

GF-TADs

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES

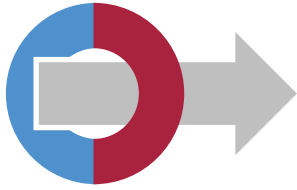


Stamping out procedures (domestic pigs)

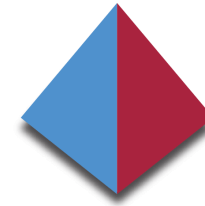
Sixth meeting of the Standard Group of Experts on ASF in the Baltic and
Eastern Europe Region

Vilnius, Lithuania – 28-29 November 2016

Jorgen M. Westergaard



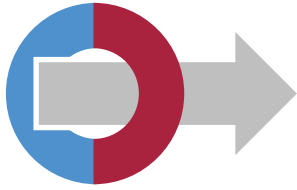
OVERVIEW



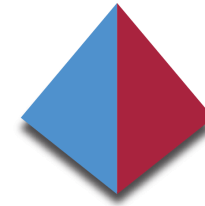
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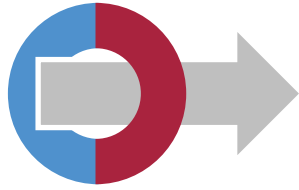
- Definitions
- Disease confirmation
- Epidemiology
- Killing
- Carcass disposal
- Cleaning and disinfection
- Repopulation
- Conclusions



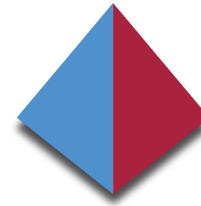
Definitions



- OIE HANDYSTATUS II - Stamping out(S): Slaughter of all sick and contaminated animals with destruction of their carcasses (by burying, incineration, etc.) followed by cleansing and disinfection of the premises
- FAO - Stamping out: eradication procedures based on quarantine and slaughter of all infected animals and animals exposed to infection



Definition- OIE Terrestrial Animal Health Code



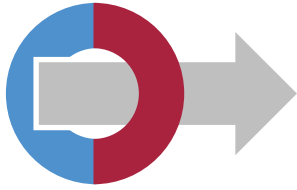
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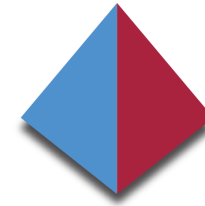
Stamping-out policy:

The Veterinary Authority eliminates an outbreak by:

- (a) Killing of animals
- (b) Carcass disposal
- (c) Cleansing and disinfection



Veterinary Authority



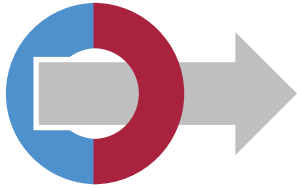
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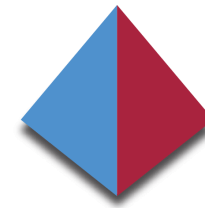
African swine fever suspicion

- Disease investigation
- Supmission of samples to laboratory
- Movement restriction
- Epidemiological enquiry
- Premises to be sealed off





Veterinary Authority



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Eliminate an African swine fever outbreak

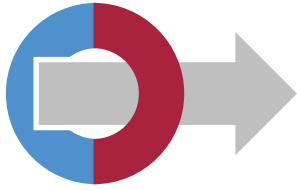
- Killing of pigs
- Disposal of carcasses and products
- Cleansing and disinfection

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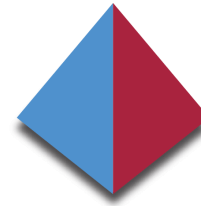
Additional measures to Stamping-out

- Valuation of pigs
- Epidemiology and sample collection
- Disease reporting

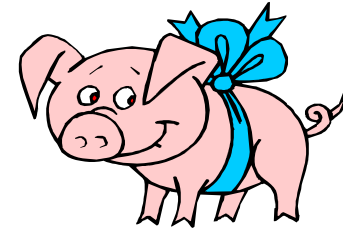




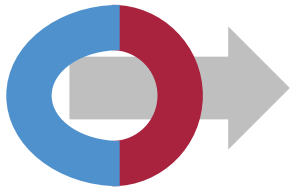
Which pigs shall be killed?



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- All pigs affected by African swine fever (ASF)
- Pigs suspected of being affected in the herd or in other herds which have been exposed to infection by direct animal to animal contact or by indirect contact likely to cause the transmission of ASF-virus



