



Workshop on African swine fever management in wild boar – surveillance and prevention of transmission to/from domestic pigs

Available tools for the prevention and control of diseases in wildlife, with focus on ASF in wild boar in infected country: hunting and feeding strategies

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African swine fever - definition

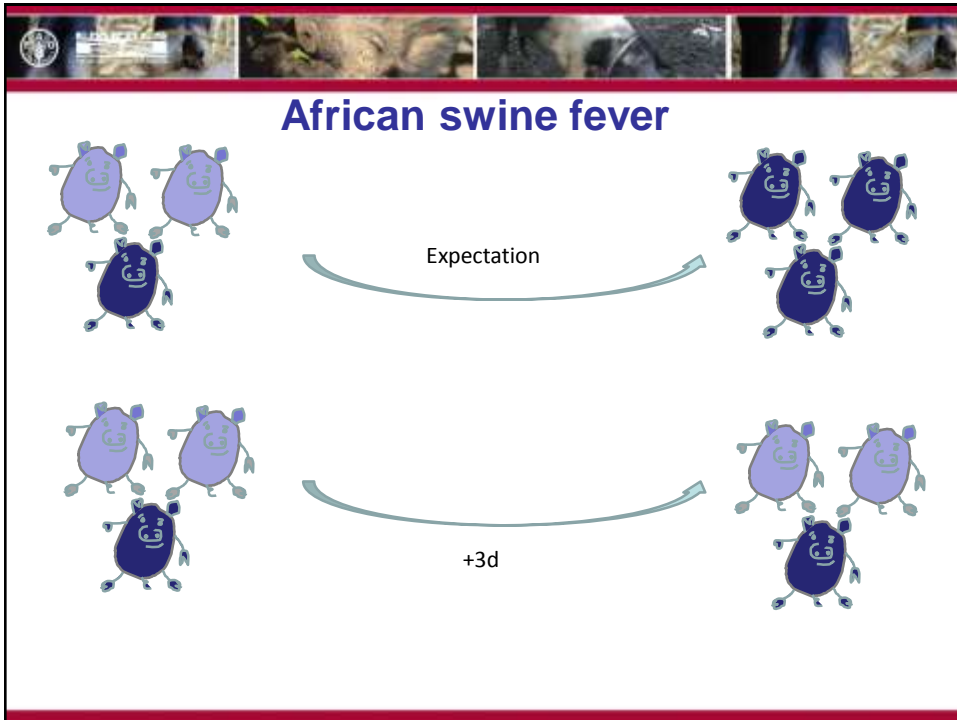
ASF is defined as:

“a highly contagious haemorrhagic disease of suids...”

-> ASF is **not** a very highly contagious disease

Defining ASF as “*highly contagious*” leads to false expectations and underestimation of the problem

Example: Speed of infection within a herd... rather a low contagiousity

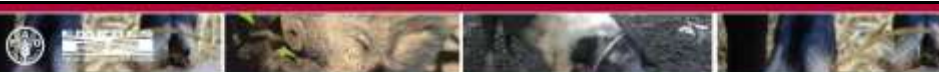




A medium-sized, dark to rusty-brown haired subspecies with long and relatively narrow lacrimal bones

Currently distributed across almost all of mainland Europe, with the exception of some northern areas in both Scandinavia and European Russia and the southernmost parts of Greece.

