Information on ongoing EFSA mandate on ASF.

Mandates to EFSA on ASF

On-going:

- Risk of transmission by matrices, including feed (by December 2020)

New:

- Exit strategy (by January 2021)
- Outdoor farming (by January 2021)
- Epidemiological analysis (by March 2021)
- Gap research (by June 2021)

MATRICES

Deadline: December 2020

European Commission

Terms of Reference

- Review the evaluation of the ability of matrices, including vegetables, arable crops, hay and straw as well as sawdust, wood chips and similar materials likely to presents a risk to transmit ASF.
- This review should take into account a retrospective analysis of ASF spread mechanisms.
- The different matrices should be ranked on basis of their level of risk, considering also their trade flow pattern, with a view to enhance preparedness and preventions.
- Propose and assess a strategy to manage the risks posed by different matrices. The definitions used in the report shall correspond to the ones present in the EU legislation such as EU feed law, as far as applicable.

Matrices under assessment

- Hydrolyzed proteins
- Blood products, Spray-dried plasma
- Cereal grains, their products and by-products
- Legume seeds, their products and by-products
- Oil seeds, oil fruits, their products and by-products
- Tubers, roots, their products and by-products
- Other seeds, fruits and their by-products
- Forages and roughage
- Compound feed
- Bedding and enrichment material
- EMPTY vehicles for live pig transport, returning from affected areas

Risk pathway model

- calculates the probability of at least one infection of a pig in the overall non-affected area as

$$P_{\text{At least one infection event from area i by product j}} = 1 - \left[(1 - q_s)^{r(i,j)*m(i,j,s=small)} (1 - q_l)^{(1-r(i,j)\, m(i,j,s=large)}\right]$$

- where, $m_{i,j,small}$ and $m_{i,j,large}$ are the total number of units entering all small and large farms, while r is the proportion of consignments of *a specific product, j,* from *a specific region, i,* going to small scale farms, approximated as ratio of the number of pigs in small scale farms by the number of all pigs in the non-affected areas of EU.
- The pathway exposure model is applied to two geographical strata: i=EU or i=Eurasia; and 5 groups of products: j= animal by-products for use in feed, feed materials, compound feed, bedding, and vehicles.

Parameters of pathway model

Parameter	Unit	Description
Trade characteristics		
$N_{\text{Consignments of product j entering non-ASF area from area i}}$	[-]	Number of consignments of a specified product, j, entering the non-affected area of the EU from a specified affected area, i, in the coming 12 months
$r_{i,j}$	[%]	Proportion of consignments of a specified product, j, entering the non-affected area of the EU from a specified affected area, i, going to small farms
$N_{\text{Farms of size s per consignment of product j from area i}}$	[-]	Average number of farms of a specified size, s, that receive a delivery that contains material from a SINGLE consignment of a specified product, j, entering the non-affected area of the EU from a specified affected area, i.
Contamination		
$P_{\text{Product, j, contains ASFV at origin in area i}}$	[%]	Proportion of consignments of a specified product, j, containing ASFV at the place of production at a specified affected area, i
$P_{\text{Dose in product, j from area i leads to infection}}$	[%]	Proportion of farm deliveries (resulting from a contaminated consignment and taking into account the splitting and/or mixing) of a specified product, j, from a specified affected area, i, which contain at least one infectious dose high enough to cause an infection of at least one pig at the point of usage in the non-affected area of the EU
ASFV epidemiology		
$P_{\text{ASFV in product j from area i survives transportation}}$	[%]	Proportion of consignments of a specified product, j, containing ASFV at the place of production that still contain ASFV at the point of usage (i.e. following transportation, storage, and handling) in the non-affected area of the EU
Farming practice		
$P_{\text{Product, j, enters a pig herd}}$	[%]	Proportion of farm deliveries of a specified product, j, imported to the non-affected area of the EU, that will totally or partly reach a pig herd (part of farms with pig production)
$P_{\text{Product, j, comes into contact with pigs}}$	[%]	Proportion of deliveries to pig herds of a specified product, j, imported to the non-affected area of the EU, that will have contact with pigs (equal 1 for feed and bedding)

