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Challenges and solutions for early detection of ASF

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Food and Veterinary Service, LATVIA

Global consultation on African swine fever control

FAO, Rome | 12-14 December 2023

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This is what we expect as ASF suspicion....

BUT...

It does not happen at the beginning!!!

Photo: FVS Latvia

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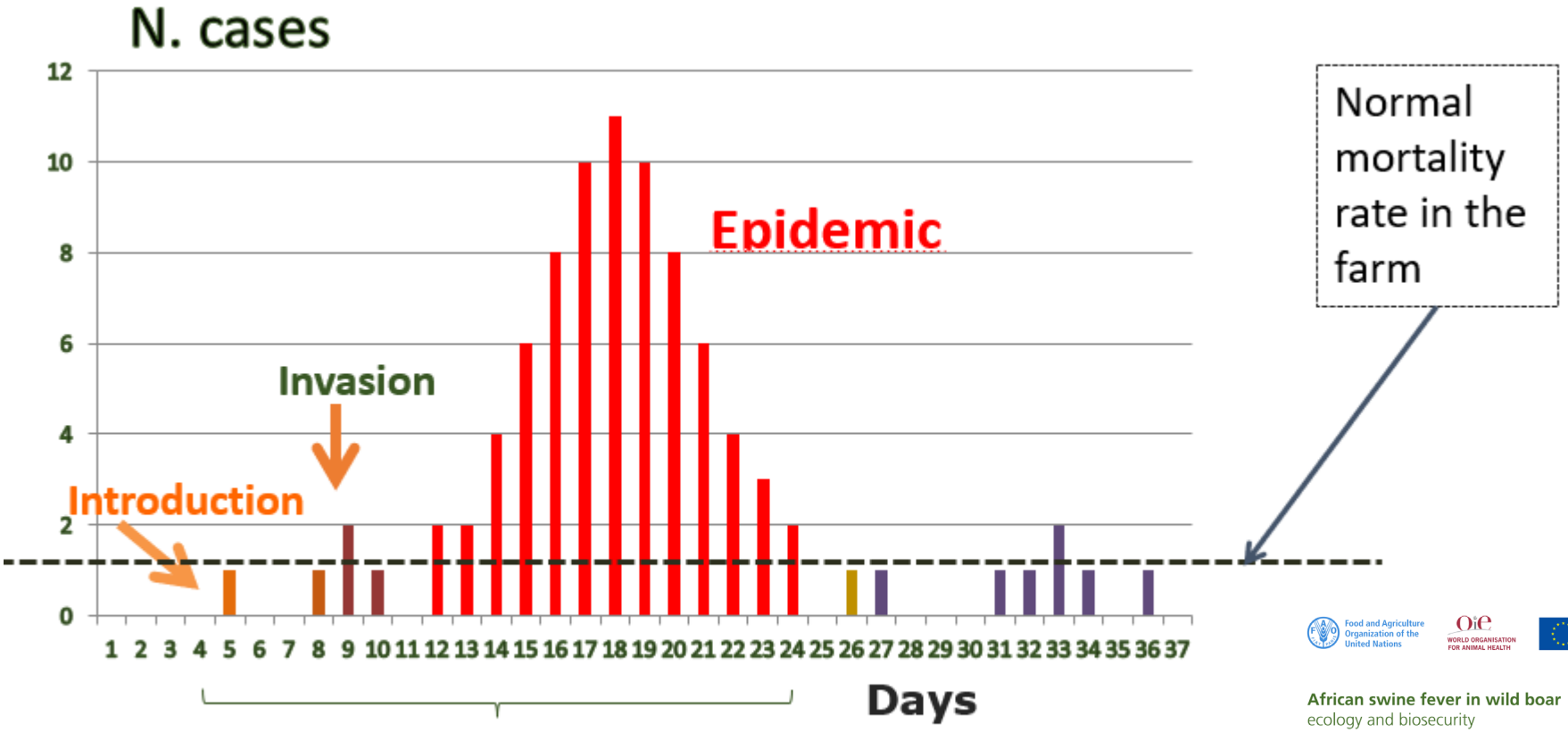
Evolution of ASF in a pig farm



Food and Agriculture Organization of the United Nations
WORLD ORGANISATION FOR ANIMAL HEALTH

African swine fever in wild boar
ecology and biosecurity

FAO ANIMAL PRODUCTION AND HEALTH / MANUAL 22

https://www.woah.org/app/uploads/2021/03/en-manual-asfinwildboar-2019-web.pdf

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Early detection of ASF: large farm
an example

Breeding pig farm:

- In total ~ 5000 pigs
- Incl.~ 2000 sows
- Suspicion 12 January

- 6 sows dead

- Confirmation 13 January

- all 6 positive to ASF virus

Is that early detection?