Epidemiological inquiry

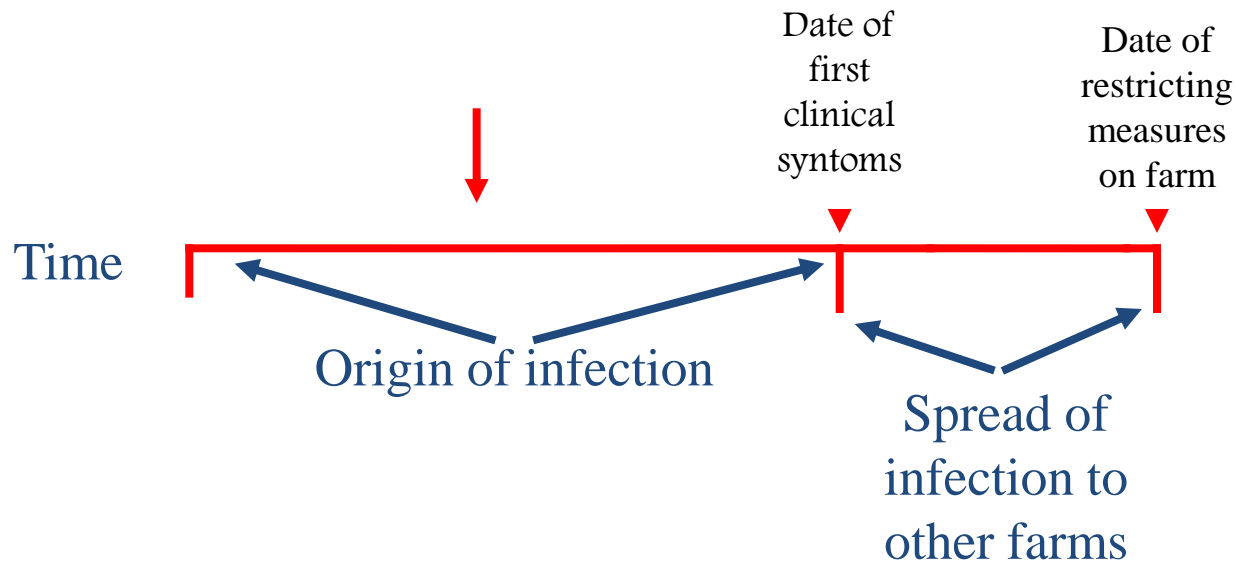


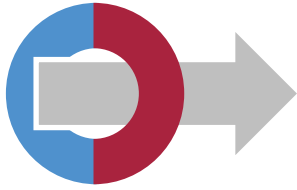
Tracing

- TRACING BACK= origin of infection
- TRACING FORWARD= spread of infection
- To focus on:

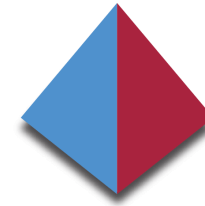
(INCUBATION PERIOD,

OIE , nature 4 - 19 days; Sus Scrofa 15 days)





How shall pigs be killed ?



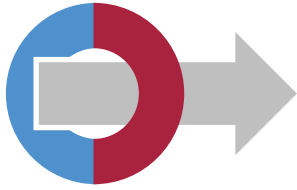
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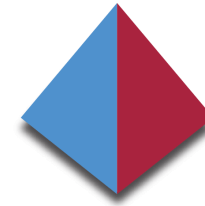
Attention shall be paid to:



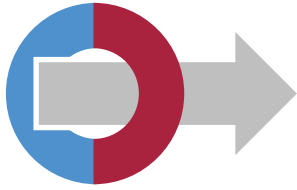
- Animal welfare
 - Animals shall be spared any avoidable pain, distress or suffering during their killing and related operations
- Stunning methods
- Killing methods
- Standard operating procedures
- Depopulation action plan
- Person with certificate of competence



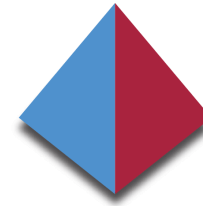
Pigs - Stunning methods



Mechanical methods	Description	Key parameters include
Penetrative captive bolt device	Damage of brain	Position and direction of the shot
Firearm with free projectile	Damage of the brain	Position and direction of the shot
Electrical methods	A current generate a generalised epileptic form on:	
Head – only electrical stunning	The electro-encephalogram (EEG)	Minimum current and voltage
Head-to-Body electrical stunning	The EEG and fibrillation or stopping of the heart	Minimum current and voltage

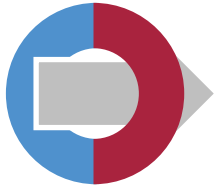


Mechanical Stunning equipment

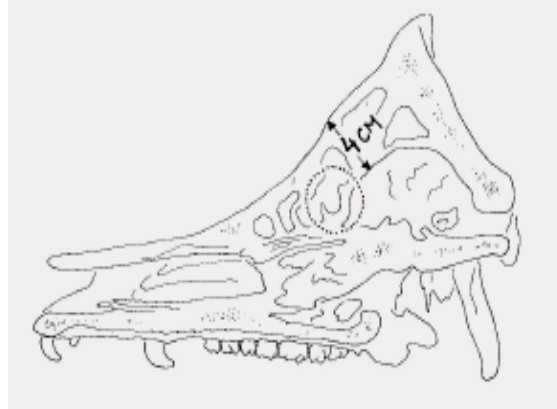
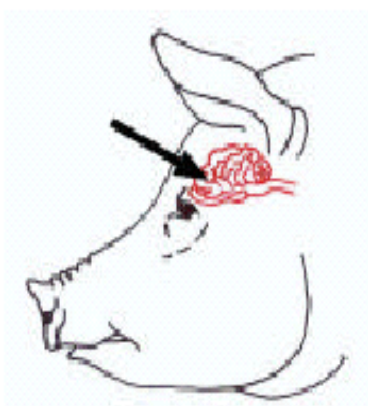