Methodological approach

- Evidence on trade, survival of ASFV, farming practices has been collated from literature and databases
- Public consultation on draft data section on ASFV survival in Feb 2020
- Three Expert Knowledge Elicitations (EKEs) are currently being done:
  - Trade
  - Contamination
  - Farm Exposure
- EKE experts estimate the values for the different model parameters based on the evidence provided and their knowledge
- Model is run using the values elicited during EKEs
- Working group drafts assessment based on model outcome

Outdoor farming

Deadline: January 2021

European Commission

Terms of Reference

1. EFSA should verify the **risk factors** for ASF introduction and spread that are linked to the keeping of pigs outdoors. EFSA should also evaluate the **sustainability** of such farming under different management and risk mitigation measures and assess the **effectiveness of banning** outdoor farming in already affected or at-risk areas, and the **risks linked to possible options for derogation** to prohibition of keeping of pigs outdoors in affected areas.
2. EFSA should i) **characterize** and **categorize** the keeping of pigs outdoors; and (ii) describe the **application of biosecurity measures** for keeping of pigs outdoors (such as effective separation between the pigs kept outdoors and wild boar and other animals, the logistical arrangements for entry of new animals into the herd, control of unauthorized entry into the herd, disinfection, pest control etc.). Where possible, EFSA should iii) **evaluate the effectiveness** of these practices in different environments on mitigating the risk of ASF introduction (in regions of Member States not yet affected) and ongoing spread (in regions of Member states already affected) by this disease.

Data needs & Methods for Data collection

How are outdoor pig farms in EU MS characterized in terms of farm structures, farming practices, herd size, geographical location?

What biosecurity measures are presently applied in outdoor pig farms in EU MS?

What are potential risk factors for introduction into farms and spread into the region linked to outdoor pig farming?

What biosecurity measures are presently applied in outdoor (pig) farms in non-EU countries?

Questionnaire survey with MS, producer organizations

Literature review

Internet search

Questionnaire survey

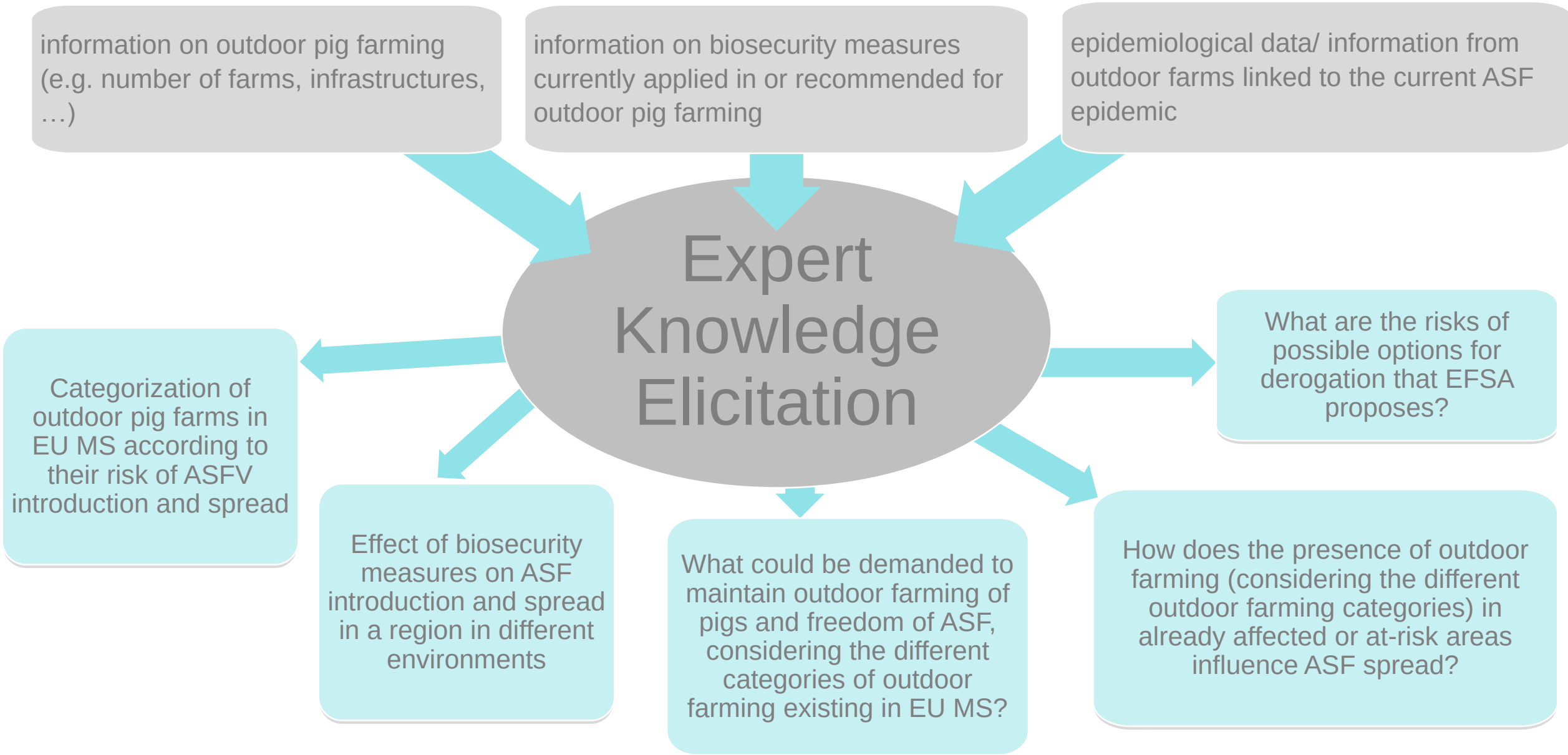
aggregated information on outdoor pig farming (e.g. number of farms, infrastructures, …)