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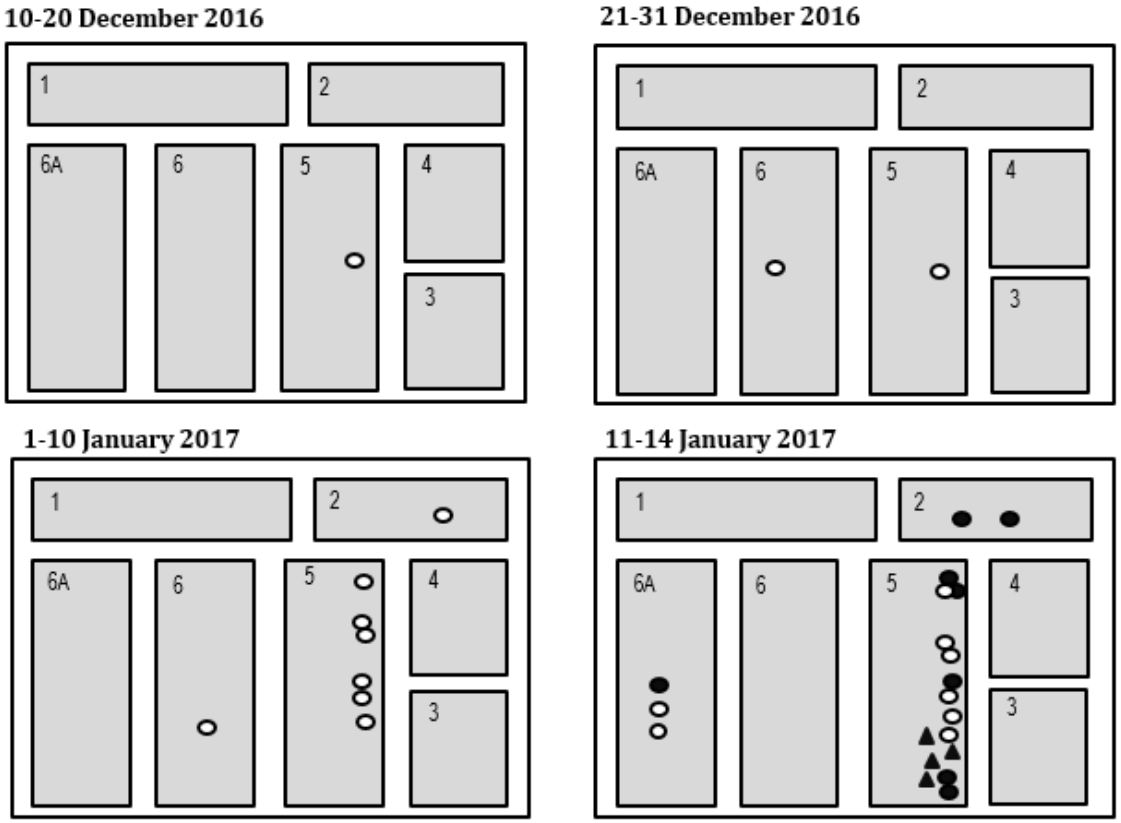
Early detection of ASF: large farm (2)

Epidemiological investigation provides answers…



Early or late?

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Early detection of ASF: large farm (3)

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http://vetline.de/open-access/158/3216/

Case report/Fallbericht

Food and Veterinary Service, Riga, Latvia[1]
Institute of Food Safety, Animal Health and Environment – "BIOR", Riga, Latvia[2]

African swine fever outbreak investigations in a large commercial pig farm in Latvia: a case report

Untersuchungen eines Ausbruchs der Afrikanischen Schweinepest in einem großen kommerziellen Schweinebestand in Lettland: ein Fallbericht

Kristīne Lamberga[1], Mārtiņš Seržants[1], Edvīns Oļševskis[1,2]

Recommendation: enhanced passive surveillance:

Breeding farms: every dead sow and boar must be tested by PCR

Fattening farms: each week first 2 dead pigs must be tested by PCR

Included in EU guidelines (prev. ASF strategy) and REGULATION (EU) 2023/594

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ASF early detection in backyard farms

- One or few pigs – easy to notice sick or dead pig.
- Early notice of sick pig, but what is next?

a) starting the treatment – prolong a process and delay development of disease – facilitate ASF spread

b) slaughter a sick pig and sell or share the meat – spread ASF

c) kill the sick pig and consume / destroy carcass without reporting

d) burry the dead pig without any reporting

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Reporting – key element for early detection in pig farms

The main challenges:

- lack of knowledge,
- low level of awareness,
- lack of compensation system in a country,
- fear of extra costs and possible consequences,
- distrust of governmental authorities,
- economic, behavioral, and cultural aspects.

