



Federal Agency  
for the Safety of the Food Chain



# The belgian abortion protocol

“*A particular approach for epidemiological surveillance in cattle*”



# The belgian abortion protocol

## PLAN

- Animal health - Organization
- History
- New brucellosis monitoring program
- ***The abortion protocol***
- New brucellosis monitoring program & the abortion protocol – An example of result
- Conclusions



# .be Animal health - Organization

Competence :

– Food safety => Federal competence

“from farm to fork” all over the country

=> Incl. **Animal health**

Rules

Controls

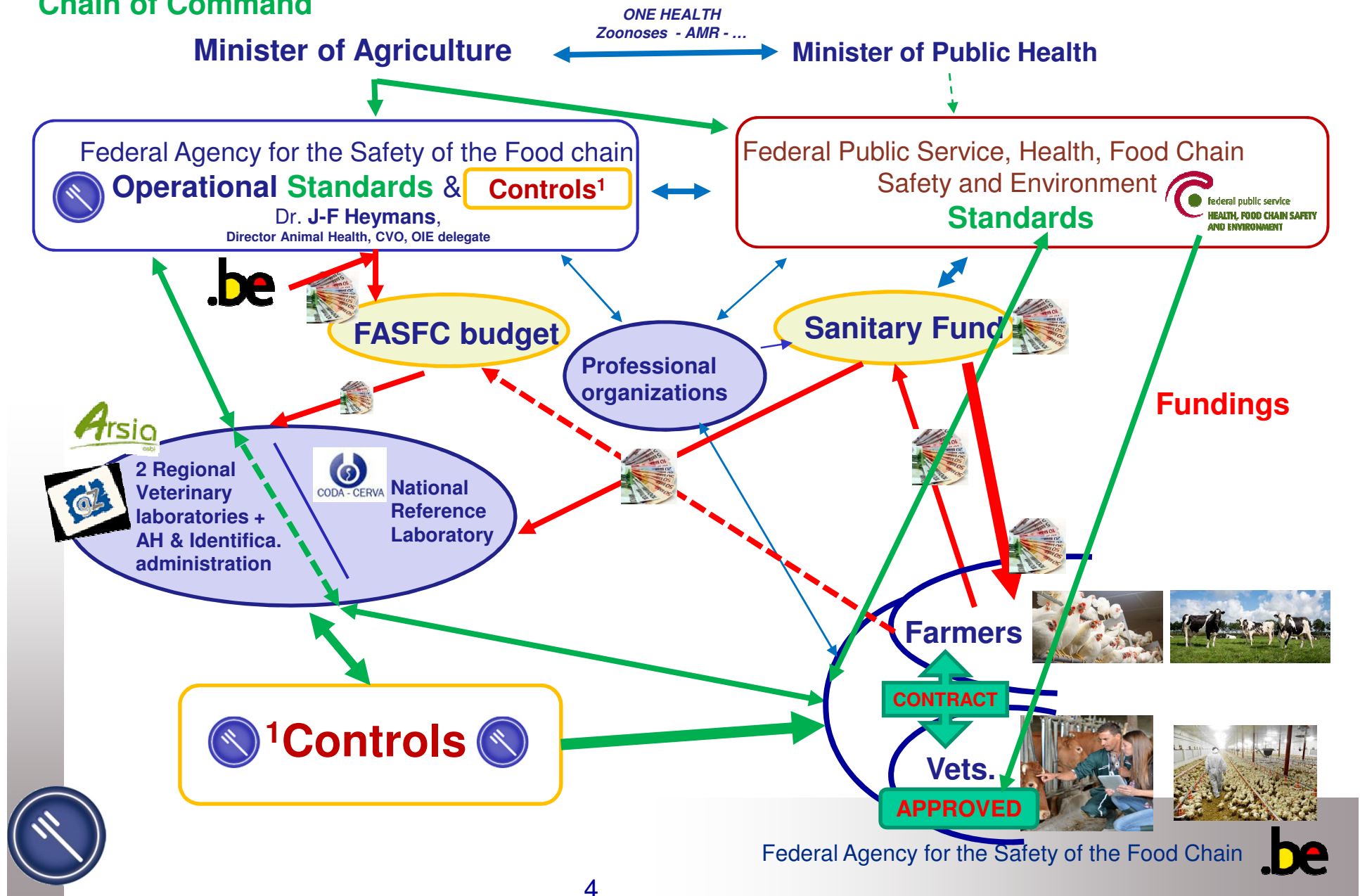


– (Animal welfare => federated bodies, the Regions)



