GF-TADs
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Food and Agriculture Organization of the United Nations

WORLD ORGANISATION FOR ANIMAL HEALTH

REPORT

Expert Mission to Bulgaria on African swine fever

Period: from 14 to 18 January 2019

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Places visited during the mission:

a) *Sofia: Bulgarian Food Safety Authority (BFSA):* opening and closing meeting with the staff of BFSA.
b) Russe Region: to visit a commercial holding
c) Silistra: Shumentsi to visit a hunting club and hunting ground
d) Kainardzha: to visit the area in which the first cases in the wild boar were detected
e) *Varna region: Tutrakantsi, Provadia municipality*. To visit the place where ASF was detected in domestic pigs.

Terms of Reference of the SGE[1] Expert Missions to Bulgaria

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.
2. The experts should work with the Veterinary Services in order to determine the following aspects:
   a. 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.
   b. If ASF is occurring in wild boar and geographical distribution of ASF in wild boar.
   c. Formulate hypothesis on the drivers of ASF occurrence.
3. Propose measures intended for the control and eradication of ASF under local conditions, in line with the OIE International Standards and the Recommendations formulated by the GF-TADs SGE on ASF.
4. The experts should report to the Standing Group of Experts on African swine fever in 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.

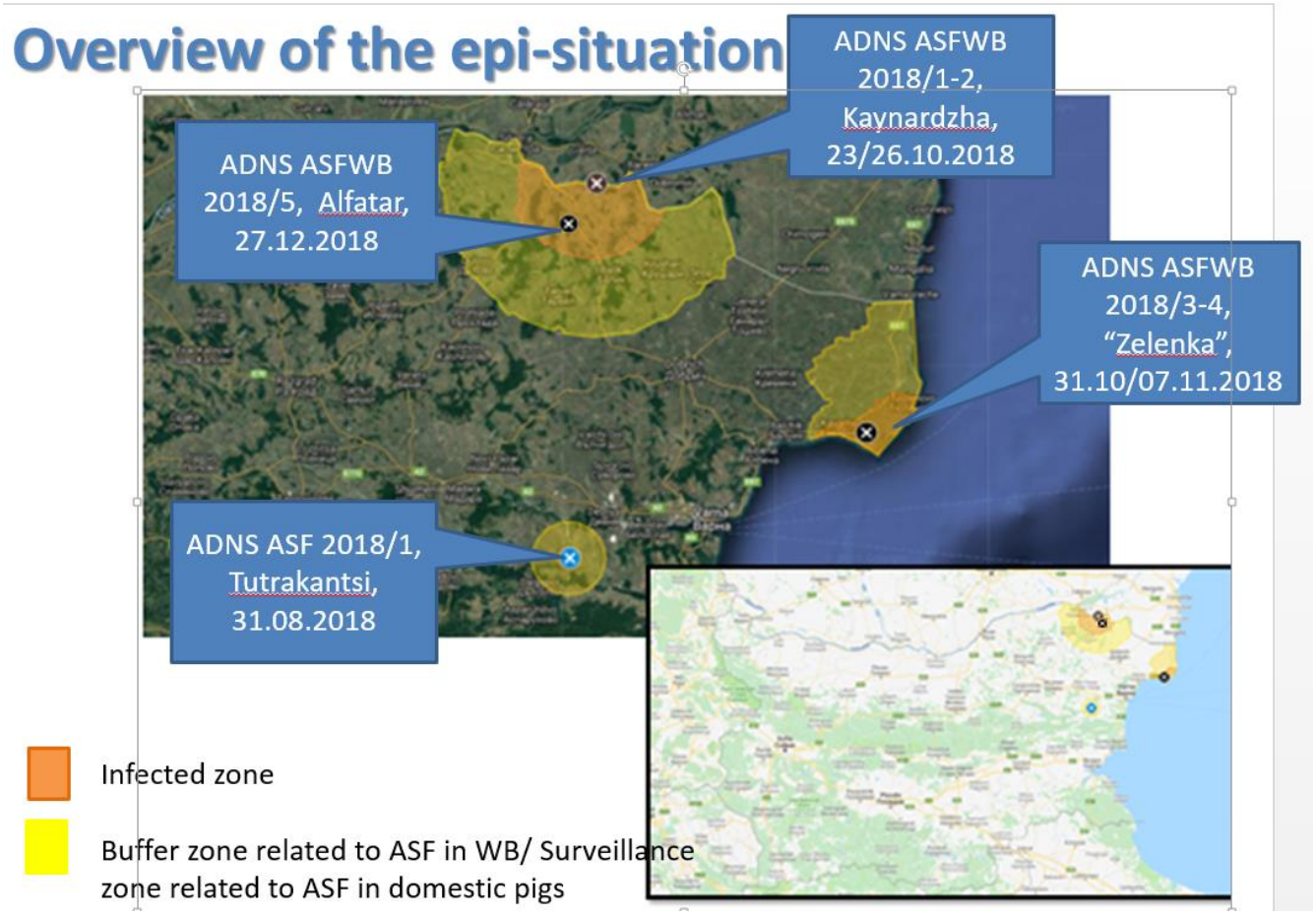
The working atmosphere during the mission was very positive. The Bulgarian colleagues were transparent in providing the information and gave support and assistance to facilitate the mission. The Team wishes to thank the interpreters for their support.