aggregated information on biosecurity measures currently applied in or recommended for outdoor pig farming

epidemiological data/ information from outdoor farms linked to the current ASF epidemic

- EU-Survey tool
- July-September 2020
- MS CA, producer organisations
- **Participation voluntary**, yet **pivotal for scientific opinion**

Assessment


information on outdoor pig farming (e.g. number of farms, infrastructures, …)
information on biosecurity measures currently applied in or recommended for outdoor pig farming
epidemiological data/ information from outdoor farms linked to the current ASF epidemic
Expert Knowledge Elicitation
Categorization of outdoor pig farms in EU MS according to their risk of ASFV introduction and spread
Effect of biosecurity measures on ASF introduction and spread in a region in different environments
What could be demanded to maintain outdoor farming of pigs and freedom of ASF, considering the different categories of outdoor farming existing in EU MS?
How does the presence of outdoor farming (considering the different outdoor farming categories) in already affected or at-risk areas influence ASF spread?
What are the risks of possible options for derogation that EFSA proposes?

EXIT STRATEGY

Deadline: January 2021

European Commission

Terms of Reference

1. Specific to Estonia and Latvia, EFSA should clarify

   - (i) the risk factors possibly contributing to ASF **persistence** in affected areas over a number of years in wild boar populations. <April 2021

   - (ii) the **role of seropositive wild boar** in the context of ASF infection, and in particular in areas with no current evidence of virus circulation. < January 2021

