Early disease detection
Surveillance

K Depner

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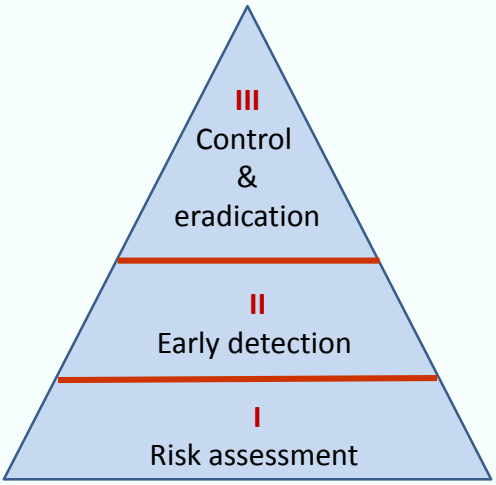
Belgrade

What's all about?

A: Early detection >>> **Passive / Active** surveillance ????

B: Disease control and eradication
Hunting strategy, biosecurity, feeding strategy, etc…

- ***B works only when A works***
- ***A can only be successful if based on a proper risk assessment***



Risk Assessment Germany

- Assessment for import risk through
  - Legal import of pigs and products
  - Contaminated vehicles and clothes
  - Wild boar
- Qualitative not quantitative
  - Negligible / low / medium / likely / high
- With confidence level
  - Low, medium, high

Carola Sauter-Louis

Risk assessment on local level (district)