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Conclusions and recommendations: domestic pigs

1. ASF is not highly contagious disease.
2. Early detection of ASF significantly reduces the risk of spreading the infection to other pig farms.
3. ASF early detection is most effective through the passive surveillance.
4. Enhanced passive surveillance (weekly testing) has been proved to be effective for early detection of ASF in large commercial farms in ASF affected areas.
5. Costs of veterinary visit, sampling and lab testing should be covered by Veterinary services to facilitate reporting of suspicions.
6. Compensation system is very important to facilitate the reporting of suspicions!
7. Farmers education and awareness campaigns are essential!!!

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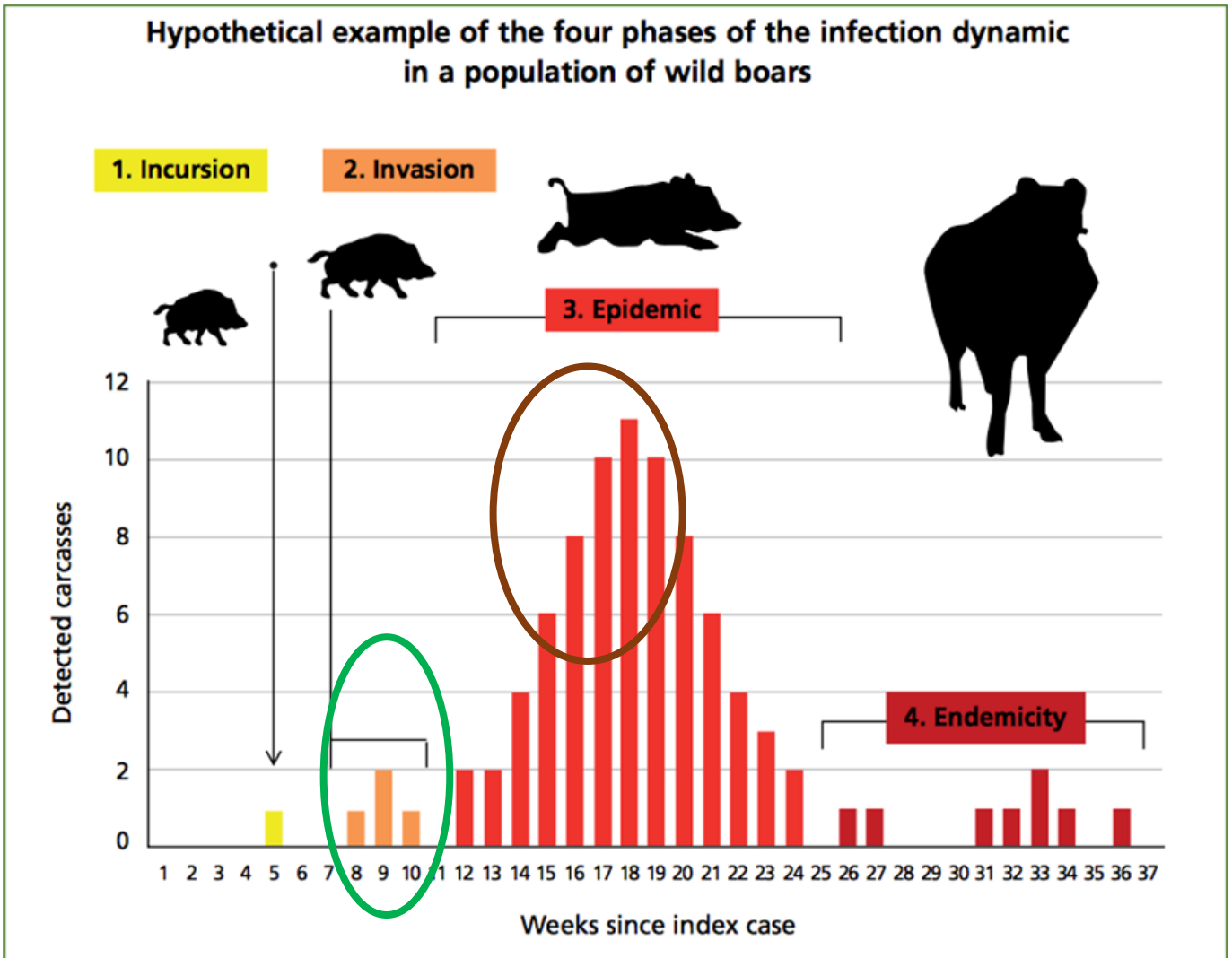
ASF in wild boar and early detection