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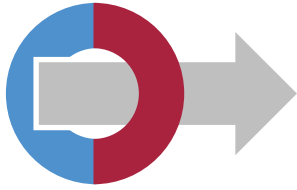
Mechanical stun



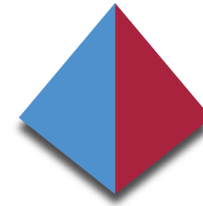
Remember
sinuses in large
boars and sows

- Very good stun

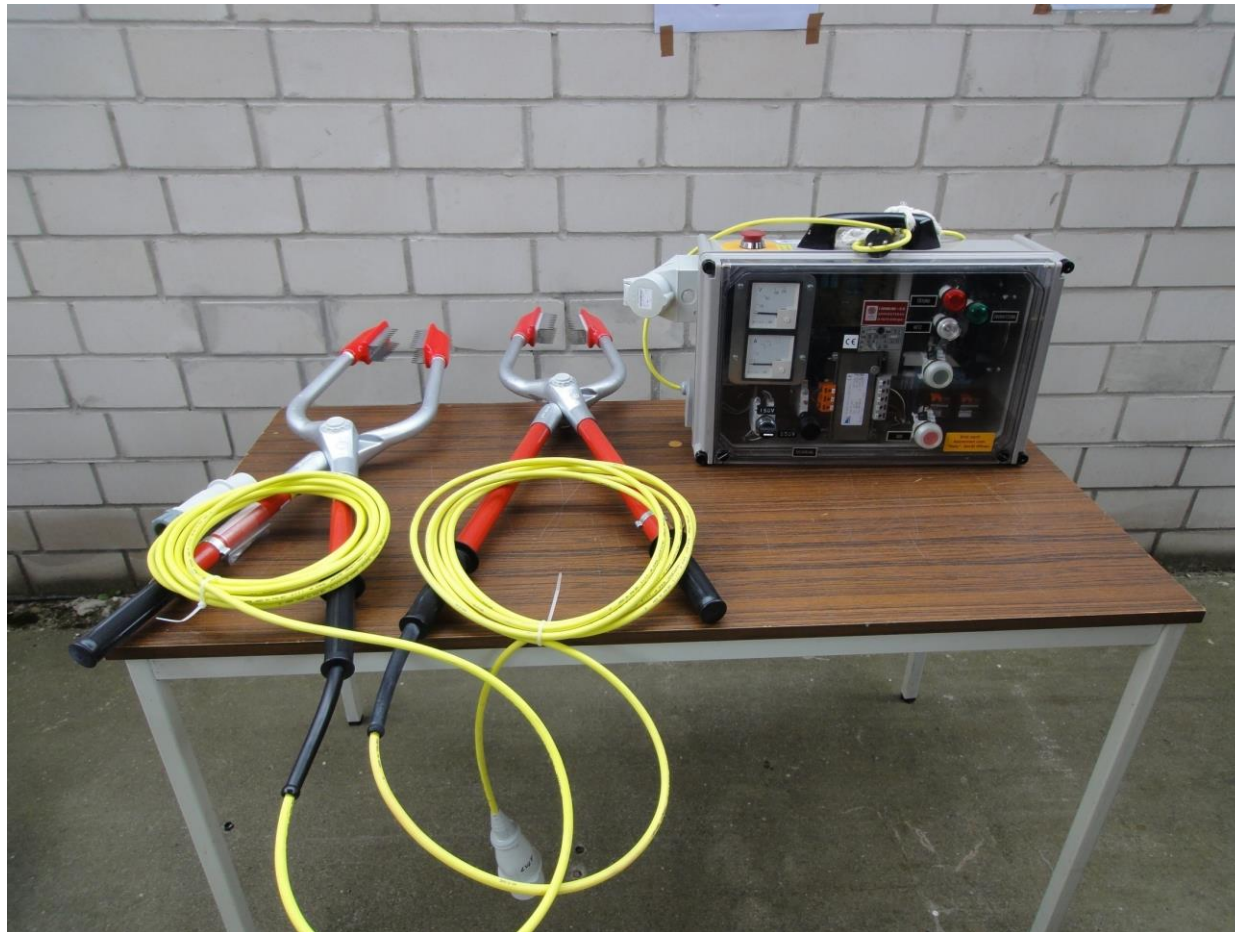


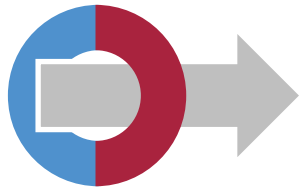


Electrical Stunning equipment

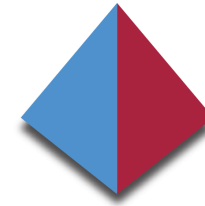


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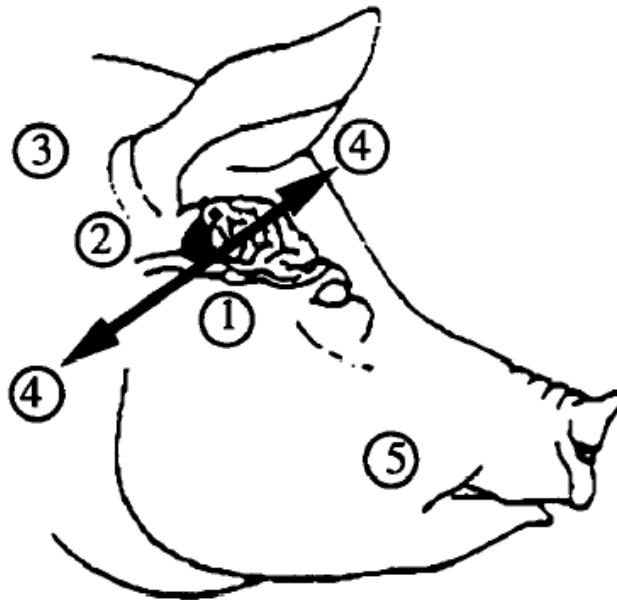
Electrical stunning

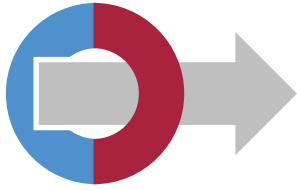


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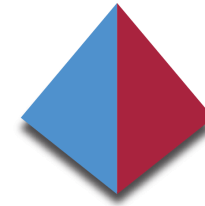


- Electrode positions during manual stunning





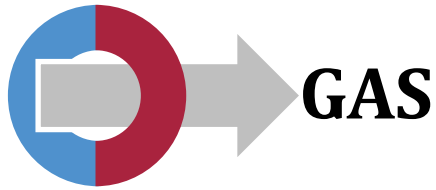
Pigs – Stunning methods



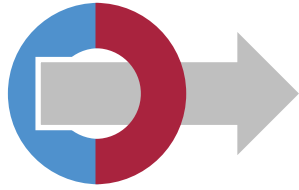
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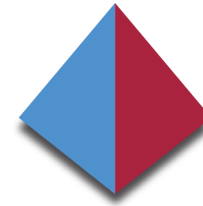
GAS	Description	Key parameters include
Carbon dioxide at high concentration	Anoxia	Gas quality and concentration, exposure time, temperature
Carbon dioxide in two phases	Anoxia	
Carbon dioxide associated with inert gas	Anoxia	
Inert gas	Anoxia	
Other methods		
Lethal injections	Loss of consciousness	Type of injection and medicine used



- Rate of induction of unconsciousness is related to concentration of gas
 - Low concentrations require long exposure times