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African swine fever in wild boar

- *African swine fever cannot be managed directly:*
 - *No treatment and*
 - *No vaccine available...*
- *Following the detection of ASF cases in wild boars:*
 - *Definition of the infected area;*
 - *Protection of the domestic pig population (census and biosecurity);*
 - *Management of the infected wild boar population.*

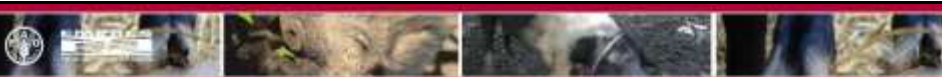
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African swine fever in wild boar – risk factors

- ✓ *Presence of the virus;*
- ✓ *Size of the population;*
- ✓ *Density of the population;*
- ✓ *Size and density define the wild boar geographical distribution;*
- ✓ *Age and gender of the infected wild boar population;*
- ✓ *Type of hunting;*
- ✓ *Period of the year during which the virus has been detected/introduced.*

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Wild boar - surveillance

- ☐ Wildlife surveillance mostly linked to hunting;
- ☐ Sampling rather irregular;
- ☐ Hunting seasonally limited;
- ☐ Rarely adequate number of samples collected;
- ☐ Mostly serological tests performed – only retrospective analysis.

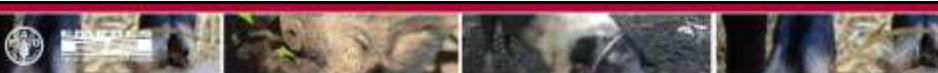
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Infected area – how to define?

- The historical and current geographical distribution of the infection;
- Epidemiological investigations;
- Wild boar home range, geographical distribution;
- Landscape structure;
- All the suitable wild boar habitat in geographical continuity;
- Borders defined by artificial or natural barriers;
- Not less than 200 km²;
- It is possible to see the infection after several months;
- It is a reasonable wild boar management unit;
- According to the average wild boar densities it is possible to sample with appropriate intensities.
- Easy to identify.

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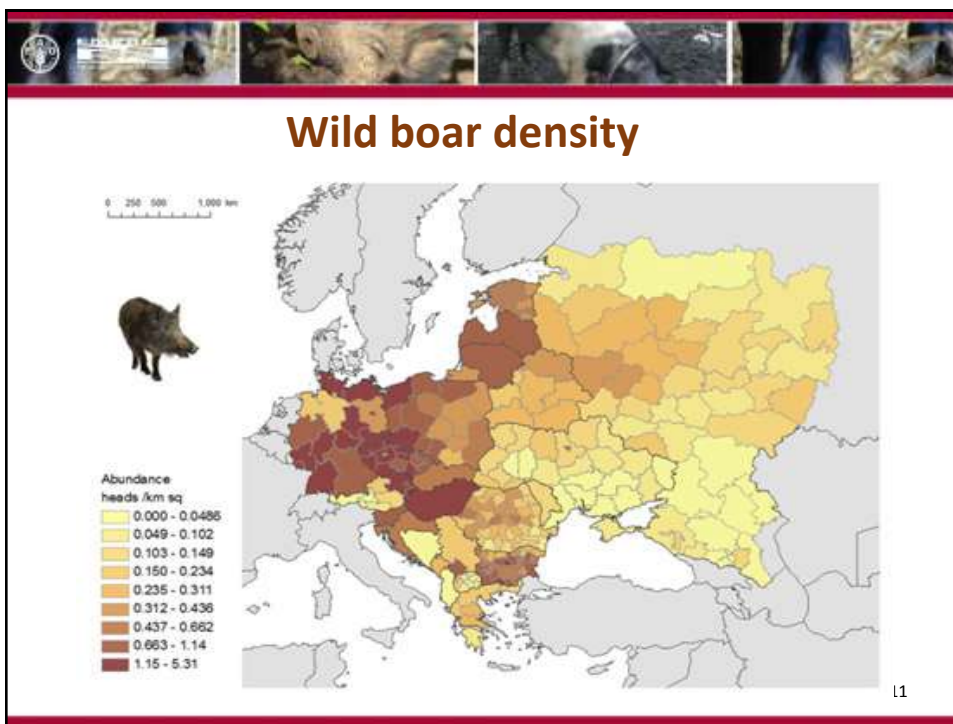
Measures in the infected area

Appropriate control and eradication measures have to be implemented in the infected area and these may include suspension of hunting and a ban on feeding wild boar.