Introduction/release

↓

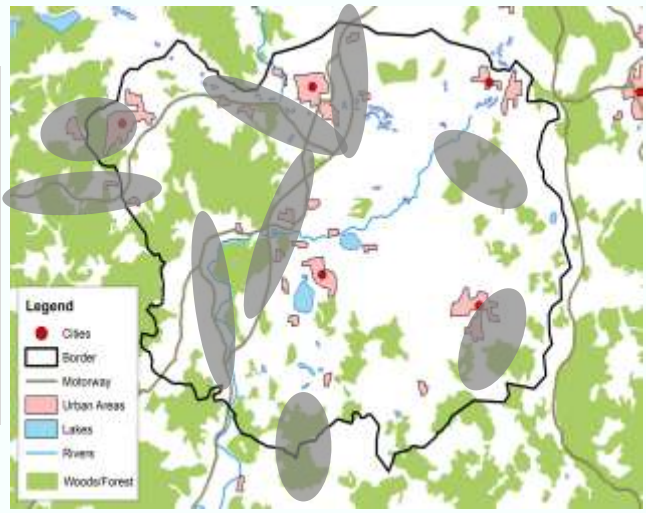
Contact/ primary infection

↓

Secondary infection/perpetuation

↓

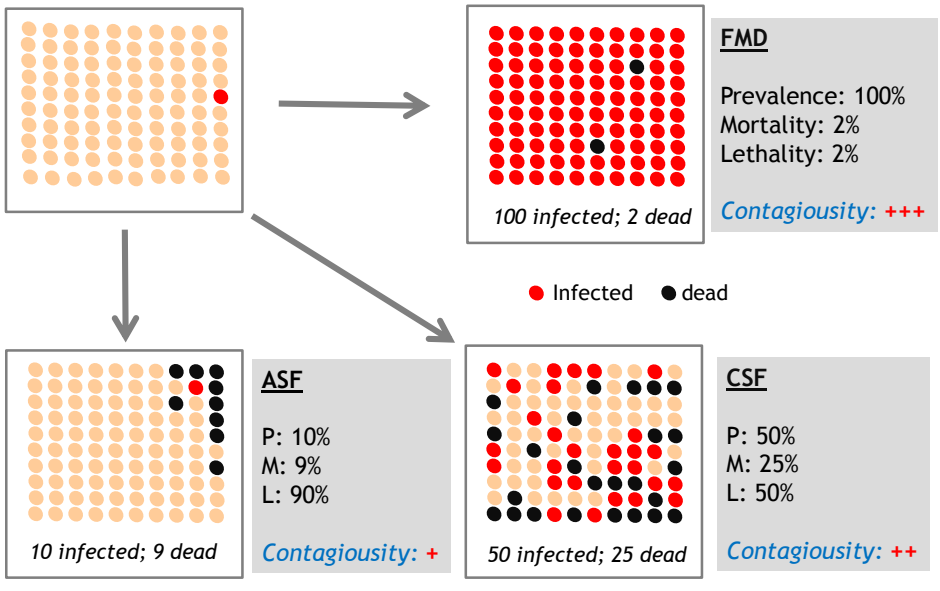
Endemicity/spread



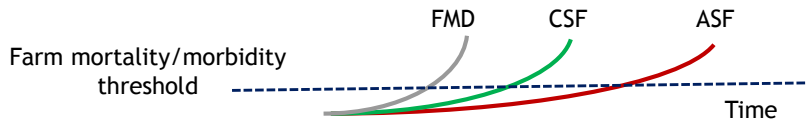
Risk areas: „urban " WB; high WB density; resting areas on highways, etc…

ASF - CSF - FMD

FLI



High Risk Period (HRP)



Low contagiousity => low (initial) mortality
ASF remains undetected in large pig farms (below the normal mortality threshold)

HRP -> farm size
- *back yard: rather short*
- *large farm: rather long*

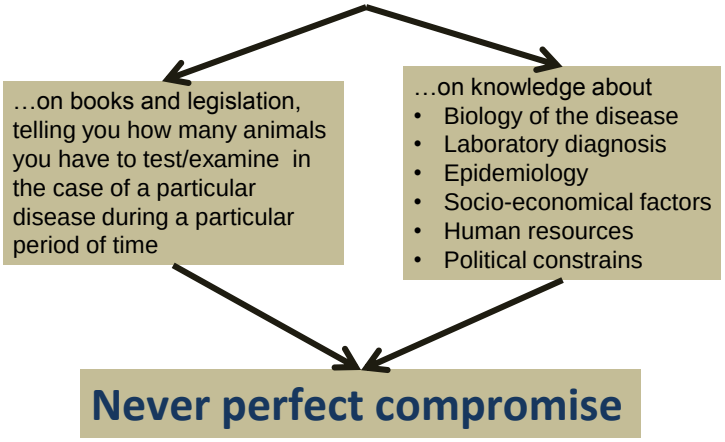
Surveillance

Surveillance can be:

- **to prove freedom of disease**
- **to detect new cases**
- **to determine the prevalence**
- **to monitor the evolution of the disease**
- **to calm down trade partners and neighbours**
- **to show activity….**

Surveillance

Surveillance can be based:



Surveillance

Surveillance:

- **on farm level (backyard ⇔ commercial)**
- in the village (epidemiological unit???)
- in the area (backyard ⇔ commercial)
- in the country/region

- *Clinical examination*
- *Sampling for laboratory tests*

The preconditions for the design of surveillance activities are based on the epidemiology of the disease

The following basic knowledge about the disease enables the planning of surveillance programms

- Clinical disease (clinical course and clinical signs)
- Contagiousity
- Laboratory tests
- Ways of transmissions
- Biosecurity "factor"
- Human factors

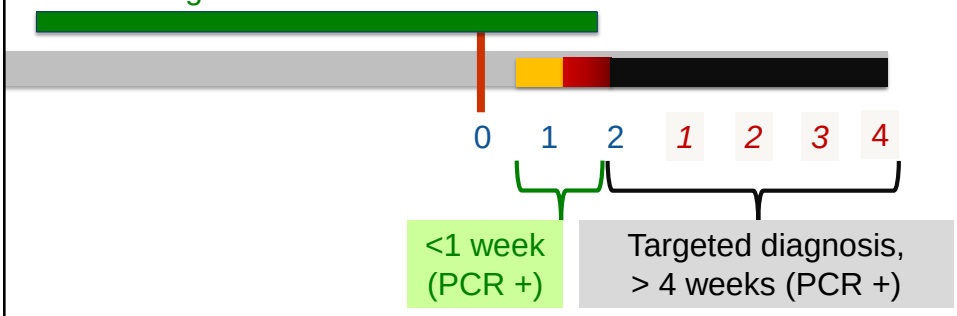
⇒ Commercial farms
⇒ Non-commercial farms
⇒ Outdoor farms