- Duration of unconsciousness is related to gas concentration and duration of exposure
- Prolonged exposure to high concentrations result in irreversible stun
 - death in some animal



INJECTABLE ANAESTHETICS

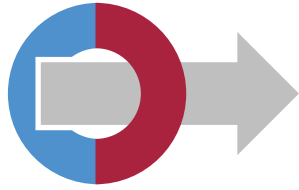


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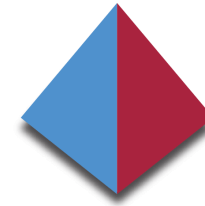


- Injectable anaesthetics include: Barbiturates; sodium pentobarbital





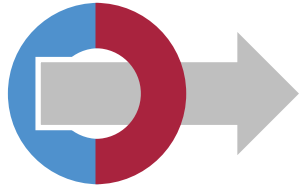
Monitoring stunning



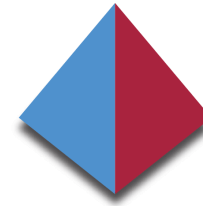
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Assessment	Observations
Visual	No rhythmic breathing
Visual	Recumbency; carcass relaxed, jaw open and tongue hanging out
Visual	No voluntary movements
Physical	No corneal reflex when touching the eye
Physical	A pin prick in the nose or an ear pinch should not produce a reaction



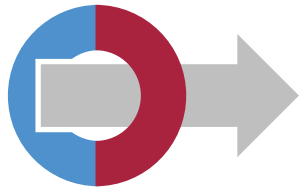
Stamping out - Killing



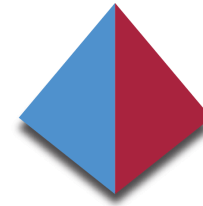
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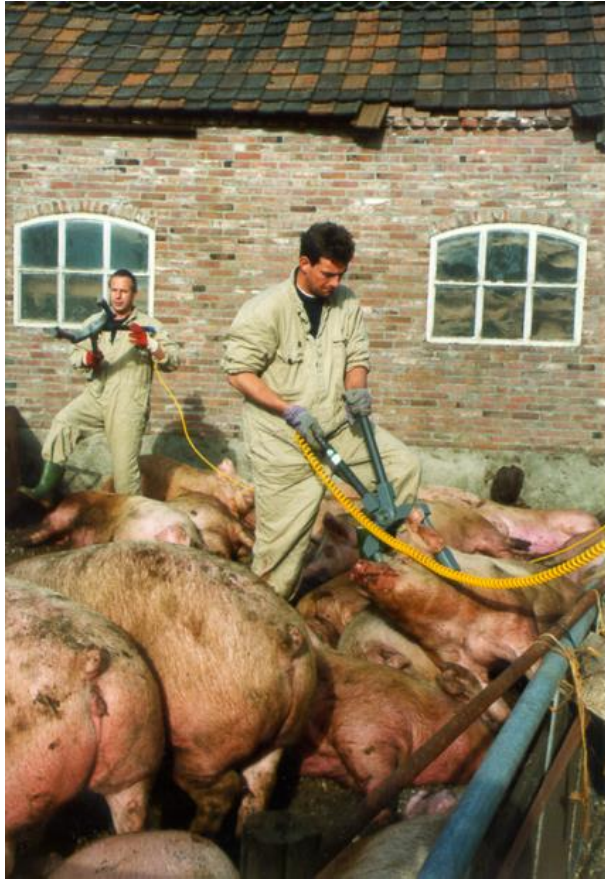
- Pigs can only be killed after appropriate stunning (simple stunning)
- Simple stunning shall be followed as quickly as possible by a procedure ensuring death:
 - Bleeding
 - Pithing
 - Electrocution
 - Prolonged exposure to anoxia