# .be Animal health - Organization

## Chain of Command



# The belgian abortion protocol

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# History

- Last brucellosis case before officially brucellosis free status in Belgium: March 2000
- Belgium got the officially bovine brucellosis free status since 25 June 2003 by Commission Decision 2003/467/EC
- Mandatory monitoring program to prove officially-free status during 6 years based on mass serological analysis of blood and milk (Council Directive 64/432/EEC)
- 2009: new sanitary policy : epidemiological/statistical review of monitoring of brucellosis based on ‘scenario tree analysis & simulation exercises’: **new program should focus on abortions !!!**
- Mass serological analysis (600,000 a year) > restricted number of analysis (40,000 a year)
- Re-orientation of budget “mass serology – one disease” into budget of “limited serology – several diseases”
- 2010: new monitoring program including the new ‘abortion protocol’;
- End 2010 and 2012-2013: detection of new sporadic cases of brucellosis



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## New brucellosis monitoring program

### Goal

- ✓ Rapid detection of new cases if re-emergence
- ✓ Prove and maintain officially bovine brucellosis-free status





## New brucellosis monitoring program

### Method

- Mass serological analysis (600,000 a year) > restricted number of analysis (40,000 a year) but more directed to some specific 'risk categories' of bovines: e.g. abortions, imports from non officially Member states, ...
- NABO or "No abortion" farms: serological monitoring of a number of herds with female bovines that didn't notify any abortion over a certain time period: at random selection: 750 herds with 10 heifers or cows aged > 24 months: analysis for brucellosis
- Mandatory analysis in case of abortions



## New brucellosis monitoring program

### Funding :

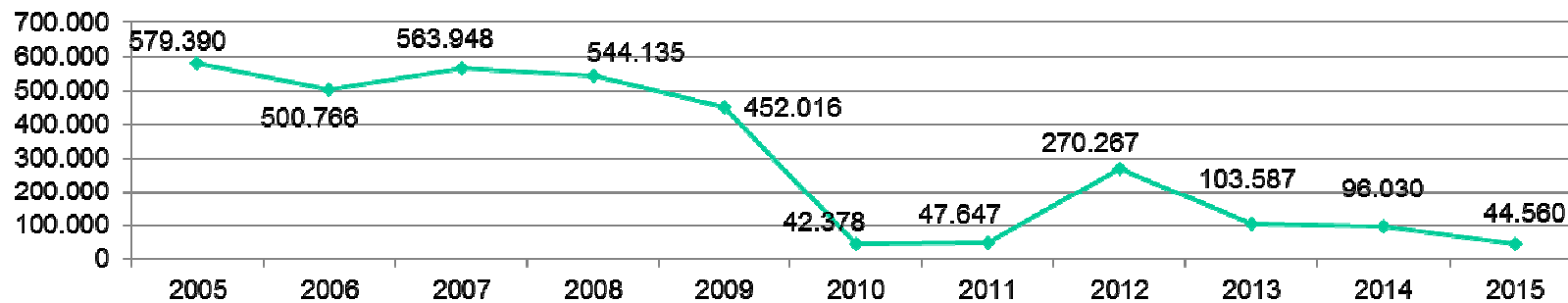
- Services of veterinarians : payment by the Sanitary Fund
- Analyses : payment by the Food Agency