I. GENERAL INFORMATION

[1] SGE: Standing Group of Experts on African swine fever in Europe under the GF-TADs umbrella

At the time of the visit in Bulgaria, African swine fever (ASF) was detected in domestic pigs (one outbreak was reported) and in the wild boar. The outbreak in domestic pigs was detected in Varna region and cases in wild boar were identified in two regions at the northeast border of the country, at the border with Romania (map 1).

Map 1: ASF epidemiological situation*



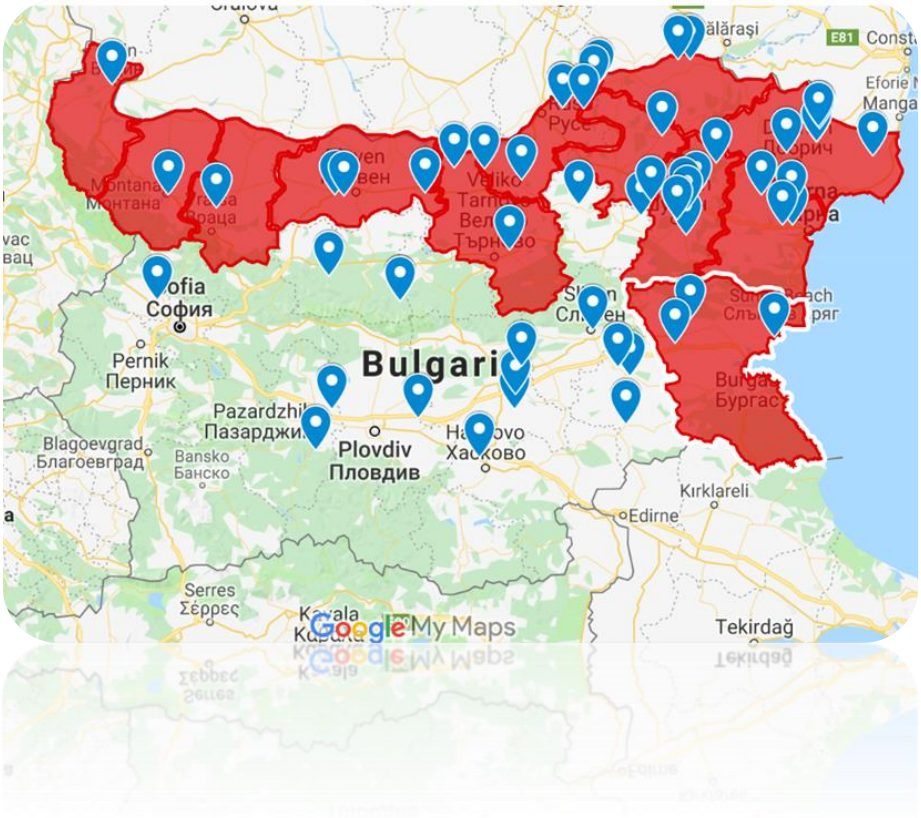
**** Information provided by Bulgarian Veterinary Service***

All these events occurred in the area that had been already identified at risk of ASF introduction by the Veterinary Service. Indeed, in 2012 a ASF risk assessment was carried out taking into account the following elements: 1) Danube river, which represent a suitable ecosystem for wild boar, that are also moving (crossing the border) from Romania, 2) land border with the Black See, due to the presence of ships and boats that could unload risky material, 3) presence of tourists from Russia, Ukraine and Moldova.