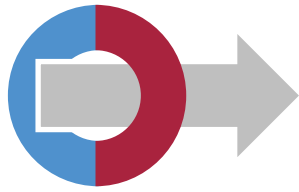


Killing - Electrocution

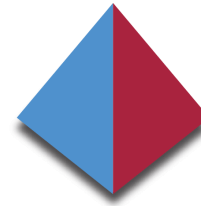


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Killing - Electrocution



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Killing – Electrocution

- Entrance



- Entrance

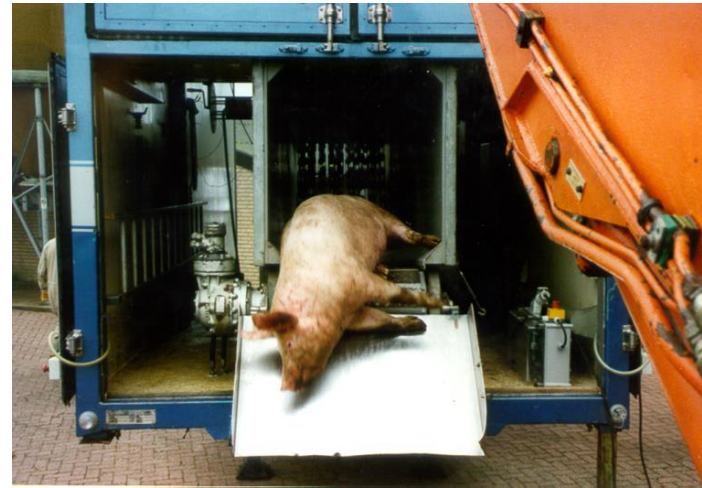


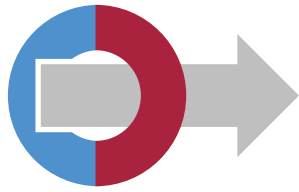
Killing – Electrocution

- Exit

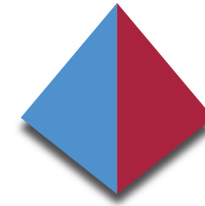


- Exit

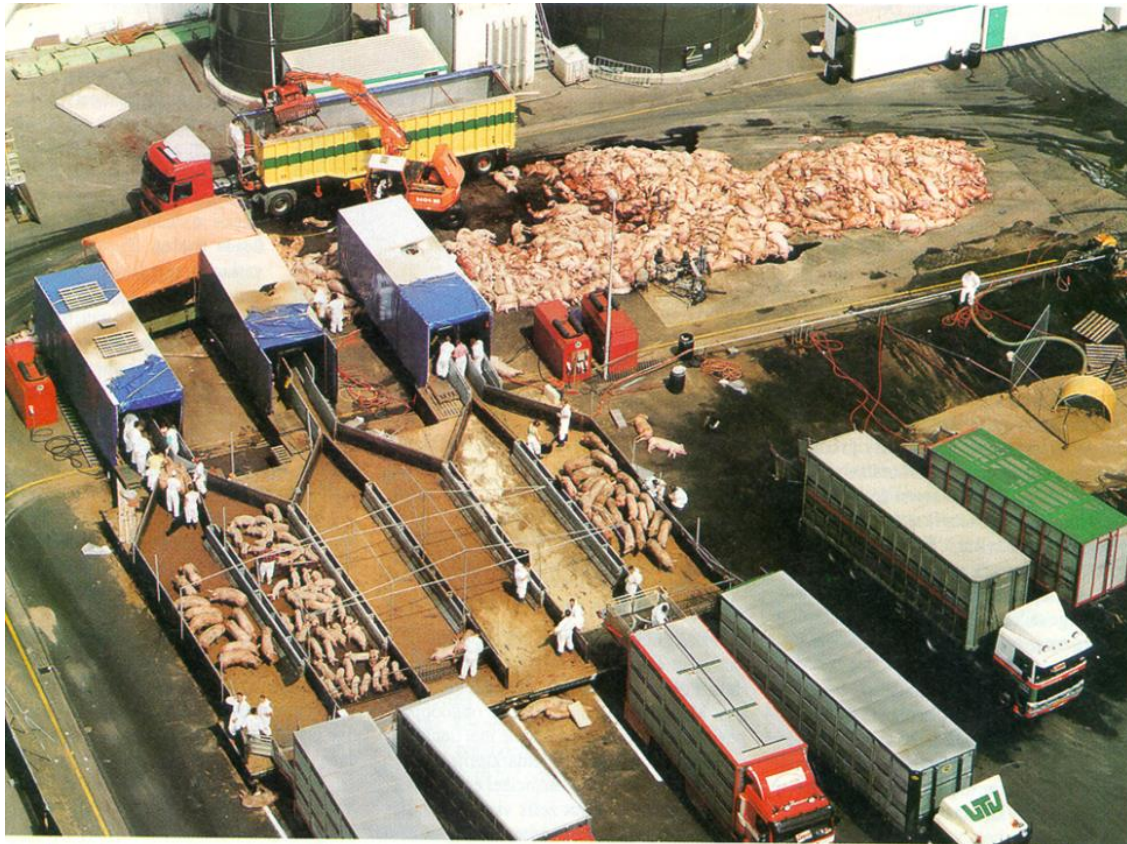




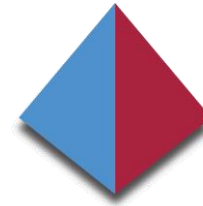
Killing – Electrocution



- Killing of pigs during Classical swine fever epidemic



Gassing of pigs



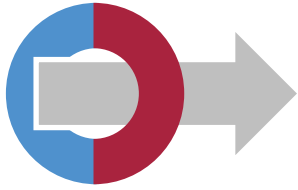
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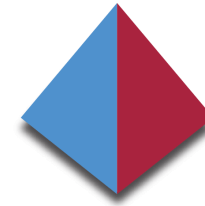
- Pig container

- Pig container





Gassing of pigs

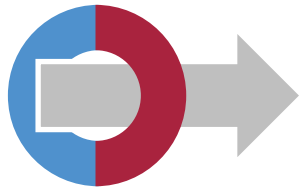


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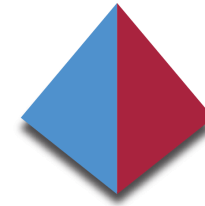


- Pig container

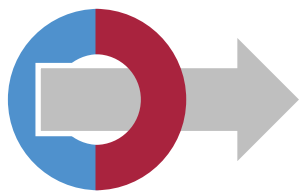




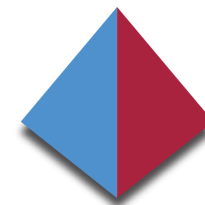
Killing methods, Baltic States , 2015