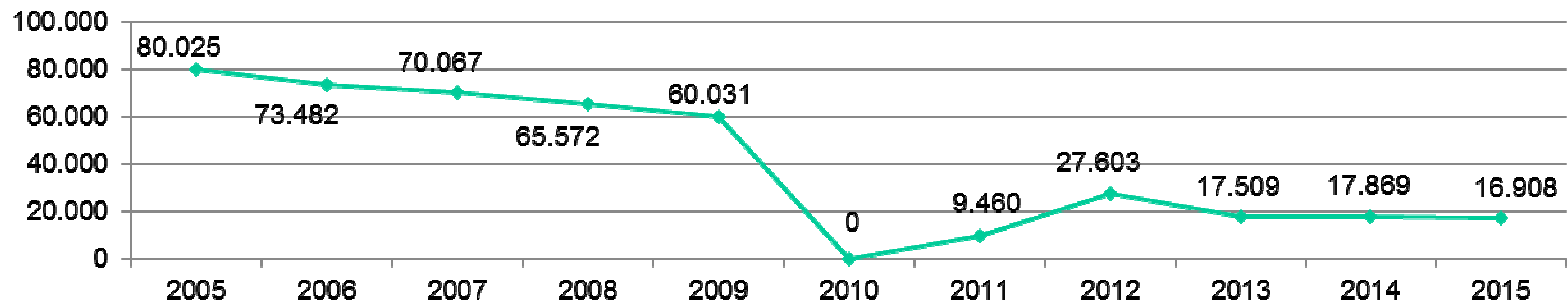
## New brucellosis monitoring program

### Overview tests brucellosis monitoring 2005 - 2015

#### individual tests of blood



#### tested pools of tank milk



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## The abortion protocol



### Goal

- Global epidemiological surveillance
- Part of the brucellosis monitoring program



# The abortion protocol

## Principle

- Stimulate the transmission of any abortion => Lab
- Autopsy and analysis of abortions
- Win-Win system

To use



To reach



# The abortion protocol

## Method & Funding

- Taking in charge of the collection, the transport and the **autopsy** of aborted fetuses and matrices from the mother animal (blood, afterbirth, vaginal swab) by the Regional Veterinary Laboratories