Based on the above-mentioned factors, five regions were considered at risk of introducing ASF: Burgas, Varna, Shumen, Dobrich and Silistra (map 2). In this area is located a significant part (38 out of 65) of Industrial pig farms of the country (map 3).

Map 2: administrative map of Bulgaria

Map 3. High-risk area and distribution of industrial holdings



All farms (backyards not included) engaged in the breeding of domestic pigs in Bulgaria are divided into three types: industrial farms; Type A and East Balkan pigs. Industrial farms are large commercial farms with a high biosecurity standard whereas, Type A farms are smaller but still with a good biosecurity level. East

Balkan pigs is a particular Bulgarian pig breed traditionally kept outdoor; they are raised in a few locations in the east part of the country. Biosecurity requirements for the pig sector are reported in the national legislation.

In the National data bank are registered 304 pig farms with 489095 pigs. Veterinary Service reported that the number of backyard (Table 2) could be under reported as it was noticed at the place of the ASF outbreak in the region of Varna.

Table 1. Domestic pig population in Bulgaria (backyards not included)

category	**n° of farms**	**n° of pigs**
Industrial farms	63	461005
Type A	191	24582
EBP	50	3508
Total	**304**	**489095**

Rearing pigs in non-professional holdings is not any more common in the rural areas in Bulgaria since people leave villages to move to cities. Backyard pigs usually are not slaughtered in abattoirs but are normally home slaughtered around Christmas.

Table 2. Domestic pigs in backyard holdings

	No of backyards	No of pigs in backyards
Entire country	2713	7607
High-risk zones	1865	5777

Table 3. Domestic pigs in the ASF high-risk regions (backyards not included)

Holding Category	**Number of holdings in higher-risk zones**	**% of holdings in higher-risk zones**	**Number of pigs in higher-risk zones**	**Percentage of pigs in higher-risk zones**
Industrial	38	60,32	383700	83,23
Category A	103	53,93	13584	55,26
Eastbalkans	50	100,00	3508	100,00
Overall	**191**	**62,83**	**400792**	**81,95**

Veterinary Authority try to promote the reduction of backyards, particularly in the territory surrounding commercial holdings.
East Balkan pigs are located in the area considered at risk of ASF introduction by Vet Service. This is why these herds are under surveillance and biosecurity rules were established into the national legislation.

