality pertinent to breeding and laying flocks

German **Salmonella** Decree in Chicken

Hühner-Salmonellen-Verordnung establishes vaccination against SE

Inactivated vaccine with multiple SE-phagetype protection

Ideal inactivated vaccine to cover major diseases of laying hens

First live vaccine for broilers, with coarse spray application and claim against ST, SE and SH

UK Introduction of **Lion Code**

Compulsory vaccination against SE



EU Commission Directive 2003/99

- Detailed rules on monitoring and reporting antibiotic resistance (by serovar and reservoir).
- Reference to the need for information on vaccination and other control programmes
- Establishment of national reference laboratories
- Assessments of trends and sources of zoonotic agents and antimicrobial resistance
- Submission of an annual report to the EC

First live vaccine for layers that claims protection at ovaries and oviduct

EU Commission Decision 2004/665
Decision to study prevalence in layers

EU Commission Regulation 2160/2003

- Provision of reduction targets
- National control programmes (sampling and reporting rules for feed, primary production, processing)
- Reference to All *Salmonella* serotypes
- Reference to Broiler, Turkeys, breeding and slaughter pigs

EU Commission Regulation 646/2007
Defining targets for broiler flocks

EU Commission Regulations 1177/2006 1168/2006

- No antimicrobials shall be used to control *Salmonella*
- Defining targets for laying hen flocks
- Compulsory vaccination when prevalence of SE in layers is $\geq 10\%$

EU Commission Decision 2005/636

- Decision to study prevalence in broilers

EU Commission Regulation 1003/2005

- Defining targets for breeding flocks

UK Introduction of a new BEIC rule

- Birds should be vaccinated against SE and ST

EU Commission Regulation 213/2009

- Slaughter of breeding flocks positive for SE and ST
- Destruction of eggs positive for SE and ST

EU Commission Regulation 200/2010

- Fresh poultry meat may not be placed on the market for human consumption unless *Salmonella* is absent in 25g of meat (valid from December 2010)



SE: *S. Enteritidis*
ST: *S. Typhimurium*
SH: *S. Heidelberg*