FASFC budget

- **Analysis** of a number of abortive pathogens (not only brucellosis but also BVDV, IBR, neospora, Q-fever, *BTV*, *SBV*, ... )

FASFC budget

- Farm visit and services of veterinarian (27€ > 40€).

Sanitary Fund



## The abortion protocol

### Food agency: budget abortion protocol 2011 - 2015

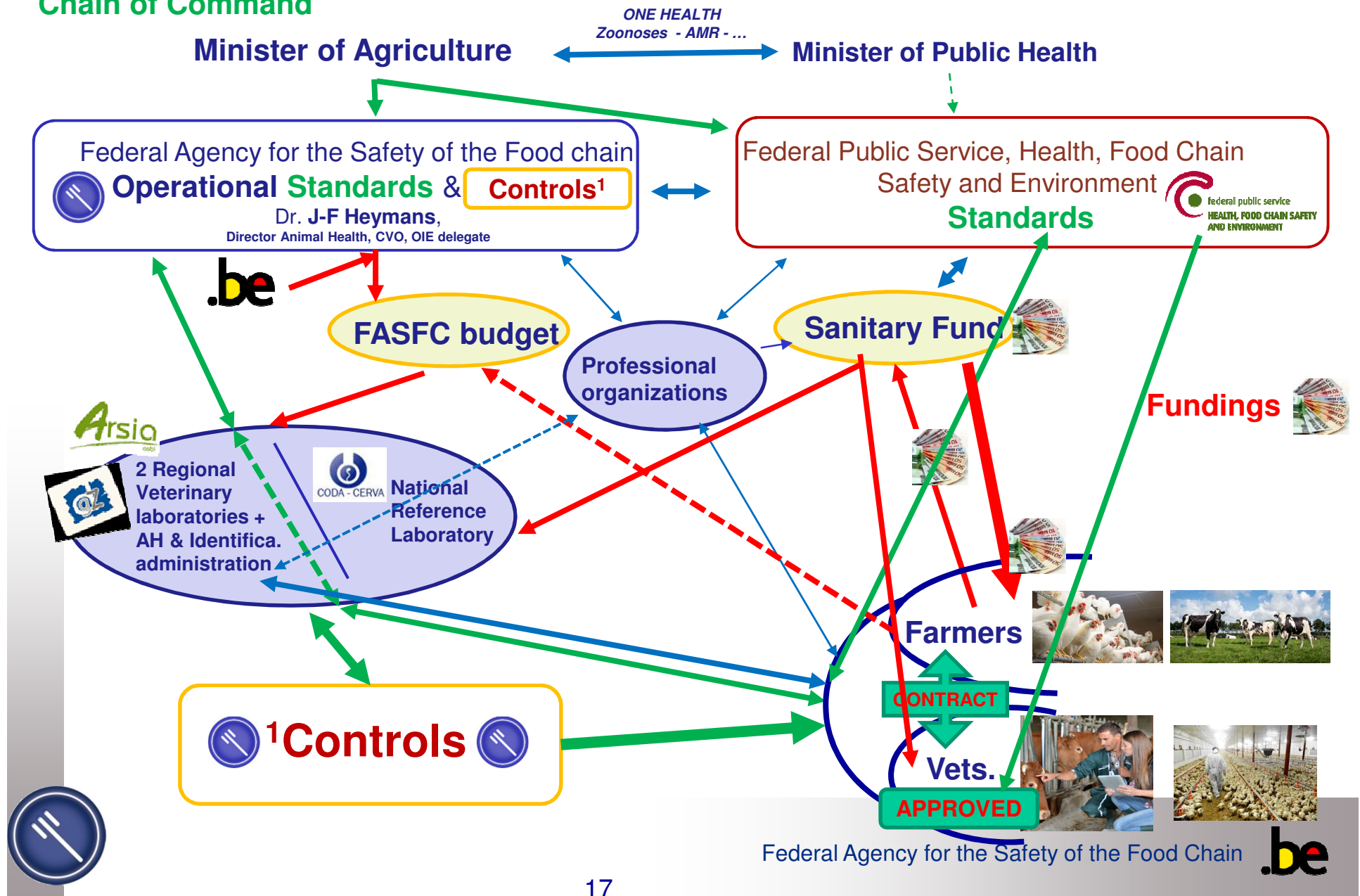
	2011	2012	2013	2014	2015
ANALYSES	€ 1.331.132,52	€ 1.102.241,36	€ 972.276,53	€ 1.286.033,56	€ 1.370.688,26
AUTOPSIES	€ 111.017,07	€ 164.434,44	€ 145.790,10	€ 177.543,12	€ 209.222,52
COLLECTES	€ 252.602,75	€ 358.465,12	€ 314.936,58	€ 342.021,48	€ 388.510,50
<b>TOTAL</b>	<b>€ 1.694.752,34</b>	<b>€ 1.625.140,92</b>	<b>€ 1.433.003,21</b>	<b>€ 1.805.598,16</b>	<b>€ 1.968.421,28</b>