Disease monitoring programme - to be enforced after a period of at least 12 months has elapsed since the date of the last confirmed case and it shall stay in place for at least 12 additional months.

An area where ASF has occurred in feral pigs can regain its free status only after 24 months after the last confirmed case.

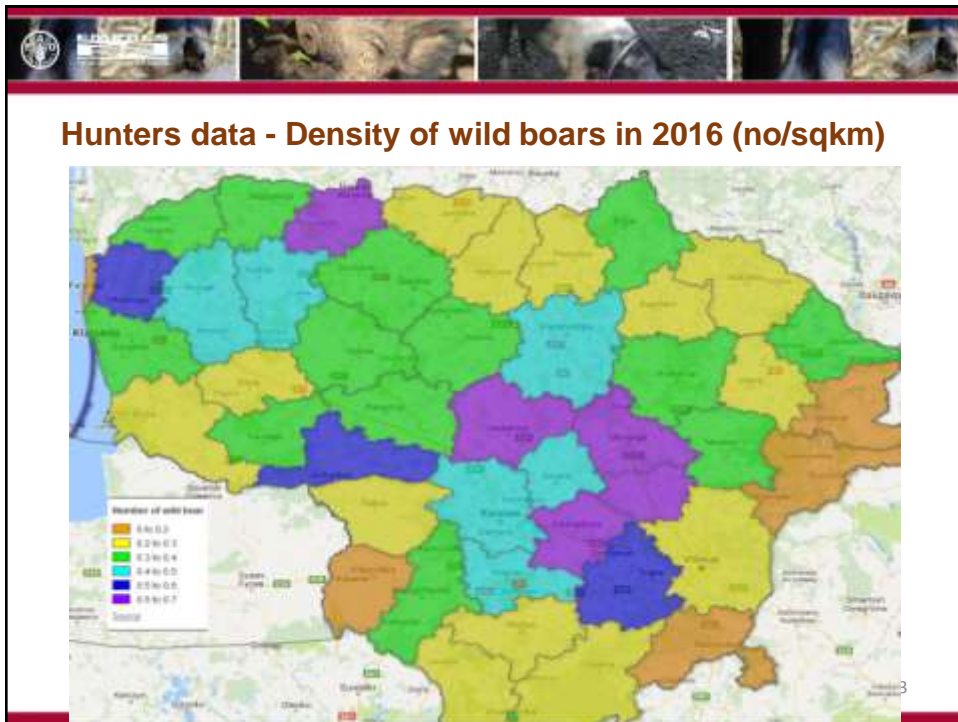
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Wild boar density
Do we still know??

	2016		
No of WB counted in Lithuania	22325		19699
No of hunted WB during a season (data presented 15/04) in Lithuania	50172	48317	42188

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Wild boar density - how to estimate?

Type of survey	Measurement tool(s)	Potential measurements	Potential metrics of abundance
Track	Tracking plots	Number of track intrusions Presence-absence	Index
Dung	Defined areas for Pellet counts DNA analysis	Number of pellet groups Number individuals and "recaptures"	Index Known to be alive M-R density estimate
Road counts (counts from vehicles)	Human observers Spotlight Night vision Thermal imaging	Counts Distance to animals observed	Index Density estimate
Aerial surveys	Human observers Video Thermal imaging	Counts Number of animals in strip transect(s) Distance to animals from aerial transect	Index Density estimate
Animal marking	Trap and mark Bait markers	Resight/recapture Capture and check for mark	Density estimate Known to be alive index
Take rates	Hunter survey	Hunter take Hunter effort	Take index Take/effort index
Camera	Camera traps	Number photographed Resight (recapture)	Index Known to be alive index Density estimate
Plot occupancy	Geographic units	Assessed occupancy within a unit	Density estimate Occupancy index

https://www.aphis.usda.gov/wildlife_damage/nwrc/publications/13pubs/engeman139.pdf

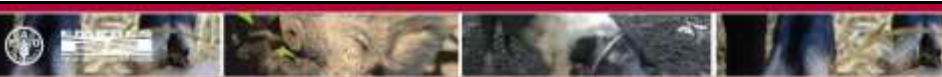


Estimation methods

Other estimation methods:

- indirect :
 - snow traces calculation,
 - faces groups calculation (mainly for moose's);
- direct :
 - annual observation,
 - counting in habitats,
 - counting of animals entering open areas,
 - aerial surveys (open areas),
 - thermal counting (deer's and moose's).