   ….. AND Sardinia

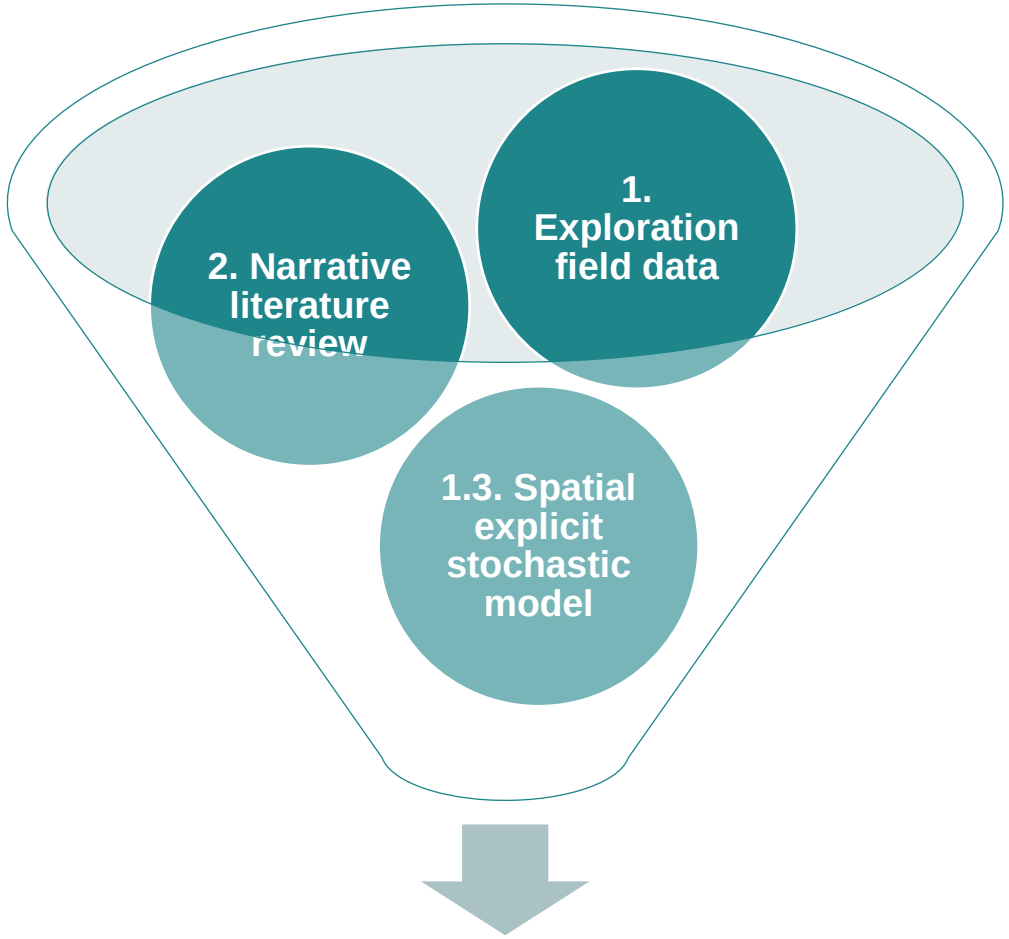
Terms of Reference

- 2. EFSA should **define pathway(s) to ASF freedom (absence of virus circulation on wild boar population) in relevant areas** in accordance with the Strategic approach to the management of African Swine Fever for the EU and recommend criteria to revise regionalization in ASF affected areas.

- In this task, EFSA should take into account the results of wild boar testing (in particular, antibody detection and virus identification) and the results in relation to the identification of wild boar carcasses (with differing time since death)

TOR 1: Persistence of ASF and role of seropositive animals

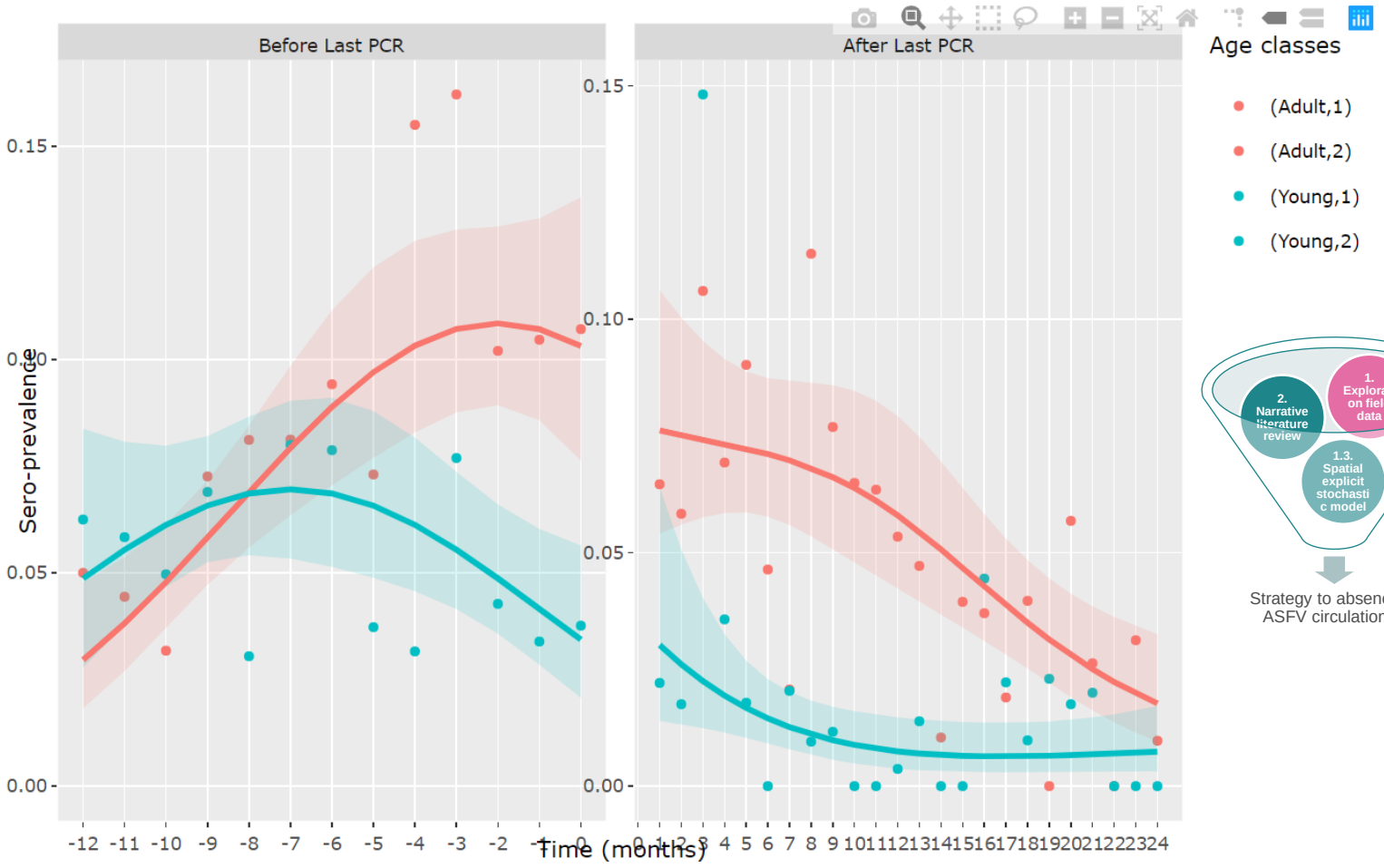
Methodology:



