ISTITUTO ZOOPROFILATTICO SPERIMENTALE
DELLA LOMBARDIA E DELL'EMILIA ROMAGNA
"BRUNO UBERTINI"
ENTE SANITARIO DI DIRITTO PUBBLICO

LA NOSTRA ESPERIENZA, LA VOSTRA **SICUREZZA**.

Silvia Bellini (DVM)

Farm Biosecurity as a key element for ASF control

Beijing, 9 April 2019

International Symposium on Prevention and Control of ASF

Bio-security

Definition:

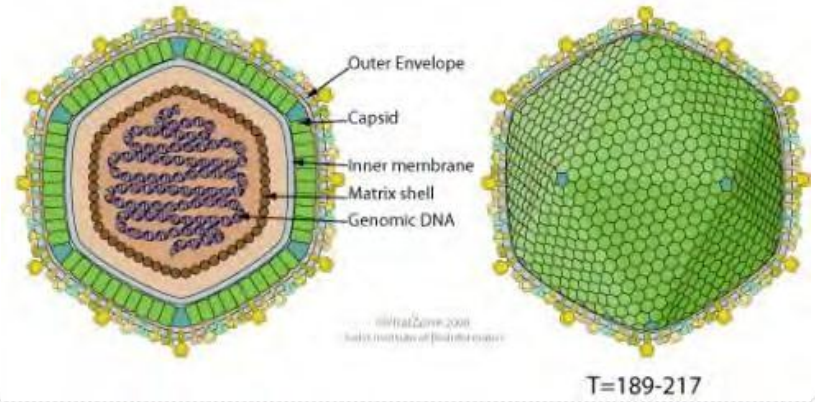
"The implementation of measures that reduce the risk (1) of the introduction and (2) spread of disease agents; it requires the adoption of a set of attitudes and behaviours by people to reduce risk in all activities involving domestic, captive/exotic and wild animals and their products"

**(FAO/OIE/World Bank, 2008 –
Good Practices for Biosecurity in the Pig Sector)**

ASF: Spreading potential

→ **HIGH**

- Very long viremic period
- ASFV is resistant in the environment
- A range of wild and domestic pigs species are susceptible
- ASFV can remain infectious for 3–6 months in uncooked pork products
  - Chilled meat: at least 15 weeks
  - Frozen meat: ..years
  - 3 to 6 months in hams and sausages
- Soft ticks of the genus Ornithodoros may act as biological vector, within the vector: trans-stadial, trans-ovarial, and sexual transmission occur

