

GF-TADs

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES



Food and Agriculture
Organization of the
United Nations



Standing Group of Experts on African swine fever in the Baltics and Eastern Europe Region under the GFTADs

Expert mission on African swine fever in **Estonia** **REPORT¹**

- ❖ **Period:** 28 September – 2 October 2015
- ❖ **SGE Experts:** Klaus Depner (Germany, team leader); Konstantine Gruzdev (Russia); Sergei Khomenko (FAO), Vittorio Guberti (Italy)
- ❖ **Time schedule and places visited during the mission:**
 - *28 September:* Arrival in Tallinn
 - *29 September:* Opening meeting in Tallinn at the Central Veterinary Administration
Travel to Võrumaa County
 - *30 September:* Meeting at the district veterinary office in Võru;
Visit of: a commercial farm, back yard holding and a hunting ground in Võrumaa County.
Travel to Järva County
 - *01 October:* Meeting at the district veterinary office in Järvamaa;
Visit of: a commercial farm, back yard holding and a hunting ground.
Final meeting in Tallinn at the Central Veterinary Administration
 - *02 October:* Departure from Tallinn

For the detailed agenda see Annex.

❖ **Terms of reference**

1. The experts should perform on the spot visits (as detailed in the Annex) in order to gather data and be in a position to formulate recommendations on disease management.

¹ Disclaimer: The views and recommendations expressed in this document are those of the independent experts and may not in any circumstances be construed as the official position of their organisation, nor of the EC, OIE or FAO

2. The experts should work with the Veterinary Services in order to determine the following aspects:
 - If African swine fever (ASF) is occurring in domestic pigs (both in commercial sector and the so called back yard sector) and extent of the areas of occurrence.
 - If ASF is occurring in wild boar and geographical distribution of ASF in wild boar.
 - Formulate hypothesis on the drivers of ASF occurrence for domestic pigs and back yards.
3. Propose measures intended for the control and eradication of ASF under local conditions, in line with the OIE International Standards.
4. The experts should report to the Standing Group of Experts on African swine fever in the Baltics and Eastern Europe under the OIE/FAO GF-TADs and to the Veterinary Services of the country being visited. A written report should be produced for each mission.

Details concerning the Terms of References and the persons who were met during the mission are in the Annex.

Findings of the mission

Domestic pigs

ASF in domestic pigs

Large commercial farms play the major role in pig production in Estonia. At present (by August 2015) 330.440 pigs are kept in 586 farms. 70% of the farms raise 10 or less pigs. However, only 0.4% of the pigs are raised in these small holdings. Most pigs are kept in Viljandi County (84.962 pigs) and most farms are in Lääne-Viru County (66 farms).

In September last year 380.090 pigs were kept in 920 farms. The significant reduction of pig farms and pigs within one year (334 farms with about 50.000 pigs) was due to ASF in combination with the strict biosecurity rules which were introduced. Furthermore during September 2015 90 farmers plan to finish their activities as a consequence of the ASF situation.

When first ASF cases were diagnosed in wild boar in Latvia near the Estonian border (September 2014) a ban for outdoor keeping of domestic pigs and farmed wild boar has been established in Estonia. Within one month the veterinary Service inspected all pig holdings and updated the numbers of holdings and pigs. This exercise has been repeated one year later in August 2015. The aim of the checks was also to control the biosecurity requirements.

The first outbreak of ASF was officially diagnosed on 21st of July 2015 in Valga County in a back yard holding with one pig. On the same day the 2nd and 3rd outbreaks were confirmed. By the end of September 2015 18 outbreaks have been notified and over 22.000 pigs had to be culled (see table with details in Annex). Passive surveillance played the major role in identifying the infected farms; 17 out of the 18 outbreaks were detected by passive surveillance.

The epidemiological investigations are conducted professionally by an expert team from the University of Tartu. All outbreaks occurred between end of July and mid of September 2015. In most cases the epidemiological investigations are ongoing. However, it is assumed that a huge virus pressure during the summer months due to the multiple ASF cases in wild boar and

insufficient biosecurity in most of the affected farms were the cause of the outbreaks. For example one outbreak in Järva County, which was visited by the SGE team, was caused by contaminated crops which the farmer harvested from an area where also infected wild boar have been found.