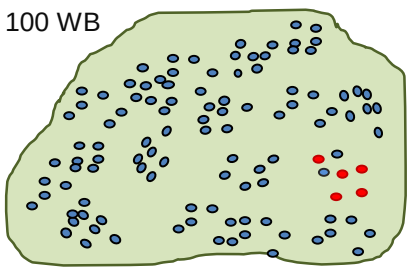
Passive & Active surveillance

Traditionally

- Surveillance based on "5/95" *(ASF diagnostic manual)*

Period during which a WB can be hunted





5 of 100 infected (5%)

5/95-Concept

On the day of sampling 5 out of 100 WB (5%) are incubating ASFV. To find at least 1 positive WB 45 have to be sampled same day (95% confidence)!

(Prevalence of 2% -> 78 WB have to be sampled (1% … 96 WB…)

Early detection of ASF in wild boar

Passive surveillance vs. active surveillance

	tested	positive	% positive
Passive (found dead)	245	177	***72.24***
Active (hunted)	2765	40	***1.45***
		217	

Passive / Active: 72.24 / 1.45 = 49,82

*The probability to detect an ASF positive animal is **50** times higher in dead animals than in hunted animals*

***81 out of 100** positive cases are likely to be detected in **dead** wild boar*

(177 / 217 x 100 = 81)

SANTE/7113/2015 – Rev 6; WORKIMG DOCUMENT

ASF Strategy for Eastern Part of the EU

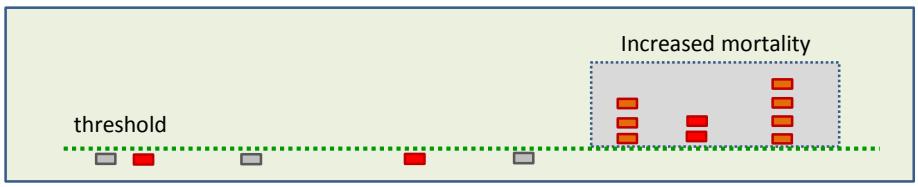
FLI

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

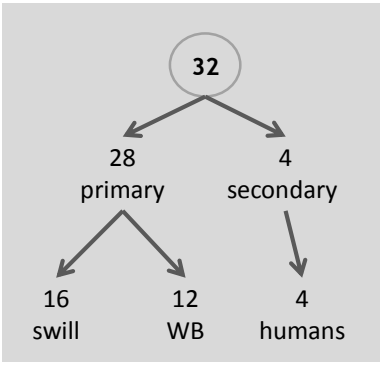
Brussels

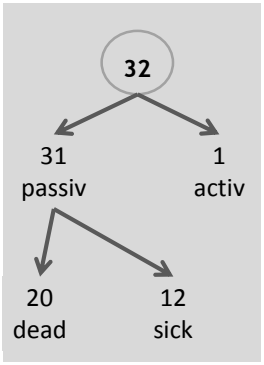
2.1.5. Sampling for laboratory investigations will be performed

- ~~in~~ In case of clinical signs (such as fever or haemorrhagic lesions).
- Each week, virological testing of at least the first two death (post weaning pigs or pigs older than 2 months) in each production unit~~All dead pigs to be sampled and tested.~~
- Ante or post-mortem signs raising suspicion at home slaughtering at least within the area covered by Commission Decision 2014/709/EU.



ASF outbreaks in Latvia in 2014





Experimental studies
(Pietschmann et al., 2015)

8 %

2 / 24 = 0,08 (8%)

Field observations
(Oļševskis et al., 2015)

12 %

69 / 585 = 0,12 (12%)