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https://www.woah.org/app/uploads/2021/03/en-manual-asfinwildboar-2019-web.pdf

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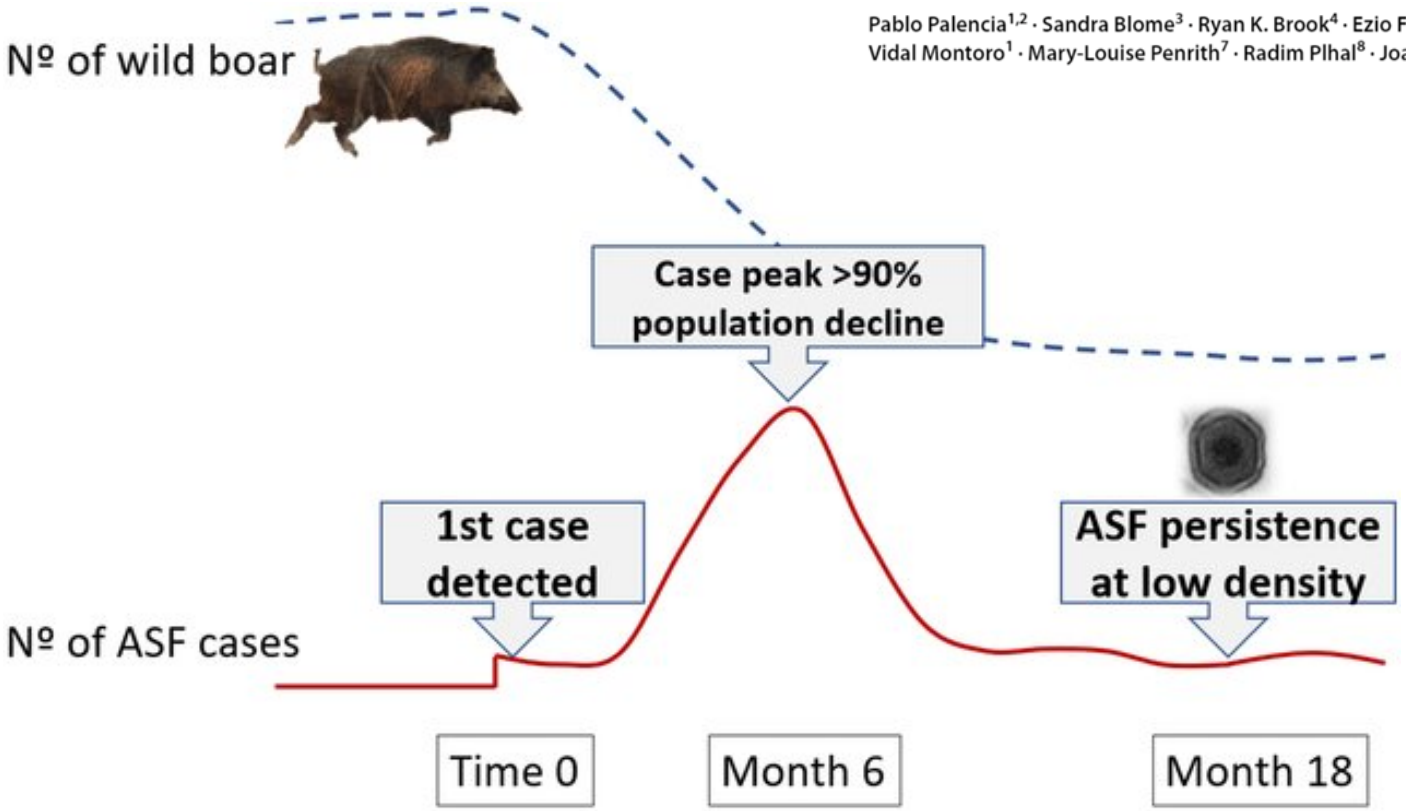
ASF in wild boar population