Control, surveillance and biosecurity for domestic pigs

In Estonia ASF monitoring and testing has been part of the annual monitoring programme since 2012. In 2015 the programme has been conducted as follows: In areas which are under ASF restrictions according to EU legislation inspection of farms and sampling/testing is performed as requested by the legislation. In commercial farms 29 blood samples are taken every 4 months and tested for ASF. In all other areas of Estonia pigs are sampled and tested by PCR in case of disease with fever, mortality due to suspected infectious disease and suspicions during home slaughtering.

Additionally, infected areas were established around positive wild boar cases. Such an infected area covers at least 200 km². All pig holdings within those areas are inspected ones a month. During the inspections biosecurity measures are evaluated, the pigs are counted and the health status of the herd is checked. In case of suspicion samples are taken. Home slaughtering must be notified to the local veterinary administration 48 hours prior slaughtering, so that ante and post mortem control can be carried out.

ASF surveillance in 2015 (until 04.09.2015)

Species	Number tested / number positive	PCR positiv	Ab-ELISA positiv
Domestic pigs	3521/172	172	5
Wild boar	3649 / 390	354	49
Total	7170/562	526	54

The following compulsory biosecurity rules have to be implemented and are checked during the inspections:

- all pigs must be kept inside, farm must be surrounded by fence
- entering to the farm is through disinfection barrier
- change of clothes and disinfection when entering and leaving the holding
- no exchange of weed, equipment or bedding with other holdings
- no contact to any part of feral pig (hunted or dead wild boar/meat/by-products) at the farm territory;
- it is not allowed to bring green fodder on the premises of the farm
- farmer has to use heat-treated feed or feed that for 30 days has been stored in a way that it will not be contaminated (wild boars, humans)
- bedding must 90 days before using be stored in a way that it will not be contaminated (wild boars, humans)
- the farm must have a biosecurity plan

Wild boar

Wild boar management

The estimated spring (post hunting) population of wild boar in Estonia is around 20.000 animals. Likewise in other countries of Eastern Europe, the Estonian population of wild boar has been subject to substantial increase in the last 15-10 years (following drop in wild boar numbers in the 90s, which was common for all ex-USSR countries). Interviews with hunters suggest that population estimates made at the hunting ground level and collected as “official” totals at the provincial and national level are not very reliable due to objective difficulties in conducting the census on the ground (dense and wet forests, lack of snow, few hunters to participate etc.). A combination of methods (track counts, counts at the feeding sites with or without camera-traps) is usually used; however there is no standardized national census scheme and methodology. Variation in wild boar density across the country seems to be mainly due to management interventions, rather than differences in natural conditions.

Usual hunting bag in the country before the ASF crisis was 20.000 - 22.000 wild boar (100-110 % of the spring estimate). Due to ASF it has been decided to increase the hunting bag in the hunting season 2015-2016 to 29.608 animals (148 % of spring numbers) and keep it at that level as a long-term population control measure. It is planned to kill 60% of females and 40% of males. Starting from this year supplementary feeding of wild boar has been officially banned during the period 1st October to 1st April. Only limited amounts of food (10 kg per hunting site) for attracting animals for hunting will be allowed. Such baiting sites should be located at a distance of more than 1000m apart. It is expected that if the measures will be fully implemented during the next 2-3 years the wild boar population can be reduced by 50% (to 10.000 animals in spring). It is believed that achieving a wild boar population density of or below 0.1-0.2 head/km² will reduce the spread of ASF, however it is recognised that such a decrease will require to keep in place the proposed population control measures for several years. The progress in fulfilling new hunting quotas is now reported on a monthly basis.

Estonia has 330 hunting grounds where 324 hunting clubs (30-40 hunters on average in each) are managing wildlife. Most hunting grounds fall within the administrative boundaries of respective counties, however inside the counties the hunting grounds do not necessarily follow the administrative divisions of the parishes (communes).

Hunting wild boar is allowed during the whole year round, but most of the hunting bag is achieved in winter. Estonian hunters harvest remarkably large numbers of wild boar (e.g. > 100 % of the spring population), which clearly indicates that the wild boar population is sustained high mainly due to extensive artificial feeding provided throughout the year. Interviews at the 2 visited hunting grounds revealed that massive amounts of feed (particularly cereals, e.g. oat) are provided to animals in order to “keep them from moving away” and increase survival rates and reproductive success and /or increase revenues from foreign hunting tourism. Notably, reported average litter size of 7-8 piglets per sow is higher than normally reported (4-5) in Eastern Europe. At the moment the increased hunting ground specific quotas are being identified proportionate to the population estimates data, which will imply a general increase hunting pressure by about 50% of the normal annual kill.