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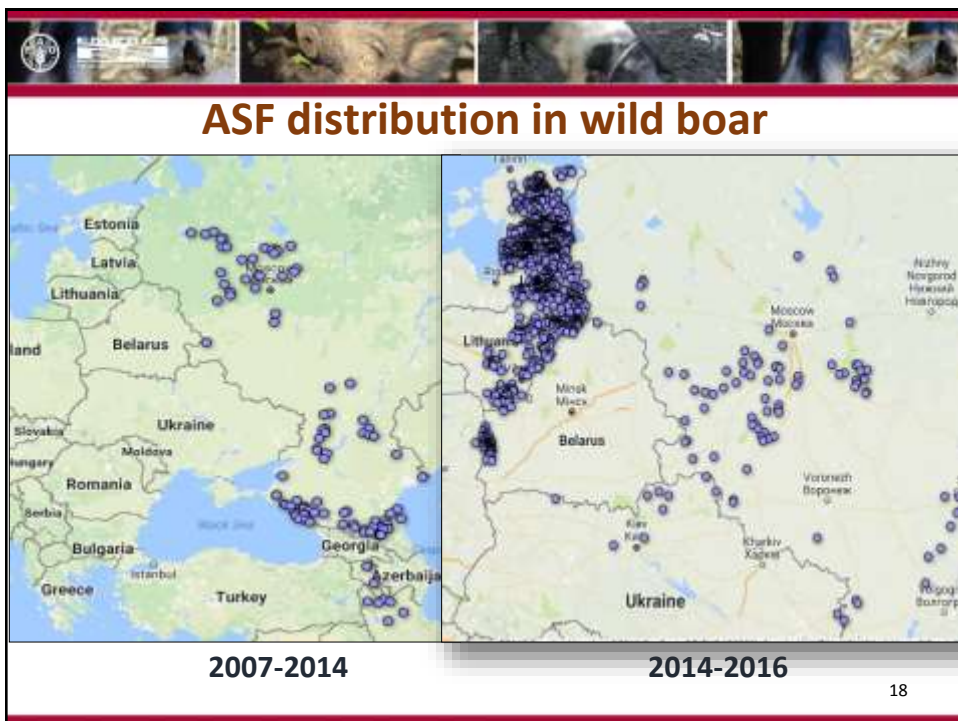
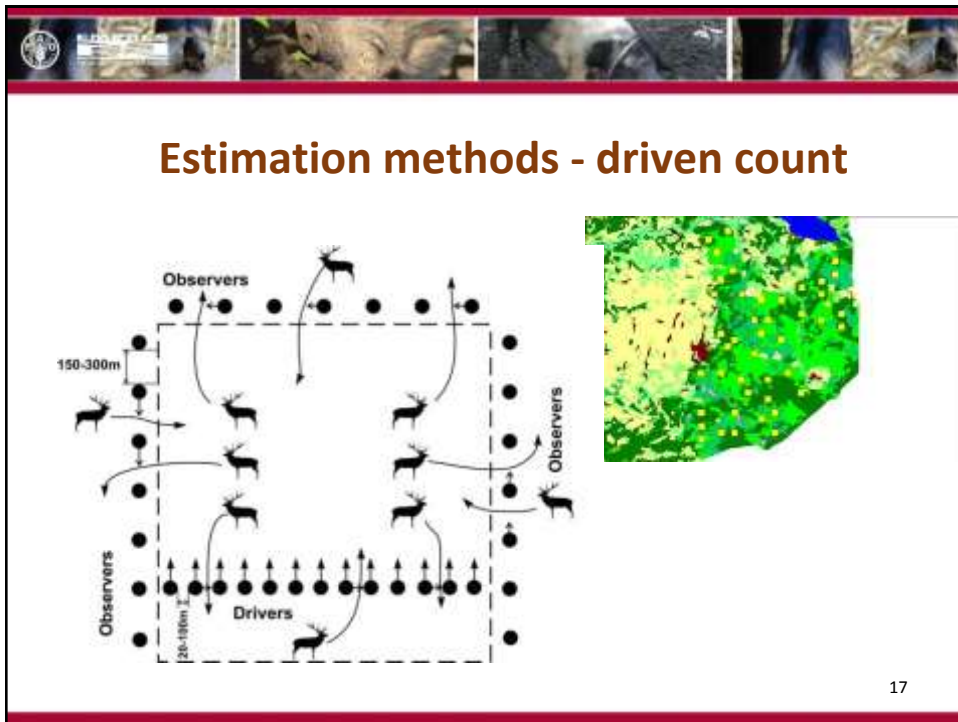