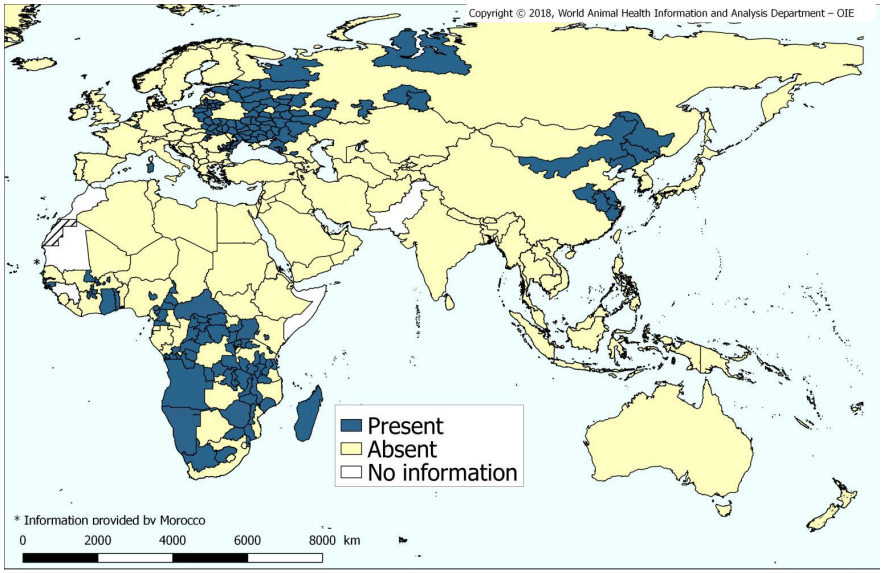


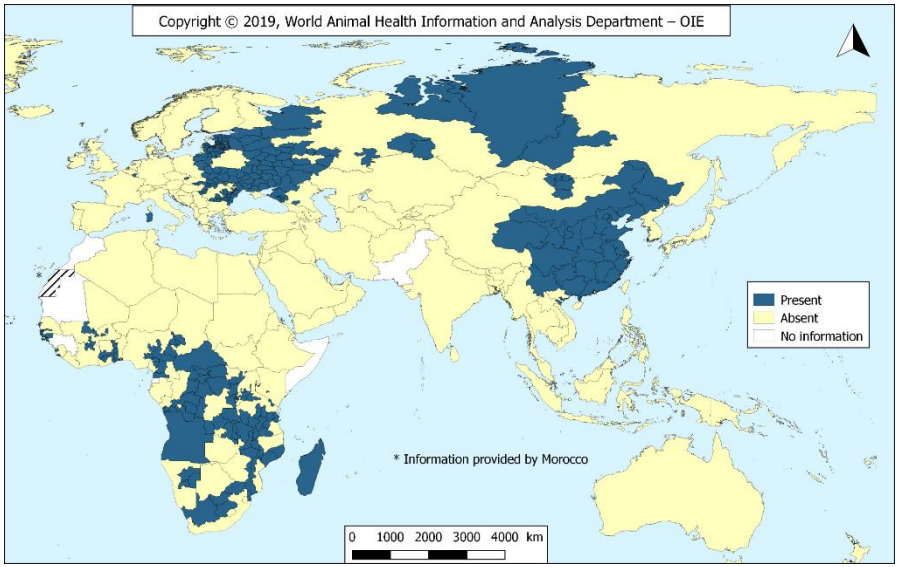
OIE ASF Global situation: 2016 – 2019

Update: October 2018

OIE, Tiblisi Sett 2018

Update: March 2019





Bio-security

Is also a key element for the control of diseases:

- *PREVENTION:*
  - **Direct: biosecurity**
  - **Indirect: …(VACCINATION)**
- *EARLY DETECTION (surveillance)*
- *EARLY REACTION (eradication)*

Bio-security

- at farm level
- Within the framework of a disease control strategy(ASF)
  - **Domestic Pig**
    - commercial
    - backyards
    - Outdoor
  - **Wild pigs** – ***measures to mitigate the risk of spread to domestic pigs***
  - **Area** - ***Regionalization***

To address the farm biosecurity protocol it is necessary to know:

The Holding

- Size (?)
- Type of production
- Management
- Infrastructure/limits
- Health Status