ASF in wild boar

The first case of ASF was officially confirmed on 8th of September 2014 in Valga county, 6 km from Latvian border. Since then ASF has gradually dispersed over the Southern Estonia, apparently through gradual northwards diffusion in wild boar population (Figure 1). It is clear from the results of passive and active surveillance that in the most affected counties ASF endemically persists and progressively spreads predominantly with an estimated prevalence in shot wild boar of about 3-4%. At the same time there are several ASF cases that fall out of the established endemicity zones (e.g. Ida-Viru County in the NE of the country).

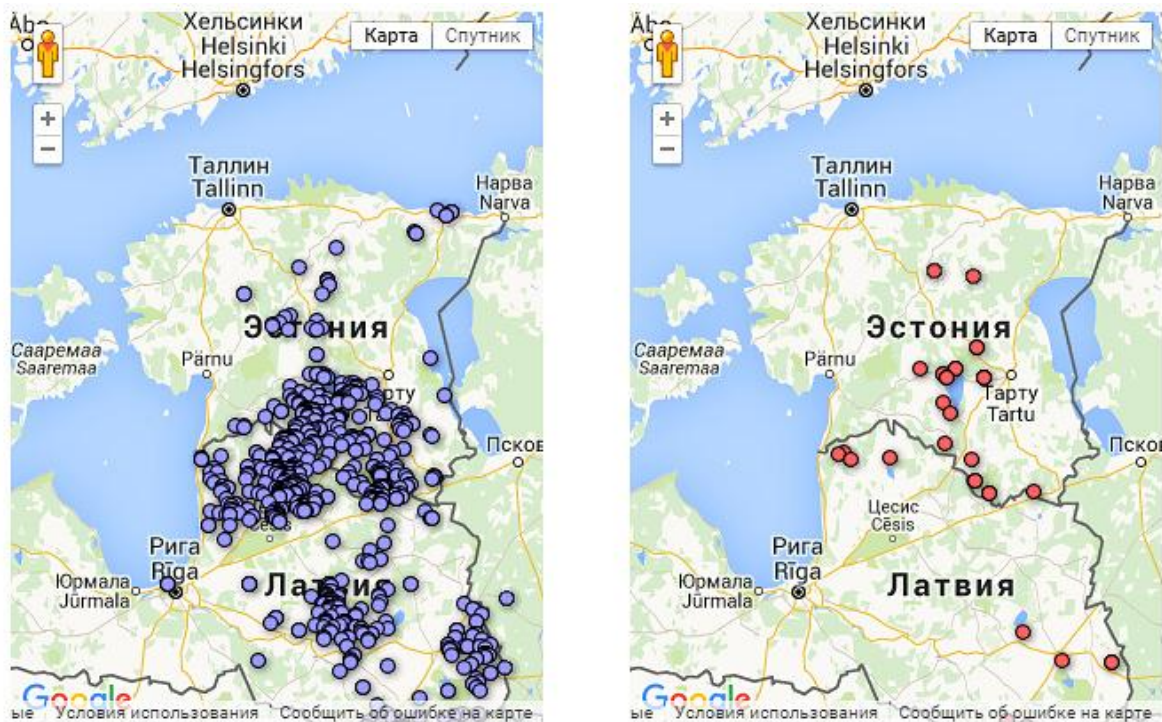


Figure 1. ASF cases in wild boar (left) and outbreaks in domestic pigs (right) as of early Sept. 2015 in Estonia

By September 2015 all detected cases in wild boar were grouped into 19 infected areas (one in Järva, Jõgeva and Rapla counties; two in Tartu, Ida-Viru, Järva, Põlva, Pärnu counties and three in Võru and Valga counties).

The surveillance approach for detection ASF in wild boar is both passive and active. The Estonian government subsidizes the detection and disposal of wild boar carcasses. People (most often hunters) who find carcasses receive 35 Euro for taking the carcass to a disposal container or 75 Euro if the carcass is buried on site. For these reasons many cases were reported in 2015. Dead wild boar are tested for ASF all across the country, however it is not clear if this approach also applies to road kills (around 500 in the whole Estonia annually, and 63 specifically in Jarva county). All wild boar shot in the restricted areas (infected areas and Part 2 and Part 3 areas according EC Decision 2014/709) are tested with PCR (and if relevant then with ELISA also). All wild boar from Part 1 (Decision 2014/709) that are to be moved outside the area are also tested. In the unrestricted part of the country 2 % of shot wild boar are tested for ASF with PCR and if relevant then also with ELISA.