Estimation methods

Driven count– counting of animals driven away from a forest area surrounded by observers (direct method) with silent beater:

- on 10% of the area covered by animals' counting;
- with a use of observers and beater (app. 50-70 persons);
- calculation error – around 20%;
- experienced personnel (discipline – extremely important) – to avoid double counting of the same animals;
- in winter – lack of leaves on the trees – good vision;
- additional information on animals age and sex can be obtained.

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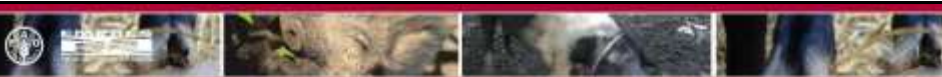
What is stated by ASF strategy?

ASF Strategy for Eastern Part of the EU SANTE/7113/2015-Rev 7

https://ec.europa.eu/food/sites/food/files/animals/docs/ad_control-measures_asf_wrk-doc-sante-2015-7113.pdf

- Sustained feeding of wild boar is prohibited.
- Targeted hunting is encouraged in order to target adult and sub-adult females.
- The overall hunting bag should be balanced between male and females (50% each). Priority in reaching quotas should be given to adult and sub-adult females.

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Can we control the hunters?



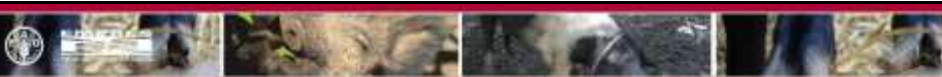
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Role of hunters: wild boar population management and hunting

- To hunt or not to hunt?
- Winter feeding ban – how realistic?
- Reduction of the population – who else?
- Increased hunting – motivation is needed?
- Selective hunting (female hunting) – would that work?
- Hunting ban – can it work?
- Restricted driven hunting...
- Collection and disposal of dead carcasses...



Factors affecting population size

- Natural mortality – up to 20-30% (mostly piglets)
- ASF, CSF or other epidemics...
- Hunting:
 - Driven hunting (most efficient way to hunt wild boar)
 - Targeted (selective: sub-adult and adult female) hunting (most efficient way to reduce the population)
- Supplementary feeding – helps to sustain and increase the population












Hunting methods

Driven hunt










Hunting methods

Solo hunt





To hunt or not to hunt?

Hunting wild boars could appear a simple and direct way to manage the number of susceptible animals in order to facilitate the control and the eradication of ASF.

However, hunting pressure may be counterproductive, since it may increase the size of the home-range of wild boar meta populations, facilitating contacts between meta-populations, and promoting long distance movements of individual animals.



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To hunt or not to hunt?

Hunting may pose some additional risks, namely those related to the handling of infected carcasses and possible dispersal of virus in the environment by hunters.