The Area

- Location
- Animal density
- Health Status

The Situation

- peace time
- *emergency*

To Identify the Risks

↓

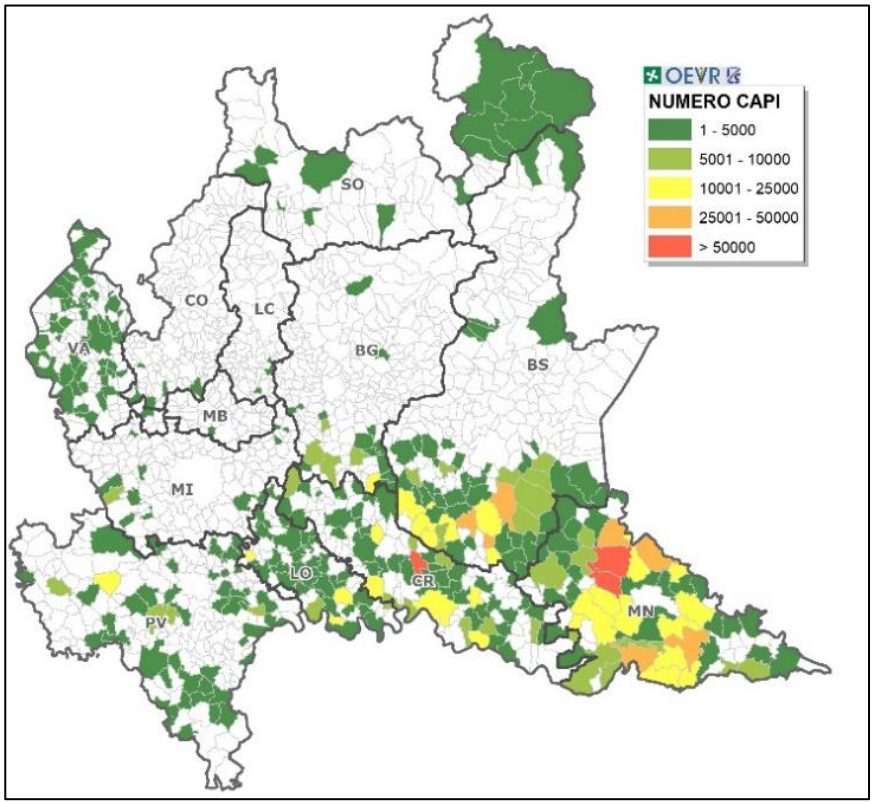
To Apply Proper Control Measures

↓

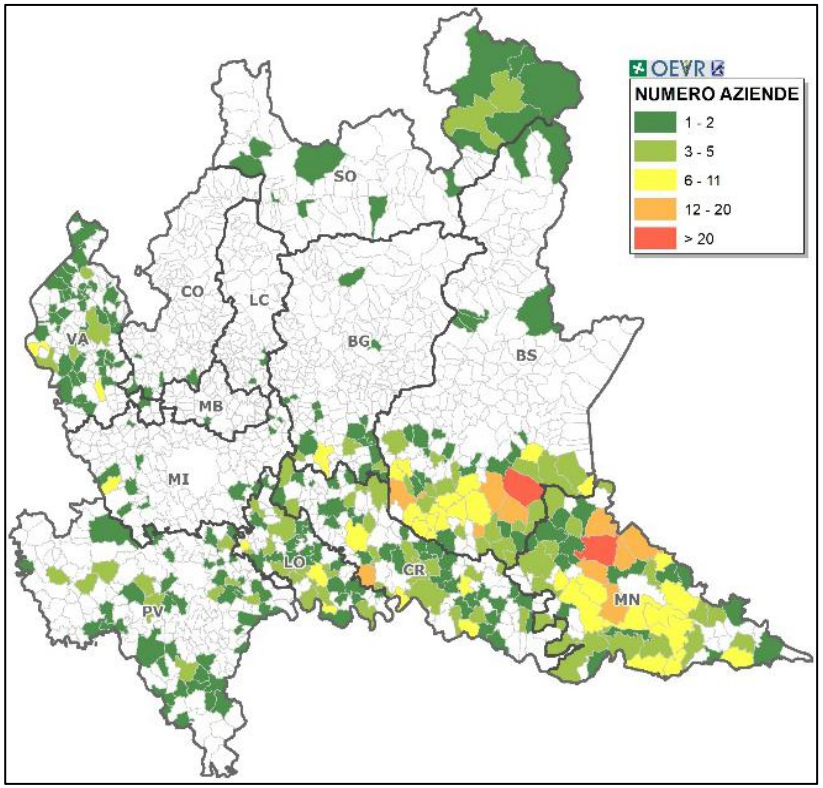
..and the proper SURVEILLACE

Pig's movements analysis to determine proper disease control measures

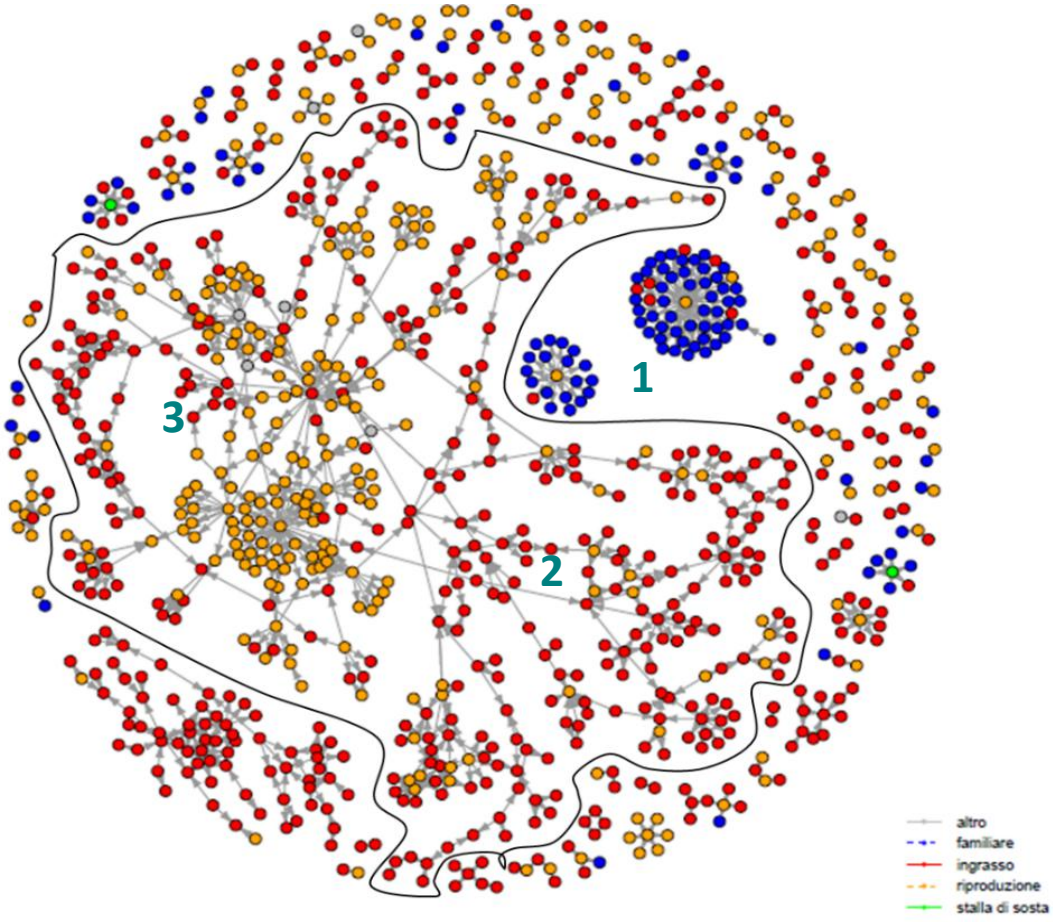