The ASF testing statistics for 2014-2015 suggests that virus prevalence in hunted wild boar is remarkably high (3-4 %). This implies that wild boar carcass management and biologically secure handling (dressing) of shot animals are of paramount importance for prevention of ASF from entering into pig holdings and spread by hunters. In Jarva County for example with 18 hunting grounds and about 600 hunters a total of 715 animals have been hunted from 1st February 2015 until end of Sept 2015. This means that according to a hunting bag of 150% about 1200 more animals will be killed during the 2015/2016 hunting season, of which about 50 hunted animals may be ASF infected.

Combination of passive and active surveillance schemes and good cooperation with hunters allowed timely detection of new infected areas as early as possible and proved to be quite a reliable disease monitoring strategy. However, now that the virus load in the environment has increased, the earlier preventive measures regarding hunting and wild boar feeding management do seem to be insufficient and hence the strategy is being currently changed and updated (pending also the new common strategy by the Baltic States and Poland currently under development).

At the moment all wild boar shot in the restricted areas are taken to the hunting facilities (where available, otherwise stored at home) to be safely dressed following disinfection of clothes, footwear, tools and vehicles. Carcasses are identified with a paper tag with the number of licence issued prior to hunting and are stored in cold conditions pending results of ASF tests. The offal is placed in special container to be picked-up by a company in charge of incineration. Depending on the test results the wild boar meat is either consumed or the infected carcass is safely disposed.

The team was notified that during the winter, carcass sampling and safe management were particularly complicated and challenging. It is also well recognised that the disposal container system needs qualitative and quantitative improvements. The co-operation with hunters is viewed as challenging, but undoubtedly crucial. So far, it was quite successful both in terms of carcass disposal and sampling for ASF, but solutions for daily problems (who and when and how has to sample animals; how to get veterinarians to carcasses/hunted wild boars in the woods, etc.) are still to be improved. At times information exchange between parties involved (incomplete or delayed reports etc.) caused some problems as hunting usually takes place during the weekends and sending samples to laboratory at weekends was often problematic (at the time of the mission laboratories received samples also on the weekends). Sample collection during weekends and at night need to be better organised as veterinarians cannot be available 24/7. Some hunters have been instructed on how to take samples, while others will still need further training on this.

Recommended biosecurity precaution measures for hunters include: using of disposable gloves and disinfection after dressing and removing offal; cleaning and disinfection of clothes and equipment; avoiding visiting pig farms and bringing dead wild boars/carcasses or its meat to the farms; excluding swill feeding particularly with wild boar products. It is expected that hunters will notify the county veterinary centre of any clinical or pathological signs of ASF in wild boar or when dead animals are found in the forest. Visits to the hunting grounds and game dressing facilities in Varu County suggest that compilation with some of these requirements can be quite challenging for hunters. Due to high ASF virus prevalence in wild boar population in Estonia risks related to hunting (especially considering targeted 50 % increase in hunting bag in the years to come) need to be seriously addressed through awareness campaigns and generally improving game (offal) handling and biosecurity procedures.

Conclusions and recommendations

Domestic pigs

The veterinary service in Estonia is well prepared, having a clear structure and organization at central and regional level ensuring fast reaction in case of a crisis. Furthermore during the last months significant progress has been made within the veterinary service to control and eradicate ASF.

The main key factors responsible for the spread of ASF in Estonia have been recognized by the veterinary service and have been addressed clearly.

During the last months a huge effort has been done to increase the biosecurity standard of the farms, respectively to close down farms which do not comply with the biosecurity requirements.

In many cases solutions for bottle neck situations which hamper ASF control have been found; e.g. the Veterinary and Food Laboratory ordered new equipment for testing and hired more people to cope with the increasing volumes of the testings.

The epidemiological investigations are conducted professionally by the veterinary administration as well as by an independent expert team from the University of Tartu.

The epidemiological investigations for most of the outbreaks are still ongoing. However, it is assumed that a huge virus pressure during the summer months due to the multiple ASF cases in wild boar and insufficient biosecurity in most of the affected farms facilitated the outbreaks.

The monitoring and surveillance data for domestic pigs provide a realistic epidemiological picture of ASF in Estonia. However, some improvement is needed concerning the surveillance plan in commercial farms which at present is based on an expected disease prevalence of 10% with 95% confidence of detection. The present approach (10/95%) is one of the weakest points of the surveillance plan.