Table 4. Wild boar population in Bulgaria

Year	Number of WB
2018	**99839**
2017	**94741**

Map 4. Wild boar density in Bulgaria

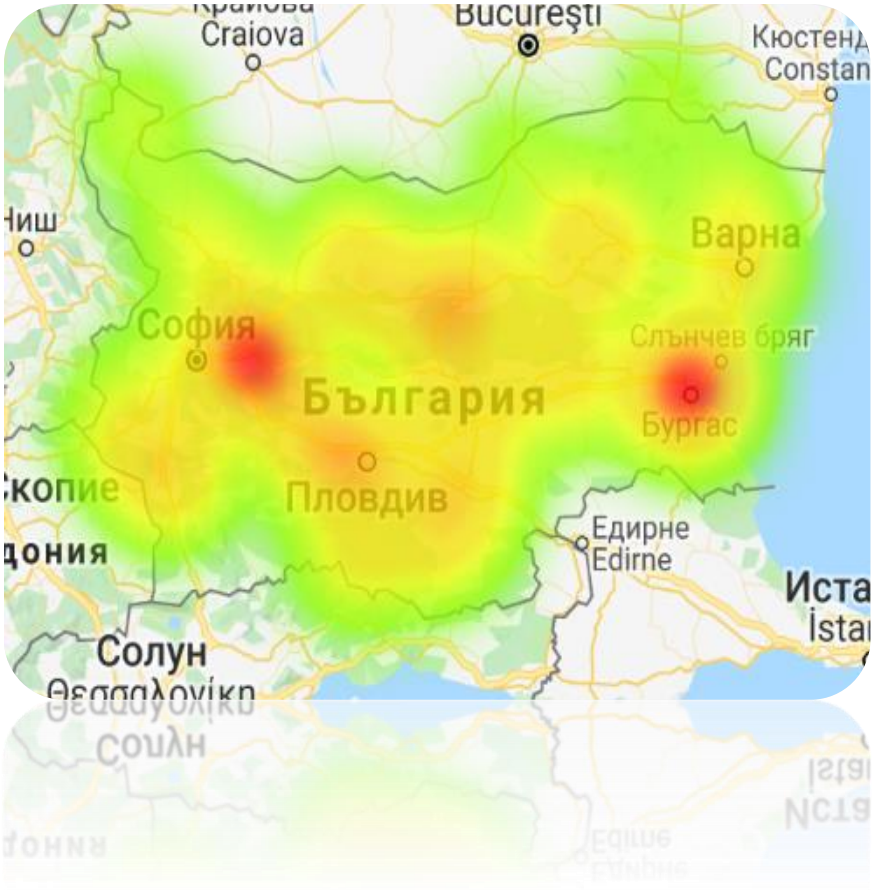
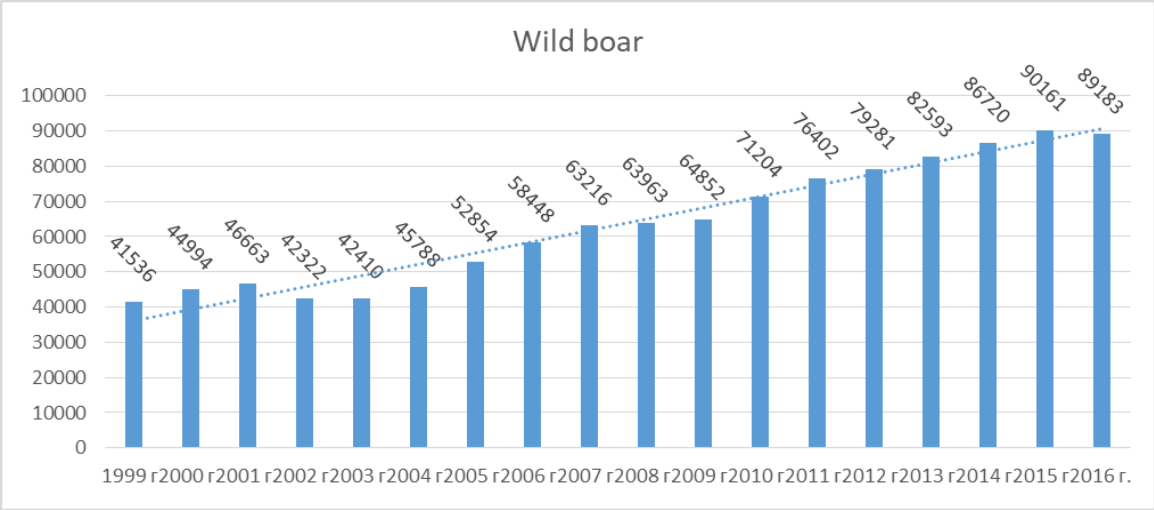


Table 5. Wild boar population dynamic in Bulgaria



II. SURVEILLANCE ACTIVITIES

During the meetings, representatives of the national and regional veterinary services of Bulgaria and of the affected regions presented information about the pig sector, the wild boar population, biosecurity requirements, ASF surveillance and control strategy. In addition, explanations were given on the evolution of ASF in domestic pigs and wild boars, the actions taken by the local veterinary service, as well as the results of the epidemiological investigations.

Bulgaria, based on the EU legislation is still under restriction for CSF and currently ASF and CSF surveillance activities are carried out in combination. In case of sick or dead animals (domestic pigs and wild boar), the animals are tested for CSF and ASF. The Veterinary Service reported that after the occurrence of the first ASF case, the number of samples tested for ASF increased 10 times.

CSF surveillance foresees active and passive activities whereas, for ASF the focus is on passive surveillance aimed at searching sick and dead animals (domestic pigs and wild boars). The service of Forestry, which daily monitors forest areas, is involved in searching sick and dead wild boar. The number of employees depends on the region and ranges from 30 to 50 people per region?.

In Bulgaria, there is only one state-accredited (PCR, ELISA) laboratory for laboratory diagnostic tests for ASF, which is located in Sofia. Every year the national reference laboratory participates in the international comparative tests for ASF organized by the Community Reference Laboratory (CISA-INIA, Spain).