Strategy to evaluate absence of ASFV circulation in the wild boar population

European Commission

TOR 1: Persistence of ASF and role of seropositive animals



- **1. Exploration field data: ESTONIA**
  - Gradual decline of seroprevalence since the last PCR positive sample
  - Significantly smaller seroprevalence in young animals
  - Seroprevalence in young animals approaching zero
  - No oscillating patterns in seroprevalence indicating undetected virus circulation

Fading out epidemic?

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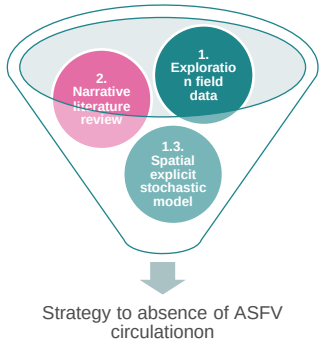
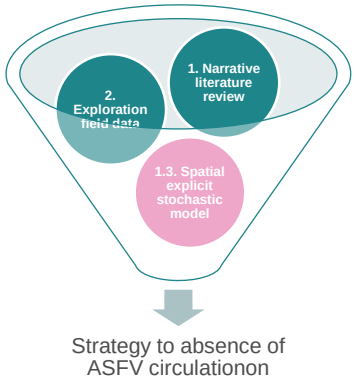
TOR 1: Methodology



- **2. Narrative literature review**
- **Review questions:**
  - **1. What are the possible epidemiological, environmental, management and demographic parameters that could contribute to prolongation of the time of circulation of ASFV?**
  - **2. Review of the epidemiological model parameters that still have a high uncertainty**

TOR 1: Methodology



3. Spatial explicit stochastic model

- **Objectives**: identify different patterns of serological surveillance results that could occur given different scenarios associated with persistence of infection at low prevalence. These scenarios could include:
  - Spatial clustering of infection
  - Sampling procedures are not homogenous
  - Different drivers of persistence (survival in the environment, the presence of carrier animals, a role for maternally derived immunity)
  - Evaluation of on-going surveillance activities in detection of potential ASFV circulation
- **Outcome:** biological rationale for surveillance decisions

Epidemiological report (EPI-5/6)