# The abortion protocol - Organization

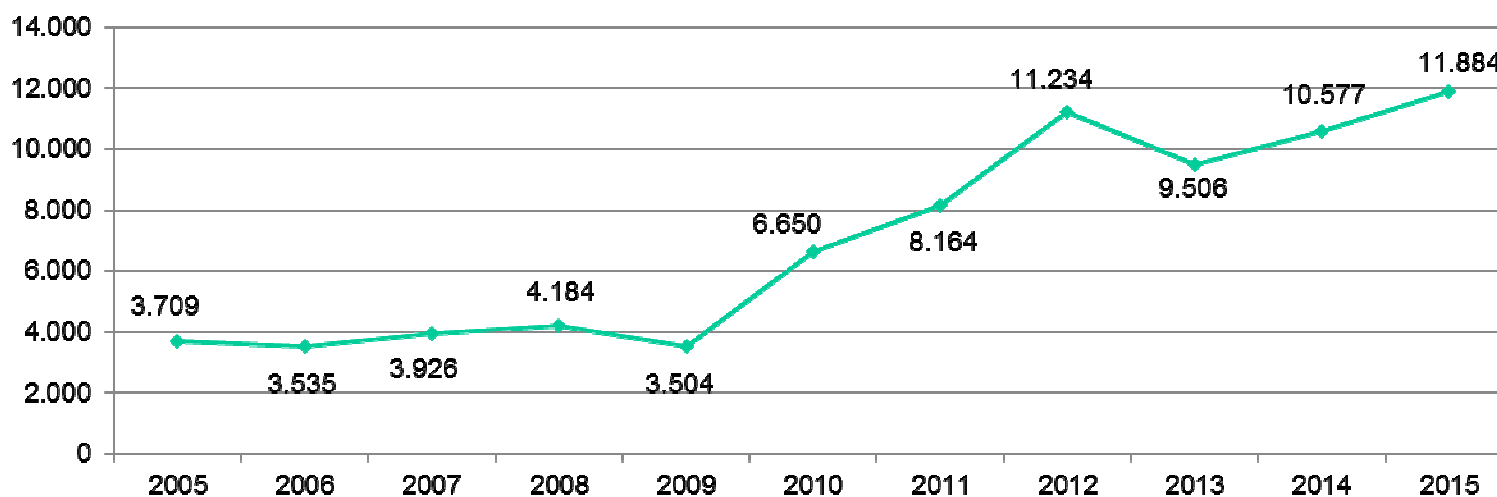
## Chain of Command



## The abortion protocol

### Number of notified abortions: 2005 - 2015

#### notified abortions



# The abortion protocol

## *Panel of analysis*

**2010**

- Blood mother
  - Brucellosis : MAT > ELISA
  - BVDV Ab ELISA
  - BoHV-1 gE Ab ELISA
  - Leptospira hardjo Ab
  - Neospora caninum Ab
  - Coxiella burnetii Ab
  - BTV Ab
  - BoHV-4 Ab
- Foetus, afterbirth, vaginal swab
  - BVDV Ag ELISA
  - BVDV PCR spleen
  - Coxiella burnetii PCR
  - Neospora caninum PCR
  - BoHV-1 PCR
  - BTV PCR
- Culture
  - Brucella
  - Salmonella
  - Listeria monocytogenes
  - Aerobic micro-organisms
  - E. coli
  - Arcanobacterium pyogenes
  - Yeasts and molds

**2016**

- Blood mother
  - Brucellosis : MAT > ELISA
- Foetus, afterbirth, vaginal swab
  - BVDV Ag earpunch
  - *If specific malformations of aborted foetus: BTV PCR, Schmallenberg virus PCR*
- Culture
  - Brucella

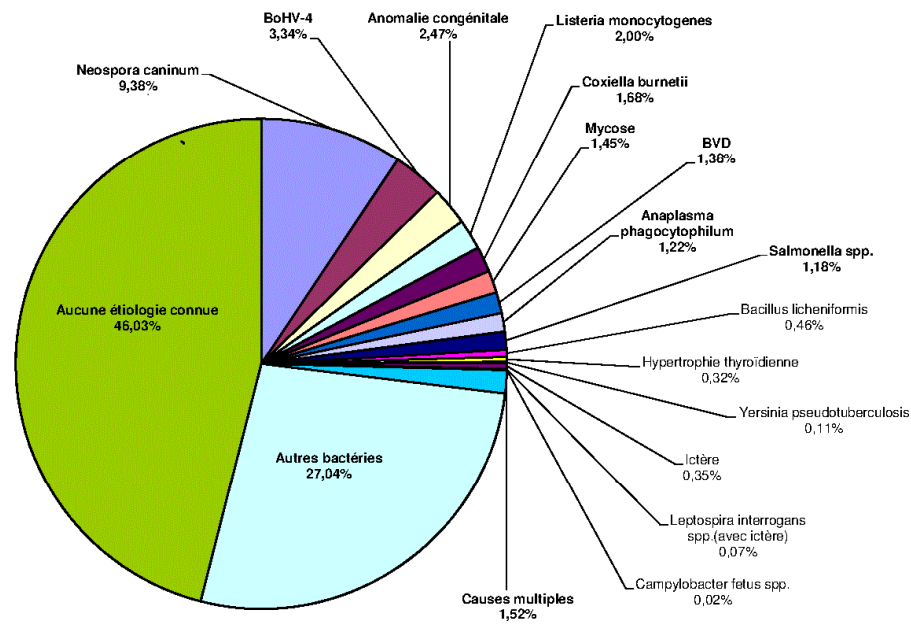
## **Budgetary restrictions**

- **Other analysis:**
  - **optional**
  - **on veterinary demand**
  - **paid by the stakeholder**