However, hunting may be necessary for sampling purposes...



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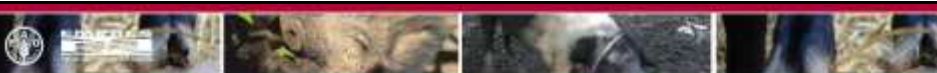


Hunting in the infected area

- Targeted hunting (mainly young wild boar under one year of age) is assumed to temporarily decrease the number of susceptible animals and thus it should facilitate the fading out of the infection...?
- However, harvesting juveniles may leave enough breeding females to maintain a high birth rate, yielding susceptible animals that enable the disease to persist...

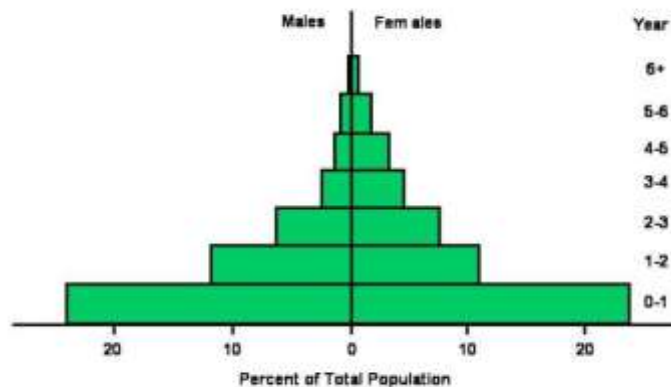


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Wild boar - population

Population pyramid showing the sex and age class composition of a typical population.



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Wild boar hunting management

During a year, typically the hunting quota consists of the following age groups of wild boar:

- sub adults under 1 year of age: 40 – 60%,
- young wild boar between 1 and 2 years of age: 20 – 40%,
- adults (more than 2 years of age): up to 20%.

The proportion of sexes of wild boar in the hunting quota should be 1:1.

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Hunting in the infected area

- Alternatively, hunting targeting breeding females would decrease the population long-term.




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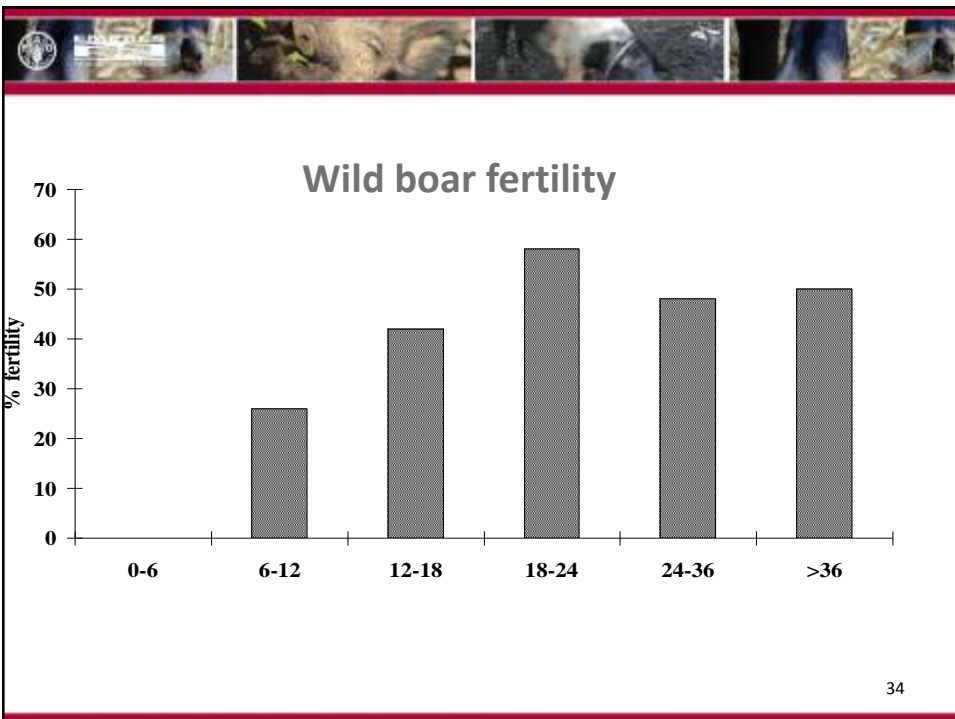