Country No. ASF outbreaks	Mechanical	Electrical	Gas	Lethal injections	Dead at time of confirmation
Estonia 18	1		12	3	2
Latvia 10	9	1		2	1
Lithuania 13	2		10		1



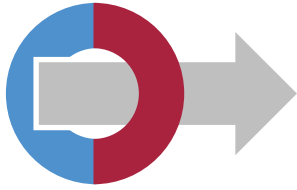
Depopulation - time Baltic States , 2015



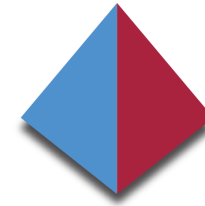
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Country No. Outbreaks	Depopulation date of confirmation	Depopulation date of Confirmation +1	Depopulation date of Confirmation +2	Depopulation date of Confirmation > 2
Estonia 18	4	6	4	4
Latvia 10	4	5	1	
Lithuania 13	8	4	1	



Carcass Disposal



- Methods of priority – Environmental protection

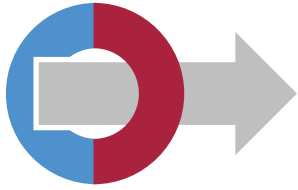
Licensed Incineration

Licensed Rendering

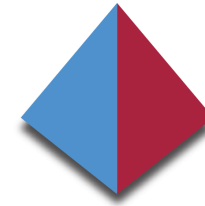
Licensed Landfill

Mobile on farm Air Curtain Burners

On Farm Pyres & Burial



Carcass disposal



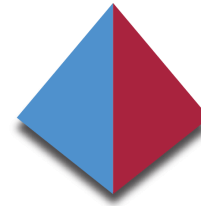
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- Incinerators



Carcass disposal



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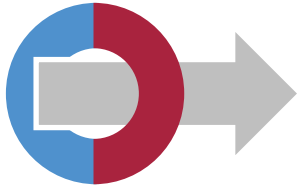