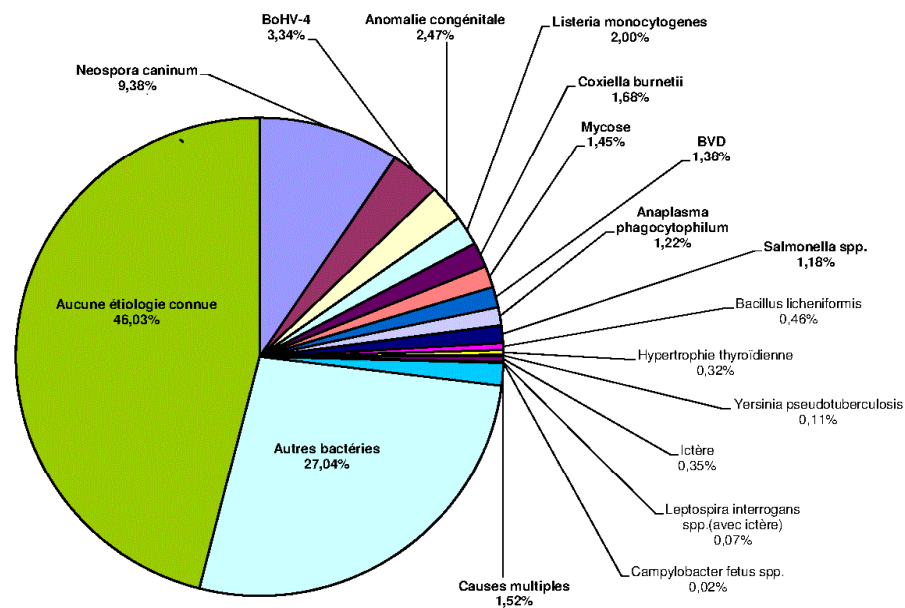
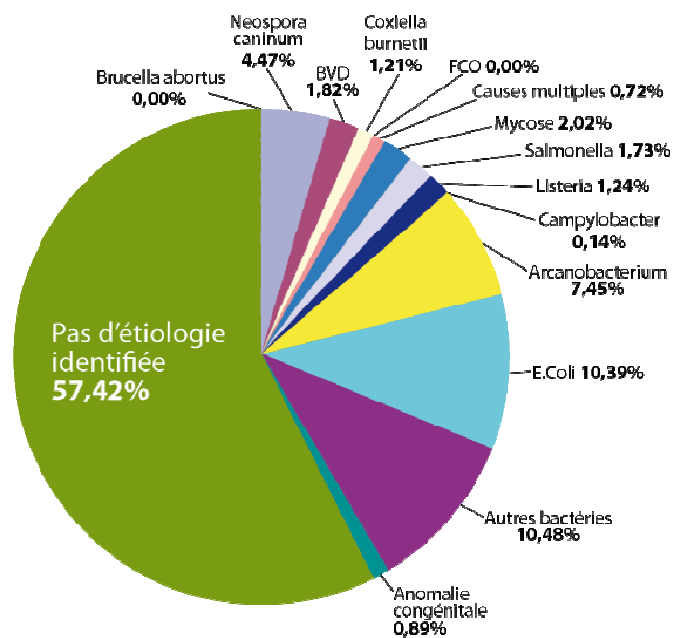
# The abortion protocol