Deadline: March 2021/March 2022

European Commission

Terms of Reference

1. **Analyse the epidemiological data** on ASF from MS and non-EU countries affected by ASFV Genotype II
   - Temporal and spatial patterns
   - Ranges and speed of transmission
   - Sources of introduction in pig holdings
2. **Risk factors** involved in the occurrence, spread and persistence of the ASFV. In particular, risk factors involved in the occurrence of ASF in domestic pig farms in Romania should be identified
   - wild boar population
   - domestic/wildlife interface

Terms of Reference

- 3. **Analyse the data and information on the geographical areas called white zones** applied by free Member States (in particular France and Luxembourg at the border with Belgium) for preventing the spread of the disease in wild boar.
  - Assess the **effectiveness of the measures** and review scientific literature addressing these measures.
  - Review and assess the **robustness and effectiveness of the boundaries** used for the determination/demarcation of these areas.

TOR 3 White zones

- Proposed analysis
  - **Step 1**:Detailed data collection of information about measures in white zone:

Location white zone	Physical description barrier	Hunting measures	Carcass detection (data, modality, intensity)
Shape file	Date of construction and description of fence	Description of duration, intensity of hunting modality Results of testing	Description of duration and intensity, carcass detection modality Results of testing

  - **Step 2**: evaluation specific measures with spatial explicit stochastic model to compliment model exercise carried out in EFSA 2015 and EFSA 2019

GAP Research

EFSA-Q-2020-00431	Arthropods
EFSA-Q-2020-00430	Wild boar
EFSA-Q-2020-00429	ASFV survival in environment
EFSA-Q-2020-00428	Seasonality

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Gap Research

EFSA-Q-2020-00431	Arthropods
EFSA-Q-2020-00430	Wild boar
EFSA-Q-2020-00429	ASFV survival in environment
EFSA-Q-2020-00428	Seasonality

Deadline: June 2021

European Commission

Terms of reference

1. Studies needed to evaluate:
   - (i) the **impact of reducing the wild boar population densities** in relation to transmission of African swine fever virus (ASFV);
   - (ii) the **natural behaviour of wild boar to improve wild boar population management**.

Terms of reference

2. Studies needed to understand:
   - (i) the **role of arthropod vectors** in ASF transmission (biological and mechanical);
   - (ii) **ASF survival and transmission from contaminated environment** and
   - (iii) residual infectivity of **buried wild boar carcases**.

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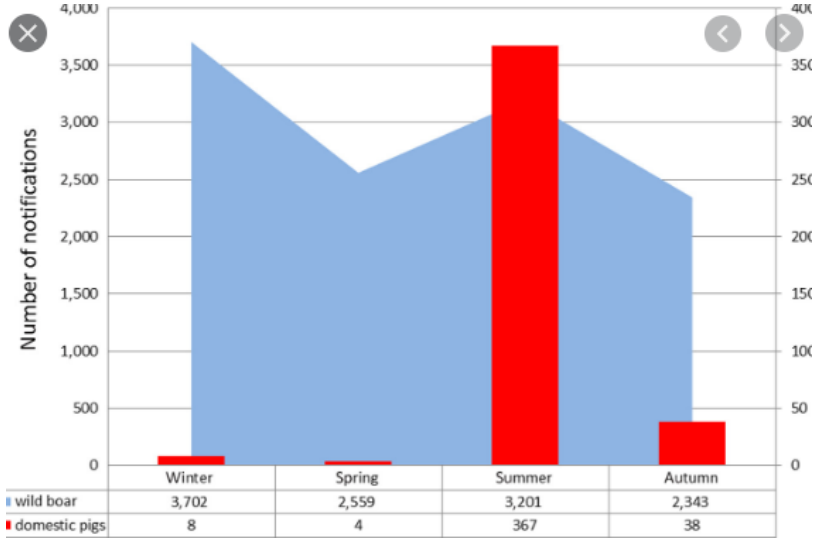
Terms of reference

3. Design studies that to investigate **patterns of seasonality** in wild boar and domestic pigs and identify main factors that determinate these patterns.

Provide recommendations in particular in relation to risk mitigation options to address these factors, where relevant.



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Methodology

- **Step 1**: Identification of research objectives by working group: example wild boar
- **Step 2**: Identification of research priorities by broader networks
- **Step 3**: Prioritization of research priorities
- **Step 4**: Development of calls for research proposals (short research protocols) for research priorities