- Leak proof truck

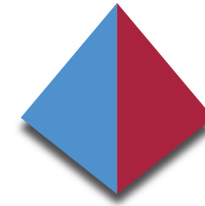


- Rendering plant





Carcass disposal



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- Licensed landfill



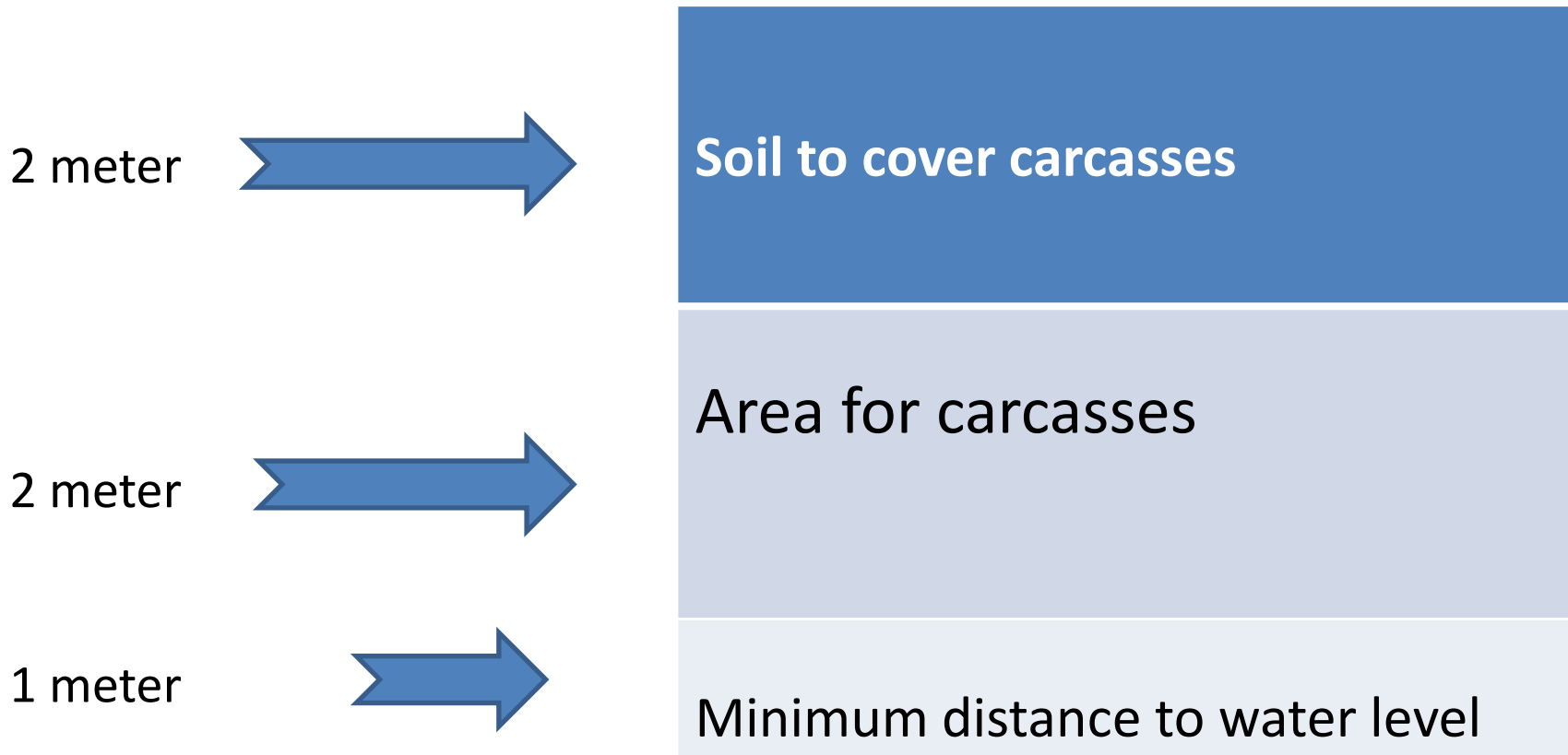
Carcass disposal

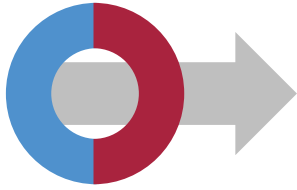


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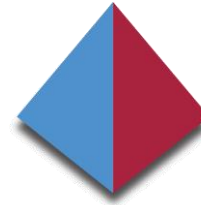