The surveillance and monitoring activities should be based on the biological characteristics of ASFV. Surveillance in domestic pigs should be focused on ASF early detection based on passive surveillance. Instead of testing 29 healthy animals in a commercial farm it would be better to test only animals which are suspicious for being infected (e.g. dead animals or animals with fever). A better sampling regime for domestic pigs in commercial farms does not necessarily imply that more tests have to be conducted. Important is to test a significant number of relevant animals with the right test system.

Wild boar

The surveillance for ASF in wild boar is capable of timely detecting the disease in the new areas and helps to better understand the epidemiological situation and risks in the endemic counties. However, given that probability of ASF detection in the unrestricted (ASF free zones) through passive surveillance (finding dead animals) is much higher (and much more likely), the testing of 2 % of shot wild boar in these areas is not likely to have much added value (unless sample sizes are adjusted on a county by county basis to fit the population estimates and expected prevalence).

The way ASF cases are recorded and reported (i.e. using an index case to denote a new infected area and then reporting subsequent cases as if they were epidemiologically linked to the index case and amongst each other) creates some confusion. There is little evidence that ASF cases in Estonia are spatio-temporally clustered (instead the disease seems to gradually diffuse northwards through the population and is detected rather randomly). It is recommended that case reporting in wild boar should be based on individual locations.

The high prevalence of ASF virus in wild boar populations in Estonia poses a significant risk of ASF introduction to pig farms with insufficient biosecurity: through contamination of environment (fodder, crops) and through unsafe management of carcasses and wild boar meat products. There is a room for decreasing these risks both on the side of farmers and hunters. Given expected increase in the numbers of wild boar to be hunted in 2015-2016 ensuring higher biosecurity standards during hunting becomes a critical issue in ASF prevention and control in Estonia. Also it is not clear how wild boar killed during road incidents (500 animals annually) are handled and if the same biosecurity rules apply to them. This can be another issue to be addressed in the ASF prevention strategy.

The decisions to introduce a ban on supplementary feeding and to have a hunting bag with female to male ratio of 60/40% are reasonable management solutions which might lead to a substantial wild boar reduction (50 %). However, these are midterm measures unlikely to give an immediate positive effect. For this reason further strengthening collaboration of the veterinary services with the hunters' community (particularly with regards to biosecurity of hunting and carcass handling) are crucial for reducing the ASF risk for pig production in Estonia. Such collaboration would also need to be linked to a regular evaluation of surveillance and other epidemiological data in order to better understand the effect of the measures and the evolution of epidemiological situation (another area where the expert team from the University of Tartu can be employed).

Final remark: *The working atmosphere during the mission was very good. The colleagues from Estonia gave all their support and assistance to facilitate a fruitful mission. The SGE team wishes to thank all colleagues from Estonia for their support and help given. All requested information and explanations were promptly received by the SGE team. Furthermore the support given by the two interpreters, Vivian Rennel and Ekaterina Shutova was excellent and very professional.*

SGE team

05.10.2015

Annex 1

Template for on the spot visits in Lithuania – Belarus – Poland – Russian Federation – Latvia - Ukraine – Estonia

The visit should include at least two separate field visits in two separate locations. In each of these locations the following aspects should be covered:

- Visit a local veterinary office dealing with field work for a discussion with the official veterinarians dealing with the pig sector. Figures should be provided to the experts on local pig production on both industrial and backyard farms together with biosecurity practices and an overview of activities by the veterinary services.
- Visit of 2 or 3 medium to large pig farms (without entering the premises, so just seeing the farm from the outside for biosecurity reasons) and discussion with the farm owner/manager outside the farm or in the administrative premises.
- Visit to 1 or 2 hunting grounds in the infected area and discussion with forestry management officials as well as one or two representatives from local hunting associations.

In addition to the above, a short opening and closing meeting with the central veterinary services should be foreseen so to allow discussing national practices and recommendations. Data should be provided to the experts on national biosecurity measures, population estimates, regionalisation, and surveillance being carried out in both domestic and wild boar.