Map of municipalities introducing pigs from other regions based on the number of animals introduced.



Map of municipalities introducing pigs from other regions based on the number of farms of origin.

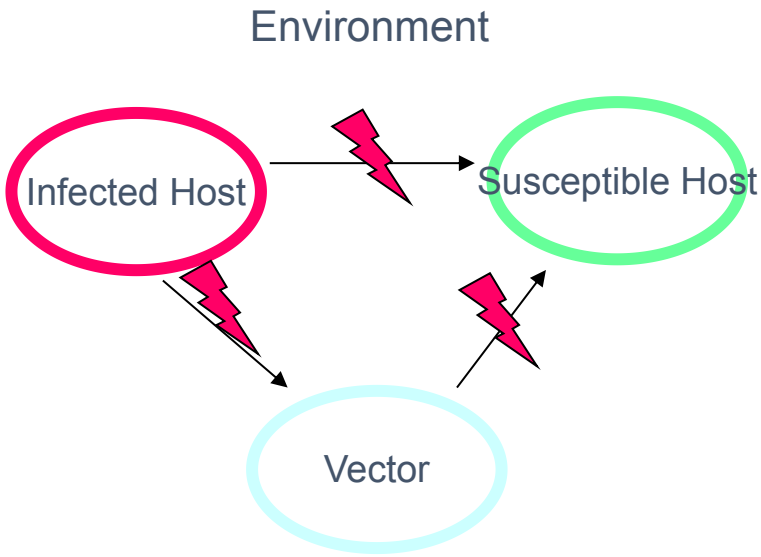


Network of the Movements



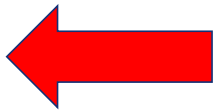
To contain successfully the spread of a disease