Additional surveillance activities were carried out in the affected territories.

Surveillance carried out in Silistra region

Table 6. ***Active surveillance in domestic pigs in the period 23 Oct 2018 – 11 Jan 2019***

Silistra region	No. of villages	No. of pig holdings	No. of domestic pigs	No. of pig holdings checked	No. of pigs clinically examined	Result	No. of holdings in which samples were collected	No. of pigs sampled	Result
Infected zone	22	97	253	110	385	No clinical symptoms	29	152	Negative
Buffer zone	31	287	870	324	1414	No clinical symptoms	2	213	Negative
Rest of Silistra region	65	332	27274	270	568	No clinical symptoms	0	0	-
Total	118	716	28397	704	2367	No clinical symptoms	31	365	Negative

Within the framework of passive surveillance, two dead domestic pigs were tested in the buffer zone. Veterinary services from these animals selected samples of pathological material, which was checked in the national laboratory by PCR. Both samples were negative for ASF.

Table 7. ***surveillance in wild boar in the period 23 Oct 2018 – 11 Jan 2019***

Silistra	No of samples	Result
Infected zone	**3 (1 passive)**	**Positive for ASF**
Buffer zone	**147 (0 passive)**	**Negative**
Rest of Silistra region	**130 (0 passive)**	**Negative**
Total	**279 (1 passive)**	**3 positives**

As part of the surveillance (active and passive) in the wild boar population in the region of Silistra, a total of 279 samples were examined by PCR for ASF; three samples from the infected zone were positive for ASF.

Surveillance in Dobrich region

Table 8. ***Active surveillance in domestic pigs carried out in the period 1 Nov 2018 – 11 Jan 2019***

Dobrich region	No. of villages	No. of pig holdings	No. of domestic pigs	No. of pig holdings checked	No. of pigs clinically examined	Result	No. of holdings in which samples were collected	Result
Infected zone	9	3	32	0	0	-	-	-
Buffer zone	29	253	79	0	0	-	-	-
Rest of Dobrich region	178	929	45 574	35	5100	No clinical symptoms	67	Negative
Total	216	957	45 574	35	5100	No clinical symptoms	67	Negative

In Dobrich, active surveillance for ASF was carried out in domestic pigs in the infected, buffer and rest of the zone. In this area there are 45,685 pigs, of which 5,100 (the rest area) were clinically examined. Symptoms of ASF have not been identified. According to the information provided by the Bulgarian Veterinary Service, pigs from the risk and buffer zone were stamped out and clinically checked: none of them showed ASF symptoms.

Regarding passive surveillance, 71 samples from dead pigs from commercial farms and type A farms were examined for ASF with negative results.

Table 9. ***Surveillance in wild boar in the period 1 Nov 2018 – 11 Jan 2019***

	No of samples	Result
Infected zone	25 (1 passive)	17 ASF positives (within the fenced area)
Buffer zone	-	-
Rest of Dobrich region	230 (5 passive)	Negative
Total	255 (6 passive)	17 Positives

In relation to the surveillance activities carried out in wild boar, 255 samples were collected (6 from dead wild boars and 249 from hunted wild boars) and 17 were positive for ASF. All positive samples were within a fenced area in the infected territories.

III. ASF IN DOMESTIC PIGS

On 31st of August 2018 ASF in domestic pigs was confirmed in the region of Varna: Tutrakantsi village, Provadia municipality. The outbreak was detected in a backyard of 7 pigs, 4 of them died due to the presence of ASF. The farm veterinarian initially treated the animals for Swine erysipelas then, since pigs did not improve and the first animal died, the owner informed the mayor of the village and afterwards vet services were also informed. The pig holding of the outbreak was not registered, as the other ones of the village. Therefore, it was decided to stamp out and destroy the animals of the outbreak and the ones present in the village (97 pigs). The latter were visited before being stamped out and showed no signs of ASF.

Protection and surveillance zones (10 and 20 Km) were established in accordance with EU legislation. All pig farms of the two areas were clinically inspected and tested for ASF, with negative results. In the area there is no evidence of presence of ASF in the wild boar population. Additional surveillance activities were carried out in domestic pigs and wild boar of the region with negative results (Table 1 and 2).