In order to facilitate the mission, the following information should be provided to the experts, possibly one week before the mission:

- Domestic pig data:
 - Pig population and its structure
 - ASF situation
 - What kind of surveillance is applied, and results
 - Control measures adopted to mitigate the risk of spread (domestic and backyards), and results.
- Wild boar management in the country:
 - A map of the hunting grounds
 - ASF in wild boars eradication/control strategy applied for 2014/2015 and what will be planned for 2015/2016
 - Efficiency of surveillance
 - Country self-evaluation of the strategy applied
 - Problems encountered
- Wild boar data for specific hunting grounds:
 - Applied biosecurity measures when hunting;
 - Sampling procedures
 - Wild boar estimates and hunting bag planning and achievement (how many in reality have been shot)

Annex 2
Agenda for SGE ASF Expert mission in Estonia

Tuesday 29 September 2015

Opening meeting at the Central level 9.00 – 12.00:

Väike-Paala 3, Tallinn

1. Epidemiological situation in Estonia
2. National biosecurity measures
3. Population estimates
4. Regionalisation
5. Surveillance being carried out in domestic and wild boar

12.00 – 13.00 lunch

13.00 – 16.30 travel to Võrumaa county

Wednesday 30 September

8.30 – 15.00 (including lunch):

Võrumõisa tee 4, Võru

1. Visit Võrumaa veterinary local centre
2. Visit one large: Rakvere Farms EE1475 (6000 pigs) and one small: EE27943 (25 pigs) pig farm
3. Visit one hunting ground (Võru county hunting union)

15.00 – 18.00 travel to Järva county

Thursday 01 October

8.30 – 13.00 (including lunch):

Pärnu 58, Paide

1. Visit Järvamaa veterinary local centre
2. Visit one large: OÜ Päidla farm EE299 (2000 pigs) and one small: EE10035 (10 pigs) pig farm
3. Visit one hunting ground (Järva county hunting union)

13.00 – 15.00 travel back to Tallinn

15.00 – 16.00 closing meeting

Annex 3

Persons involved in the discussions during the GF-TAD mission in Estonia

Name	Function	Organisation
29 September 2015		
Opening meeting at the central veterinary service in Tallinn		
Maarja Kristian	Head of animal health, welfare, feedstuff department	Central Vet Administration (VFB)
Ainike Nommisto	Head of animal health bureau	VFB
Pille Tammemägi	Chief specialist	Ministry of rural affairs, food safety department
Teet Koitjärv	Chief specialist	Ministry of rural affairs, Environmental board
Ardo Pakkonen	Chief specialist	VFB, animal health bureau
Andres Lillemäe	Deputy director	Estonian Hunters Society
30 September 2015		
Visit of Võrumaa county		
Elle Horn	Chief specialist, animal health	Regional vet service of Võru county
Inga Saavo	Director	Regional vet service of Võru county
Margo Tannik	Chief specialist	Environmental board, Võru county
Ena Poltimäe	Chief specialist	Environmental board, Võru county
Andero Tauk	Manager	Commercial farm
Martin Saavo	Veterinarian	Regional vet service of Võru county
Mati Kivistik	Chairman	Hunting Club in Võru
Toomas Kaun	Hunter	Hunting Club in Võru
Jarek Joela	Back yard farmer	Võru county
1 October 2015		
Visit of Järva county and final meeting in Tallinn at the Central Veterinary Administration		
Andrus Leis	Director	Regional vet service of Järva county
Hele-Mai Sammel	Chief specialist	Regional vet service of Järva county
Aivar Juhkov	Chairman	Commercial farm
Jüri Kommusaar	Authorized Veterinarian	Järva county
Nilp Jaanus	Chief specialist	Environmental board, Järva county
Arvi Luuk	Hunter	Hunting Club in Järva
Vello Noorvali	Hunter	Hunting Club in Järva
Ilmar Lomp	Back yard farmer	Järva county
Olev Kalda	Deputy CVO of Estonia	Central Vet Administration (VFB)

Annex 4
Data of ASF outbreaks in Estonia (as of 11.09.2015)

No of the outbreak	Location	Date of the confirmation	No of culled pigs
1	Valga county	21.07.2015	1
2	Viljandi county	21.07.2015	355
3	Viljandi county	21.07.2015	191
4	Viljandi county	28.07.2015	6
5	Tartu county	30.07.2015	1186 + (145 culled in slaughterhouse)
6	Järva county	30.07.2015	483
7	Valga county	31.07.2015	3
8	Lääne-Viru county	04.08.2015	2
9	Viljandi county	05.08.2015	2149
10	Jõgeva county	08.08.2015	6426
11	Võru county	12.08.2015	1868
12	Viljandi county	12.08.2015	3072
13	Valga county	19.08.2015	5
14	Jõgeva county	20.08.2015	2329
15	Tartu county	25.08.2015	3804
16	Valga county	25.08.2015	126 (crossbred pigs)
17	Viljandi county	29.08.2015	15
		Total	22021 + (145)