1. To know the disease and its spreading pathways
2. Strict implementation of the disease control measures adopted to minimize the risk of spreading



Main Risk Factors for diaseases introduction and spread:

- ✓ Introduction of animals into the holding
- ✓ Introduction of vehicles/means of transport:
  - Animals
  - Runts,...rejected pigs
  - Carcasses
  - Feed



- ✓ Personnel, veterinarians, inseminators and visitors
- ✓ Introduction of equippments
- ✓ Introduction of feed
- ✓ Mannure
- ✓ Area: use of common area / pasture (use of manure on agricultural land as fertilizer)
- ✓ Presence of wildlife animals
- ✓ Presence of rodents, birds, insects..
- ✓ Introduction of semen
- ✓ Vaccine, water, air...

Main Elements of Biosecurity

Segregation:

- ✓ Controlling the entrance of pigs: from outside farms, markets or villages;
- ✓ implementing quarantine for newly purchased animals;
- ✓ limiting the number of sources of replacement stocks;
- ✓ fencing the farm area and controlling access for people, as well as wildlife, birds, bats, rodents, cats and dogs;
- ✓ maintaining adequate distances between farms;
- ✓ providing footwear and clothing to be worn only on the farm;
- ✓ using an all-in-all-out management system.

Cleaning and Disinfection

- ✓ buildings on the premises, but also vehicles, equipment, clothing and footwear
- ✓ **Disinfectants**

(FAO/OIE/World Bank, 2008 – Good Practices for Biosecurity in the Pig Sector)

Scientific Opinion on African swine fever
(EFSA Journal 2014;12(4):3628)

Table 1: Main sources and routes of transmission established during the outbreaks of ASF in domestic pigs in years 2008-2012

Source and transmission of virus	Number	%
Selling infected pigs	1	0,3
Neighbourhood (infected pigs in backyards)	5	1,7
Direct contact with humans (having a meal right at the farm)	1	0,3
Contact during transportation, shipping, movement	108	38
ASFV infected wild boar	4	1,4
Swill feeding	100	35
Not established	65	23
Total:	284	100

Source: Belyanin, 2013

Possible risk factors for ASF spread

- Introduction of infected pigs in the herd
- Swill feeding with contaminated pork (spread and maintainance)
- Contaminated vehicles, people or feed
- Wild boar – Domestic pigs interface
- *Infected ticks (Ornithodorus genus)*

ASF Biosecurity:

Main measures related to:

- Segregation
- Replacement (buying in policy)
- Movement management
- Facilities and husbundary
- Geographical location (wildboar)

Relevant Measures to Prevent the Spread of African Swine Fever in the European Union Domestic Pig Sector

Cristina Jurado[1]*, Marta Martínez-Avilés[2], Ana De La Torre[2], Marina Štukelj[3], Helena Cardoso de Carvalho Ferreira[4], Monica Cerioli[5], José Manuel Sánchez-Vizcaíno[1] and Silvia Bellini[5]

[1]VISAVET Health Surveillance Centre, Animal Health Department, Veterinary Faculty, Complutense University of Madrid, Madrid, Spain
[2]Animal Health Research Centre, National Institute for Agricultural and Food Research and Technology (INIA-CISA), Madrid, Spain
[3]Veterinary Faculty, University of Ljubljana, Ljubljana, Slovenia
[4]GD Animal Health Research Institute, Deventer, Netherlands
[5]Istituto Zooprofilattico Sperimentale della Lombardia ed Emilia Romagna (IZSLER), Brescia, Italy

