

Veterinary policy on vaccination

Prof. Stefano Cinotti

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna, Brescia

Background

Present Situation

Repercussions



Impact of vaccinations on animal health in the past

- ✓ Vaccinations brought about dramatic improvements of livestock health worldwide.
- ✓ Foot-and-Mouth Disease, Classical Swine Fever, Rabies, Rinderpest are the major examples of success.
- ✓ Rinderpest: eradicated as a result of vaccination policies (Pastoret, 2012).
- ✓ Major failures, too: African Swine Fever is the most prominent example (still no effective vaccine developed)

Animal diseases regulated by the EU – health status and use of vaccines

- ✓ **Newcastle disease**
- ✓ **Rabies**
- ✓ **Aujeszky's disease**
- ✓ **Bluetongue**
- ✓ **Brucellosis**

No state vaccination campaigns

- ✓ **Classical swine fever**
- ✓ **Avian influenza**
- ✓ **Foot-and-mouth disease**

Emergency vaccination

- ✓ **Bovine spongiform encephalopathy (BSE)**
- ✓ **African swine fever**
- ✓ **Bovine tuberculosis**

No vaccination

Only for some of the above diseases, vaccines have been successfully used to improve animal health status in the EU

Reasons for the EU "non-vaccination" policy at the beginning of the Nineties

- ✓ Problems in trade with Member States and third countries
- ✓ Trade in vaccinated animals and their products was considered unsafe
- ✓ To promote single market
- ✓ Resources were focused on prompt eradication
- ✓ Sanitary status of freedom from diseases based on serology

The impact of major animal health crises on the "non-vaccination" policy

At the end of the '90s and beginning of the 2000s serious disease outbreaks in the EU (CSF, FMD, AI) resulted in the destruction of many million animals.



This raised serious economic and ethical concerns,



**need to review disease control policies,
including the approach to vaccination.**

The problems encountered in controlling those outbreaks were caused by a combination of factors:

- ✓ increase in global trade (legal and illegal) in animals and their products;
- ✓ difficulty in controlling diseases in areas with a high density of animals and/or insufficient bio-security;
- ✓ the presence of diseases in wildlife combined with increased contacts with domestic animals, poor bio-security measures at farm level;
- ✓ insufficient disease preparedness in Member States.

At what cost?

2001 foot and mouth disease outbreak

United Kingdom

Foot and mouth disease	2001
Duration of outbreak	8 months
Animals depopulated	6 million
Farm depopulated	120.300
Suicides	60
Extent of outbreak	Widespread
Cost in US dollars	6,9 billion
Time to regain normalization of trade following eradication of disease	18 months

A further evolution: emergency vaccination as a disease control tool



Pressure of public opinion towards inhumane disease control strategies.

Mass slaughter of animals strongly criticized.

Development of «emergency vaccination» plans associated with DIVA (Differentiating Infected from Vaccinated Animals) serology procedures.

In 2004 in Buenos Aires the OIE changed the vaccination guidelines and stated that:

"...for ethical, ecological and economical reasons, it is no longer acceptable to control and eradicate disease outbreaks mainly by adopting mass slaughter of animals."

"..whenever feasible, OIE should formulate vaccination policies as alternatives to mass slaughtering of animals."

Corrective actions in EU policy

- ✓ From the early 2000s the EU has supported the development of a new vaccination strategy against major epidemic diseases through legislation and funding.
- ✓ More flexible approach towards vaccination.
- ✓ Nevertheless, legislation adopted after 2000 (on BT in 2000, on CSF in 2001, FMD in 2003 and AI in 2005) confirmed that vaccination is not to be routinely used against these diseases, since the cost/benefit analysis does not justify it.

Conditions for emergency vaccination

- ✓ When infection is introduced into or threatens an area with a relatively **high density** of susceptible animal population.
- ✓ Following **multifocal introduction** of infection or where infection has not been rapidly detected and controlled, thus leading to multifocal spread.
- ✓ Where there is a high risk of **uncontrollable spread** of infection, for example by airborne route.
- ✓ Where there is **inadequate capacity or resources** for control by a non-vaccination policy, or where these measures are considered economically, socially or ethically unacceptable;
- ✓ Where there is a significant risk of spread of a **zoonotic agent**.

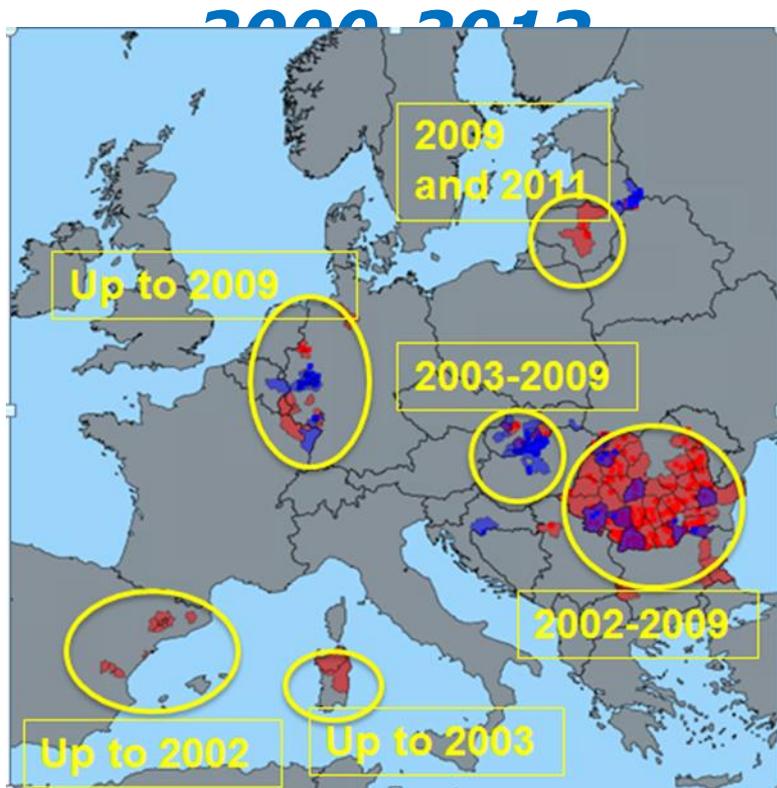
Emergency vaccination: pros and cons

The 2001 outbreak of FMD in the Netherlands has shown that emergency vaccination can be an effective tool