European Journal of Wildlife Research (2023) 69:69
https://doi.org/10.1007/s10344-023-01696-w

REVIEW

Tools and opportunities for African swine fever control in wild boar and feral pigs: a review

Pablo Palencia[1,2] · Sandra Blome[3] · Ryan K. Brook[4] · Ezio Ferroglio[2] · Yeong-Seok Jo[5] · Annick Linden[6] · Vidal Montoro[1] · Mary-Louise Penrith[7] · Radim Plhal[8] · Joaquín Vicente[1] · Arvo Viltrop[9] · Christian Gortázar[1]



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ASF early detection: passive or active surveillance?

LATVIA: Summary of wild boar surveillance data from infected areas (June-December 2014)

Wild boars	Number of tested animals	Number of positive results
Found dead	227	178
Hunted	2733	39

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ASF early detection: passive or active surveillance?

Virus detection in dead wild boar: 178/227 = 0,78 (78%)
Virus detection in hunted wild boar: 39/2733 = 0,014 (1.4%)

detection in dead / detection in hunted wild boar
0,78/0,014 = **55,7**

Conclusion:
The probability to detected a virus in dead wild boar is 55 times higher than in hunted wild boar!!!

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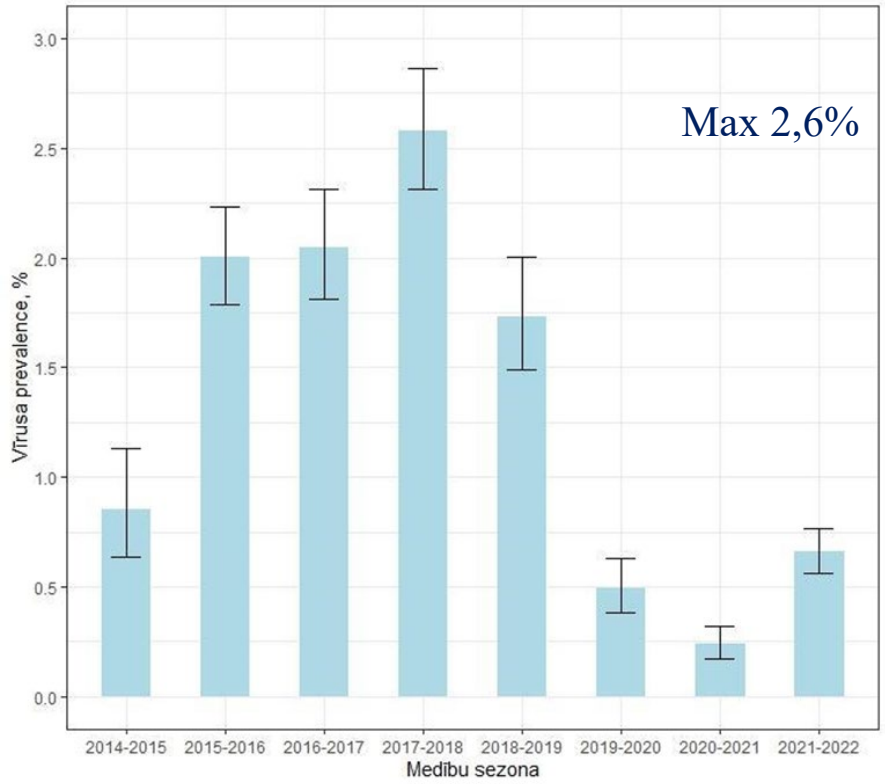
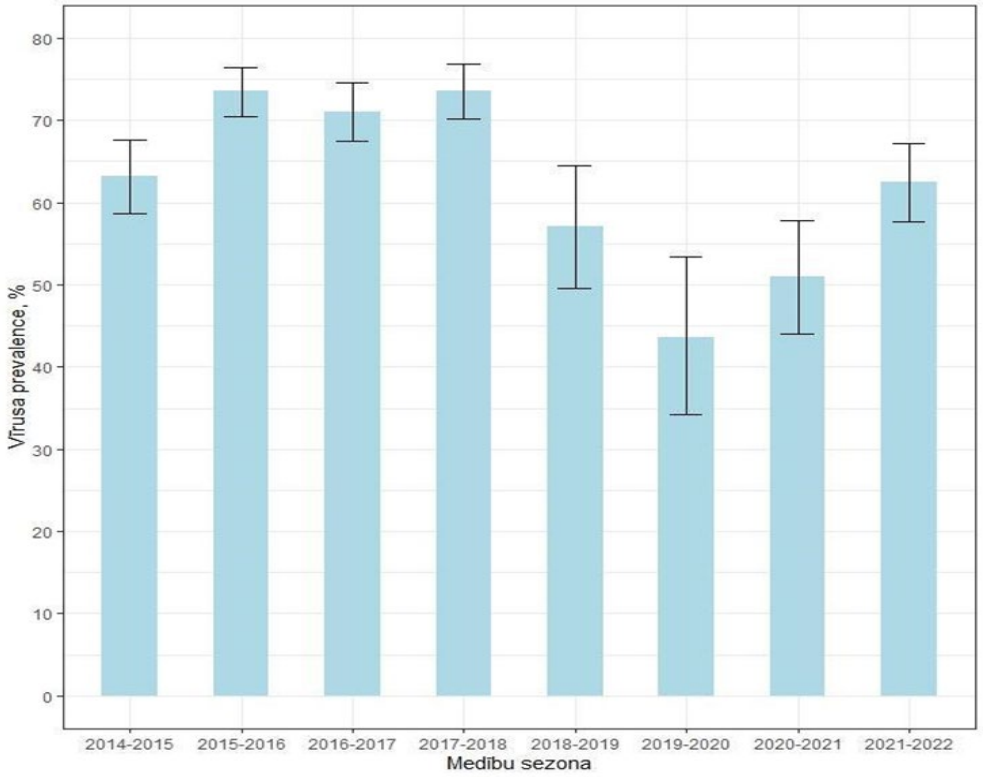
ASF early detection: passive or active surveillance?