The infected farm had a good level of external biosecurity.

An epidemiological investigation was conducted and based on the results obtained swill feeding could be the most probable source of ASF introduction into the outbreak.

Active surveillance in domestic pigs:

Table 10. *Active Surveillance in domestic pigs in the period 23 Oct 2018 – 11 Jan 2019*

Varna region	No. of villages	No. of pig holdings	No. of domestic pigs	No. of pig holdings checked	No. of pigs clinically examined	Result	No. of holdings in which samples were collected	No. of pigs sampled	Result
10-km protection zone	20	195	1075	195	746	No clinical symptoms	195	1267	Negative
20-km surveillance zone	25	346	1514	346	1409	No clinical symptoms	1	42	Negative
Rest of Varna region	150	24	70 205	24	2340	No clinical symptoms	5	36	Negative
Total	195	565	72 794	565	4495	No clinical symptoms	195	1345	Negative

Passive surveillance in domestic pigs: 170 samples from commercial farm, 4 from backyards (all negative)

Surveillance in the wild boar:

Table 11: *Surveillance in the wild boar in the period 30 Aug – 11 Jan 2019*

Region	No of samples	Result
Varna	459 (2 passive surveillance)	Negative

Visit of a Commercial Holding – Breshlen - Russe Region

The Team visited a closed cycle breeding holding of about 35.000 pigs which is located in Breshlen municipality, a territory still ASF free. Last live animal (a boar) was introduced into the holding in 2016. The interview with farm's owner was conducted in the administration building.

The Team was positively impressed by the infrastructure, the level of bio-security, the high production parameters and the management system of the holdings. Three fences surround the holding and there is only one entrance where the cleaning and disinfection post is located; the external fence is electrified. There is a drone and video cameras to check effectiveness of external biosecurity.

Pigs are slaughtered in an internal slaughterhouse (of the same property) and the meat is sold in Bulgaria and Romania.

Raw materials for the production of feed are purchased once a year and the feed is produced internally. In the holding work 2 veterinarians and 80 workers that eat in an internal canteen. Workers cannot have pigs at home and are not allowed to bring food into the holding. The owner gives pig meat to the workers every year as an incentive, so that they can produce safely their own pig-products at home.

In the 11 villages around the holding there are not backyard pigs, the closest holding, which is a commercial farm, is about 7-10 km apart.

According to the information provided, the holding has always had good biosecurity system in place. However, after the occurrence of ASF in the neighbouring territories, the manager has immediately tried to strengthen farm bio-security and dogs were bought to further strengthen external biosecurity,

In the farm has already been established an area in which animals could be disposed in case of ASF occurrence.

IV. WILD BOAR MANAGEMENT IN BULGARIA

Based on the wild boar census data presented by the hunters, the pre-reproductive wild boar population in Bulgaria in 2017 was 94741, whereas in 2018 an increase up to 99839 was observed.

The hunting management in Bulgaria is based on the spring data provided by the hunters on the estimated wild life population. There are plans to be fulfilled within the hunting season and the driven hunt with hounds is very traditional and popular whereas individual hunt is not very practiced. The intention of the state is to decrease the wild boar population, this means that the hunters should plan to hunt more than in previous years. The driven hunt in ASF infected areas or in areas at high risk of introducing the disease is very dangerous due to the possibility of increasing the movement of infected wild boars; it was reached an agreement with the hunters to carry out driven hunts without dogs (silent hunt).

The first occurrence of ASF in wild boar was detected on 23 October 2018, when ASF was reported in wild boar found dead in Kaynardzha municipality, close to the border with Romania; 3 days later a wild boar showing abnormal behaviour was shot and resulted positive to ASF. Probably the disease was introduced into Bulgaria through the movements of the infected wild boars across the border with Romania. In the same infected area 2 month later, 27 December 2018, another wild boar was hunted and resulted positive to ASF.