It needs large investments for occasional events (role of risk analysis)

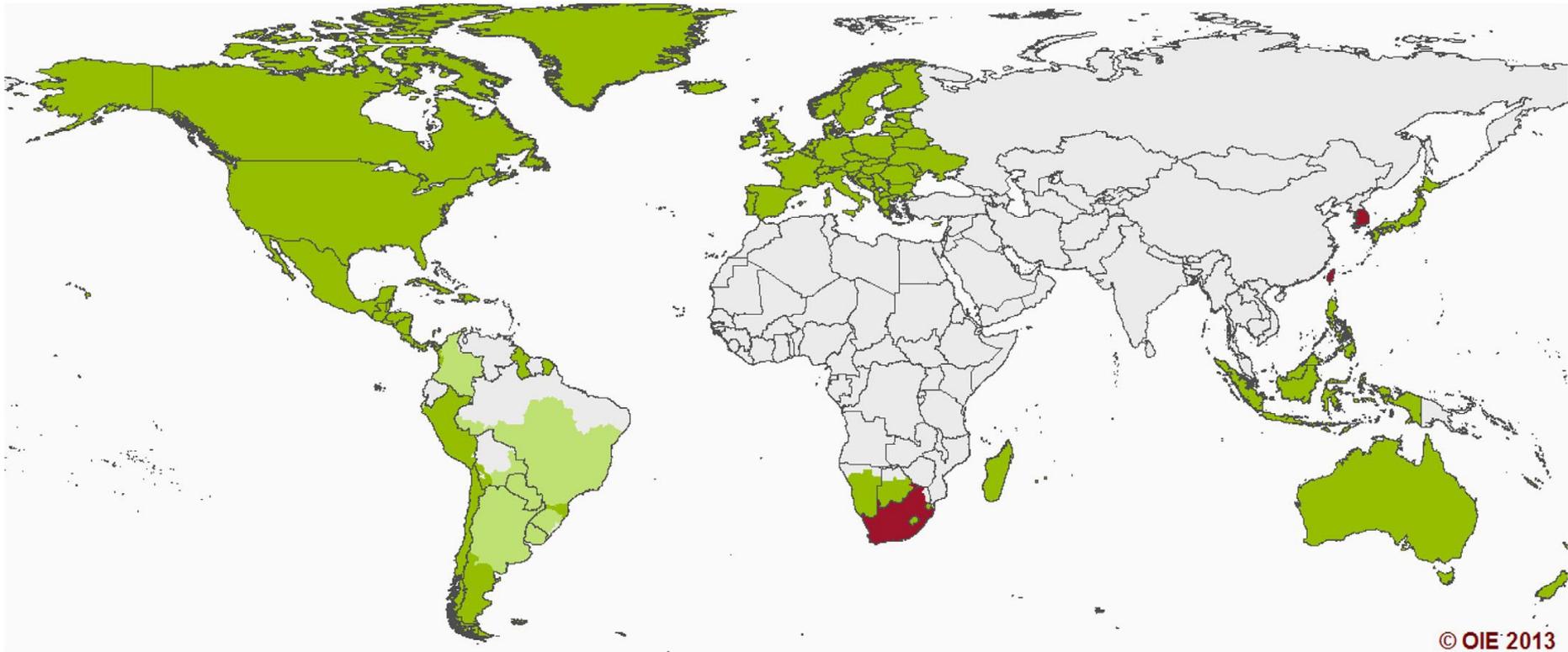
and requires large facilities for vaccine formulation, and infrastructure for vaccine distribution

The present situation: CSF situation in the EU



Control of FMD with and without vaccination

OIE Member Countries' official FMD status map



© OIE 2013

Official FMD status of Member Countries - Whole country or zone(s)

 Country/zone free without vaccination

 Suspension of the status free without vaccination

 Containment zone

 Country/zone free with vaccination

 Suspension of the status free with vaccination

 No recognised status

Priorities for the future

Vaccines are necessary for a more successful EU animal health policy:

- ✓ **Vector-borne diseases (ex: Blue Tongue)**
- ✓ **African swine fever**
- ✓ **Bovine TB**

Need for a fully applicable DIVA strategy:

- ✓ **Foot-and-mouth disease**
- ✓ **Avian influenza**
- ✓ **Classical swine fever**

Fundamental working tools

- ✓ **Contingency plans**
- ✓ **Networks of laboratories**
- ✓ **Antigen and vaccine banks**

Conclusions

Regular vaccination campaigns for major infectious diseases of livestock and strict non-vaccination policies do not seem feasible

Emergency vaccination associated with timely elimination of infected animals and quarantine measures is probably the best available option

As for animal diseases outside international rules and trade agreements, vaccination on a farm or regional basis is still a valuable and cost/effective option in the framework of a wider number of disease control measures