## Abortive agents, ARSIA 2015



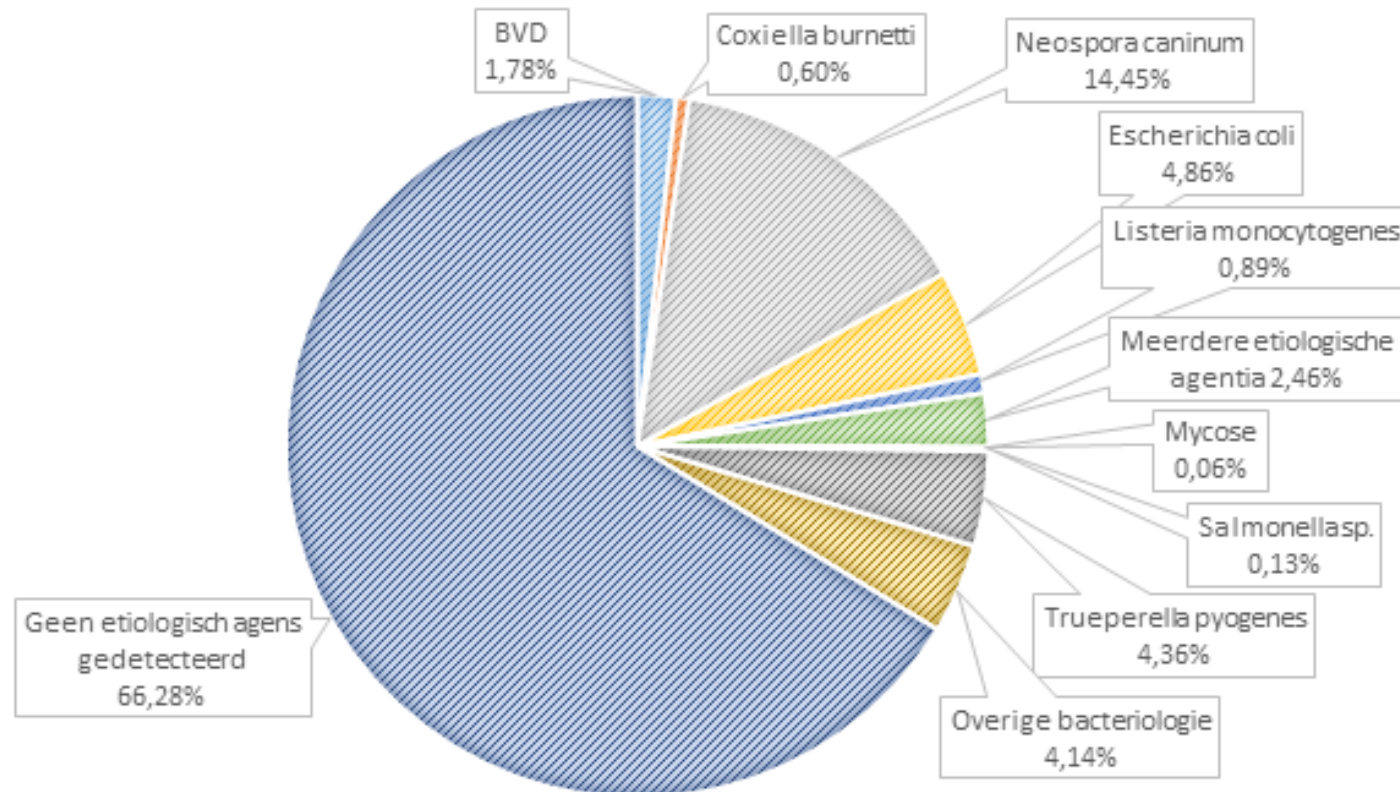
# The abortion protocol

## Abortive agents, ARSIA 2011 and 2015



# The abortion protocol

Abortive agents, DGZ 2015



## The abortion protocol

### A “win – win” system for Authority and farmer

- Competent authority
  - Gets a general idea about circulating pathogens capable to introduce an abortion on Belgian holdings
  - Early detection of new (re-)emerging cases
  - Prove of freedom of disease (e.g. brucellosis)
- Farmer
  - Knows specific problems at herd/animal level on diseases;
  - Stimulation to start an eradication program against some diseases: e.g. Neospora caninum, BVDV, IBR, ...;
  - Stimulation to respect bio-security and preventive measures.



# The abortion protocol

## The Future

- Food Agency budget ↓ : savings/economics ↑
- Collection and transport of aborted foetus, afterbirth, blood mother, .... : ± 390,000€ / year
- Mandatory analysis: only maintenance of analyses on diseases laid down by legislation : brucellosis & BVDV
- Optional analysis:
  - On demand of ARSIA/DGZ after results of autopsy or other indicators/reasons
  - On demand of the veterinarian (in agreement with the farmer)
  - Laboratory offer and payment of additional analysis to stakeholder (co-financed by third party e.g. government)
- **Strategic pillar of brucellosis surveillance**





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## New brucellosis monitoring program & the abortion protocol – An example of result

### Belgian bovine brucellosis incident 2010 and 2012-2013

- Early detection of two **index cases** by the abortion protocol, detection of a limited number of secondary outbreaks by epidemiological investigation and tracing of all contact herds and animals
- 3 December 2010 : outbreak in province of Liège
- 8 March 2012: outbreak in province of Namur and 5 secondary outbreaks in contact herds
- 18 January 2013: 6th secondary outbreak related to the index case 2012
- All outbreaks due to ***Brucella abortus* biovar 3** except one outbreak of 2012 due to ***Brucella suis* biovar 2** (contact with wild boar).



## New brucellosis monitoring program & the abortion protocol – An example of result

- Index cases of December 2010 and March 2012: **NO epidemiological link**
- **Early detection** of the two index cases : limited number of secondary outbreaks
- Follow-up of contact herds of index cases should be maintained for some time: e.g. secondary outbreak 2013: only the third serological analysis within a one year period detected positive serological reactors !!!
- Monitoring program on brucellosis with abortion protocol = “fit for purpose” for **early detection**
- **NO SOURCE OF INFECTION COULD BE DETECTED** despite important epidemiological investigations !!!
- Scientific comité: advice 05-2016 on re-emergence of brucellosis:  
[http://www.favv-afsca.fgov.be/wetenschappelijkcomite/adviezen/2016/ documents/Advies05-2016\\_Brucellose.pdf](http://www.favv-afsca.fgov.be/wetenschappelijkcomite/adviezen/2016/ documents/Advies05-2016_Brucellose.pdf)



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## CONCLUSIONS

An efficient system to be continued