Something about wild boar biology

- Female maturity ~ at 15 months of age (even at 8-10 months of age) or 25-30 kg of weight ;
- In Nord Europe - usually one litter per year (5-7 piglets) but could be and two;
- Piglets born in April-May (could be also August - September).



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Diet

The wild boar is a highly versatile omnivore. Its choice of food rivals that of humans.



ARKIVE
www.arkive.org

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Baiting or supplementary feeding?



Source: piterhunt.ru

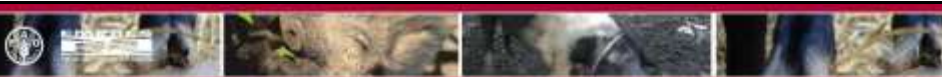
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Supplementary feeding: why not?

- «Free ranging farm in the forest»;
- Concentration of the large number of animals;
- Could be the source of infectious agents and parasites;
- Unnecessary increase of the susceptible population - hunters cannot hunt / manage so many animals...

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Baiting vs supplementary feeding?

ASF Strategy for Eastern Part of the EU

https://ec.europa.eu/food/sites/food/files/animals/docs/ad_control-measures_asf_wrk-doc-sante-2015-7113.pdf

Baiting: (non-sustaining feeding of wild boar): Attracting of wild boar with limited food (e.g. maize) only for the purpose of hunting. The maximum amount of food should not exceed 10kg/km²/month. Baiting should not, in any case, represent a source of feeding wild boar for sustaining the population during winter.

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How do we understand the baiting?



Photo: Ivars Koloda (LV)

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How do we understand the baiting?



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Effectiveness of baiting controls

- The purpose of controls: to check whether the baiting is really baiting (amount of the **feed** used)!
- These are not veterinary controls but they are very important;
- Clear competence and responsibilities (Competent authority defined);
- National legislation is essential;
- Sanctions (penalty, restrictions on hunting, reduction of licenses given etc.) need to be foreseen.

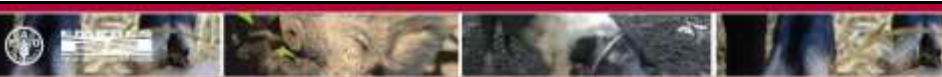


Effectiveness of the baiting controls

How to organize these controls:

- 1.Planned controls (complex controls including other areas as hygiene, hunting etc.) – predefined frequency
- 2.Repeated controls (to check whether problem is solved)
- 3.Extraordinary controls – based on complaints, etc.

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Feeding places for other species

Feeding places/devises for other species: (e.g. wild ruminants): Such feeding places for wild ruminants should not be accessible for wild boar. If possible only food should be used which is not attractive for wild boar (e.g. hay).



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Awareness – is the key issue

- - Regular training of hunters and forest rangers on clinical signs and contingency plan
- - Ensure they know their role in the system
- - Readiness – knowledge and equipment
- - Awareness campaigns (regular and repeated)
- - Regular communication



ASF control strategy

Continuous awareness campaigns should be foreseen for hunters for informing about the new strategy and the intended goals so to encourage the participation of hunters in the strategy.





How to make everybody involved?

- - Legislation (National and European)
- - Contingency plan
- - Authorization / contract by/with Veterinary Service
- - Funding should be foreseen for activities carried out by hunters & vets
- - Clear rules must be set to make collaboration good
- - Regular training
- - Communication and collaboration (also in peace time)
- - Motivation...



Thank you for your attention!