**Burial site,
5 meter deep and
3 meter wide**





Carcass disposal

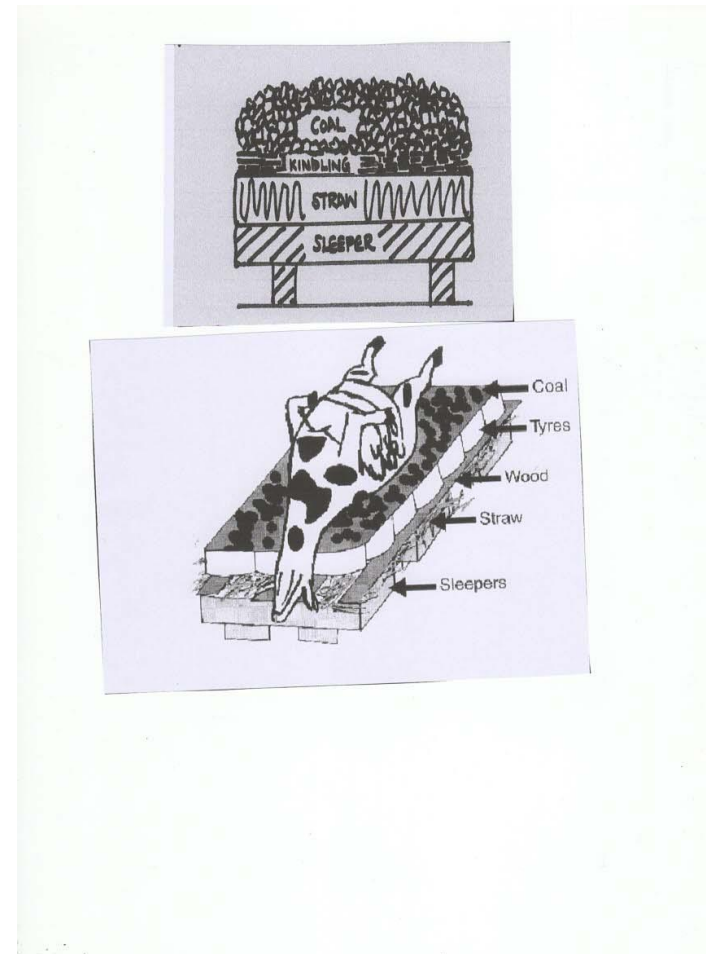


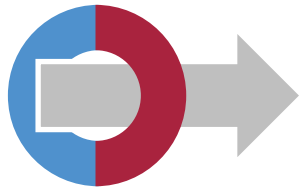
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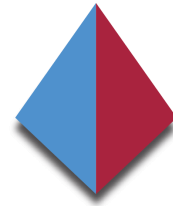
BURNING

- Building a Pyre
 - Railway sleepers or Forestry Timber
 - Straw
 - Wood/kindling
 - Coal





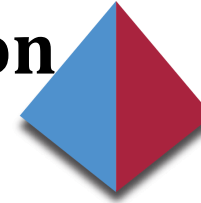
Carcass disposal/BURNING



GF-TADs
GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES



Cleansing and Disinfection



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- Preliminary disinfection
- Thorough cleaning
- Two final disinfections and degreasing one week apart
- Detailed guidelines Annex “ of Council directive 2002/60/EC

Disinfectants/Inactivations

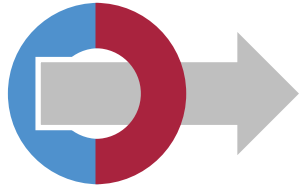
- NaOH, 8/1000. 30 min.
- Hypochlorines – 2.3% chlorine , 30 min.
- Formalin, 3/1000. 30 min.
- Ortho-phenylphenol – 3%, 30 min.
- Iodine compounds
- OIE Technical card



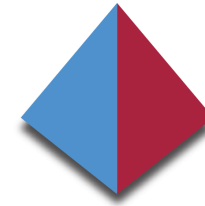
Vectors not implicated

- Repopulation may start 40 days after completion of cleansing and disinfection
- Repopulation procedures:
 - (a) In open-air holding introduction of sentinel pigs; serological test after 45 days; if no antibodies full repopulation
 - (b) In other holdings as (a) or all pigs enter within 20 days and undergo serological tests 45 days after arrival of last pig.
- No pigs leave a holding before negative results of serology





Repopulation Baltic Countries 2015



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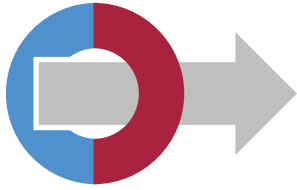
Country NO. Of ASF outbreaks	Holdings repopulated (Nov.2016)	Partly repopulated	Full Repopulated	Months after Completion of cleansing & disinfection
Estonia 18	5	5		2-12
Latvia 10	3	2	1	6-8
Lithuania 13	1		1	8

Baltic Countries, 2015

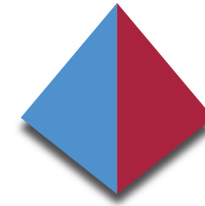
- Cleansing & disinfection
- Repopulation
- Result:

- **NO RECRUDESCENCE**

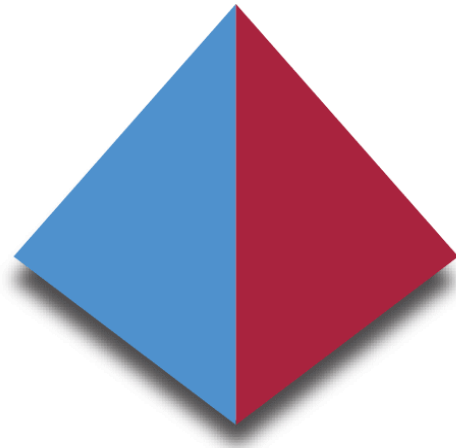




Conclusion



- For some infectious animal diseases there are currently no alternative control methods than the Stamping out policy
- A successful application of using Stamping out in domestic pigs calls for a good knowledge and resource with regard to
 - legal provisions
 - Disease investigation and confirmation
 - Biosecurity measures
 - Epidemiology
 - Killing methods (animal welfare + logistic operational)
 - Carcass disposal
 - Cleansing and disinfection



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TRANSBOUNDARY ANIMAL DISEASES



Thank you

Third meeting of the Standard Group of Experts on ASF in the Baltic and Eastern Europe Region
Moscow, Russia – 15-16 March 2016

N. Leboucq
GF-TADs Secretariat