Group of 20 experts were invited to participate

12 of them returned their responses

All of them completed the questionnaire

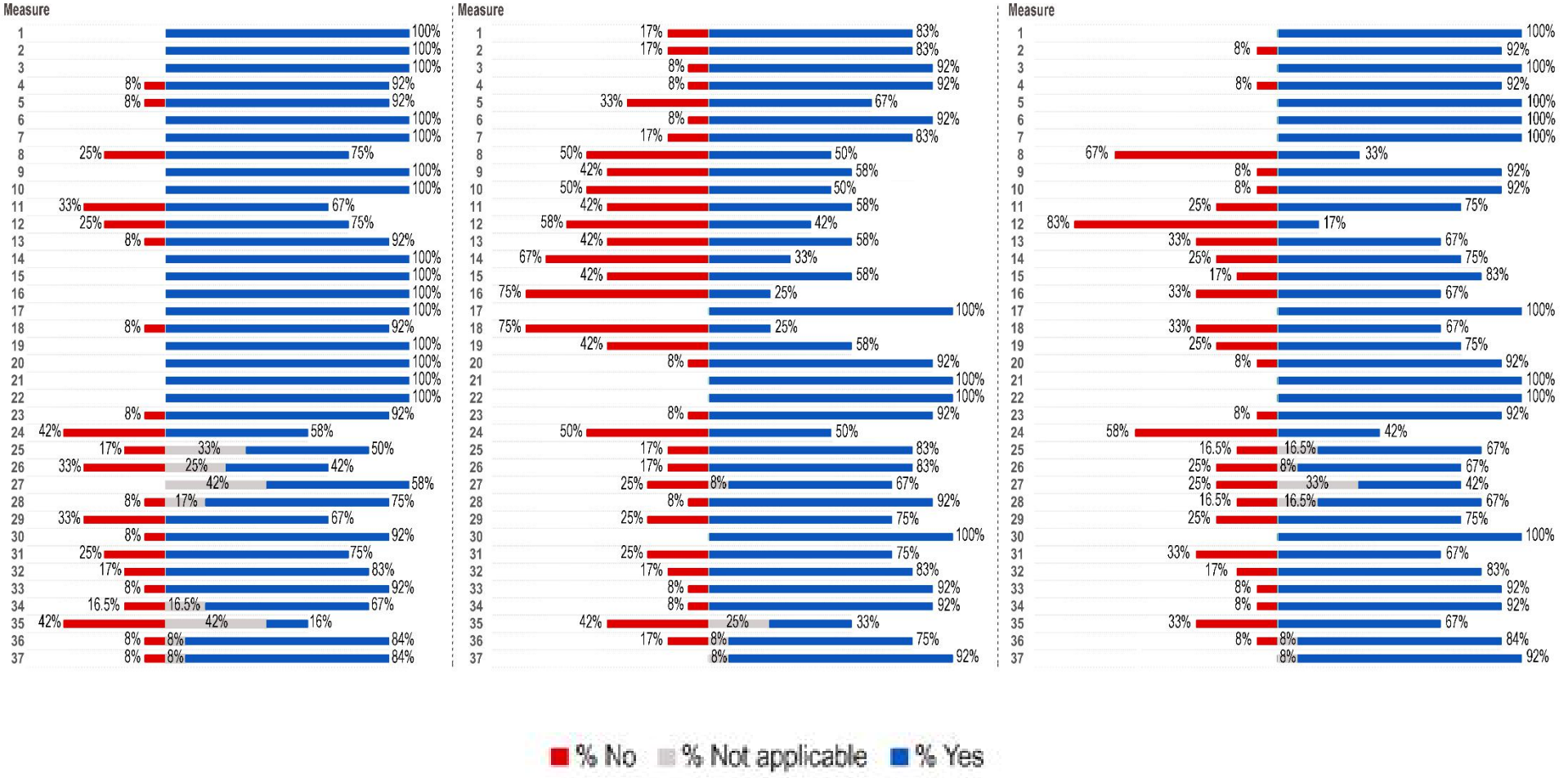
COST ASF-STOP CA15116

RESULTS

COMMERCIAL

NON-COMMERCIAL

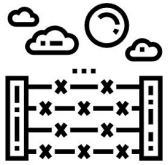
OUTDOOR/FREE-RANGING PIGS



THE MOST IMPORTANT PREVENTIVE MEASURES

- **Identification of animals** and farm records including animal movements

- **Containment of pigs** to not allow contact with pigs from other farms, feral pigs or wild boar or their products



- Enforcement of the **ban on swill feeding**

100% agreement among experts

IMPORTANT PREVENTIVE MEASURES FOR **ALL FARMS**

- **Education** of farmers, workers, and operators
- **No contact** between farmers and farm staff and **external pigs**
- **Appropriate removal** of carcasses, slaughter residues and food waste
- **Proper disposal** of manure and dead animals
- **48 hour (minimum) interval between hunting** and being in contact with domestic pigs for all farm staff

IMPORTANT PREVENTIVE MEASURES FOR **NON-COMMERCIAL AND OUTDOOR FARMS**

Improvement of the access to **veterinarians and health services**

Bio-security

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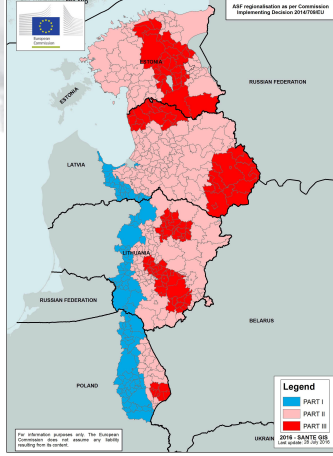
  - **Area** – ***To be placed under restriction***

Biosecurity during Hunting

Preventive Measures to be applied the d Area

- Pigs: standstill and movement control (under official control, census, biosecurity to avoid contacts with domestic pigs and wild boar, **SURVEILLANCE)**
- Live pigs markets: when ASF suspected under control (**surveillance**), closed when confirmed
- Carcasses disposal: all animals (DP, WB) tested and properly disposed (category I, Regulation 1069/2009)
- Swill feeding (prohibition should be ensured, system for gathering waste..)
- Home slaughtering only under veterinary supervision