ASF surveillance data from Latvia

In hunted wild boar:



In found dead wild boar:



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Why do people not report?

The main challenges:

- low level of awareness,
- not knowing how or to whom to notify the dead wild boar,
- insufficient understanding of the epidemiology and economic impact of ASF,
- fear of possible unknown consequences (hunting ban, restrictions…),
- fear for inappropriate or unpractical control measures,
- ignorance of the importance of the reporting.

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Reporting of dead animals: be prepared!

- **Communication channels: how? To whom? When?**

  - hotlines, phone of a responsible person, mobile apps, etc.

- **Can everybody report or hunters only?** The detection of ASF in wild boars poses hunting restrictions: are hunters willing to report?
- **How easy and simple is reporting?**
- **Motivation: Incentives?**
- **Awareness -** the most important element to make passive surveillance work.

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Conclusions and recommendations: wild boar

1. **Passive surveillance is irreplaceable** in the early detection of ASF in wild boars.

2. **All found dead wild boar (including road kills) and suspected animals must be tested to ASF virus** in high-risk areas to ensure early detection of ASF.

3. Active surveillance (testing of hunted wild boar) is not able to detect early ASF virus in high-risk areas - because of low virus prevalence (0,5-2%).

4. Active surveillance can be used as additional method to passive surveillance in ASF infected areas for monitoring epidemiological situation – not for early detection!

5. Continuous dialogue between all involved stakeholders, shared responsibility and well-functioning communication channels are very important.

6. Continuous awareness and exchange of information is fundamental to ensure a well-functioning passive surveillance system for ASF in wild boar populations

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Practical sampling / testing strategy to confirm or rule out suspicions at the pig farm

- Priority – samples from dead pigs (PCR) that present at the farm
- Clinical examination of all pigs in each epidemiological unit
- Blood samples only from clinically sick / suspected pigs in each epidemiological unit
- Lab testing – PCR and ELISA

Conclusion: Targeted sampling of sick and dead animals is highly effective for identifying infected animals. The sampling strategy allows efficient and targeted identification of units where ASF virus is actively circulating.

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Transboundary and Emerging Diseases
WILEY

ORIGINAL ARTICLE

A practical guide for strategic and efficient sampling in African swine fever-affected pig farms

Kristīne Lamberga[1,3] | Klaus Depner[2] | Laura Zani[2] | Edvīns Olševskis[1,4] | Mārtiņš Seržants[1] | Santa Ansonska[1,4] | Žanete Šteingolde[4] | Aivars Bērziņš[3,4] | Arvo Viltrop[5] | Sandra Blome[2] | Anja Globig[2]

Photo: Ivars Koloda, Latvia

Thanks for your attention!