- Biosecurity (animals, personnel, vehicles, fence, feed, carcasses disposal, equipment..), during hunting
- Tick control ***(when relevant)***
- Awareness campaign (Owners, Vets, Hunters…)

Factors to be taken into account for the demarcation of the size and shape of the area under restriction:



a) geographical aspects linked to the location of the outbreaks/wild boar cases;

b) ecological factors (e.g. water ways, forests) and the existence of natural and artificial barriers;

c) presence and distribution of wild boar;

d) epidemiology of the disease and results of specific epidemiological studies;

e) historical experience gained on ASF spread;

f) administrative divisions, territorial continuity and enforceability of the control measures;

g) distribution of pig farms (non-commercial farms, commercial farms and outdoor farms) and the existence of protection and surveillance zones (if any);

h) hunting practices and other wildlife management considerations.

Final Considerations

- Biosecurity is a tool that can be used at farm level to improve the performance (health status and production) **of a holding** but,
- **in case of emergency,** it is also a control option that forms part of a **control strategy** to be adopted in the **affected area**.
- In such cases, if the objective is **disease control or eradication**, it is necessary to define measures aimed at controlling the disease in:1) the **susceptible species** and 2) the **affected area**.
- Minimum biosecurity requirements should be established for **all holdings involved in commercial activities**.
- When a disease occurs in wild animals, mitigation measures should be considered **to prevent the spread of the disease from wild to domestic animals**.
- **When preparing a biosecurity programme, the role of swill feeding in spreading disease must be considered and, when relevant, properly mitigated (ASF, CSF, FMD...)**

Thank you very much for your attention!