Based on the positive results to ASF, competent authority has established restrictive zones - infected zone of 20 km radius around the case (654 sq.km) and additional buffer zone was established 20 km around the infected zone (2045 sq.km). Wild boar population in this region was estimated to be close to 1500 wild boars. Surveillance activities in the affected region were carried out not only in wild boar, but also for domestic pigs and in the framework of active surveillance within infected zone, buffer zone and affected region of Silistra: 118 villages with 716 pig holdings have been visited and 704 pig holdings were checked. Clinical inspections have been carried out and 365 pigs were sampled with negative results to ASF. In the framework of passive surveillance 2 pigs were sampled with negative results. Wild boar population was also under investigation and 279 wild boars were tested in the framework of active surveillance and 1 for passive. Out of all the wild boars sampled 3 resulted positive to ASF in the period from 23 October 2018 to 11 January 2019.

Another infected area was identified in the north-eastern part of Bulgaria, in the region of Dobrich, close to the Black see. On 31 October 2018 ASF was detected in 4 shot wild boar with clinical symptoms, these animals were found in a fenced hunting ground. Few weeks later, from 7 to 14 November 2018, ASF was confirmed in 13 wild boars hunted in the same hunting ground. Restrictive zones were established - infected zone as a part of the municipalities of Kavarna and Shabla (181 sq.km), buffer zone – the rest of the municipalities of Kavarna and Shabla (817 sq. km) and the entire Dobrich region was included in the surveillance zone.

Working hypotheses were established to determine the possible origin of the infection and movement of wild boars from the infected country or human factor (tourism, infected feed used) were considered as possible pathways of ASF introduction.

Active and passive surveillance in domestic pigs was carried out in the period from 1 November 2018 to 11 January 2019. In the framework of active surveillance (67 holdings were sampled and 5100 pigs were clinically examined) whereas by passive surveillance 71 sample from commercial holdings and 4 from non-commercial were taken and checked with negative results. During the same period 255 hunted wild boars were tested as well as 6 found dead animals, 17 positive wild boars were found from hunted wild boar.

The competent authority developed a software for hunters to allow GPS mapping of the hunted / found dead wild boar, it provides also the option for barcoding the samples collected for ASF and *Trichinella* testing. This application was presented to the hunter’s association and the hunters considered this app as an advantage also because there is a price reduction for *Trichinella* testing if the application is used.

One hunting club located in the infected area was visited by the Team, in this club they mainly practice driven hunt whereas hunting from the tower is not performed. Before the first ASF case was confirmed in wild boar, biosecurity elements have already been established in the hunting club considering that is close to the border with Romania and therefore at risk of ASF virus introduction. Measures include the presence of an authorized dressing areas and storage of hunted wild boars, pits located in the same hunting ground to store wild boar's offal after dressing, the place is also fenced to limit the access of unauthorized persons. The pit for offal's storage is established in the territory of the same hunting ground, few kilometres away from the dressing area. Lime is the disinfectant in use in the hunting club. The members of the hunting club are aware of the ASF situation, participate regularly to meetings and are involved in active surveillance activities. So far, no dead wild boar was reported in that area.

The Team visited also the hunting ground, in which 17 ASF positive wild boars were detected. The area is fenced but the wild boars could easily reach the sea cost where they might have found infected material. So far, no new case was reported from that area.

Currently, compensation is not foreseen for reporting dead animals to the Authorities and this could be reason for under reporting. Worth mentioning that in areas at risk of introducing the disease the probability of detecting the first case of ASF is higher by passive surveillance which is the main mean to ensure early detection and also to monitor the trend of the disease.

V. ADDITIONAL MEASURES FORESEEN BY THE COMPETENT AUTHORITY

- Ban on trade of wild boar into the territory of Bulgaria;
- Trainings of hunters on epidemiology, sampling and enhanced biosecurity measures;
- Building of dedicated pits for WB carcasses and ABPs disposal in hunting grounds;
- Enforced passive surveillance in WB – obligation for notification to Official veterinarian/Regional Food Safety Agency Offices for each WB found dead and immediate disposal under official control of the carcasses after samples collection;
- Ban of driven hunt along the border with Romania from the Black Sea till Pleven region;
- Ban of driven hunt in 20 km zone around the outbreak in Tutrakantsi village – during the period of restrictions;
- Awareness campaigns and regular info updates from the BFSA.

Measures adopted in infected zones after ASF detection in the wild boar:

- Ban of hunting, possibility of sanitary shooting of wild boar by appointed hunters, trained on biosecurity and trapping of wild boar;
- Searching for wild boar carcasses by appointed hunters or forestry service officers, trained on biosecurity;
- Ban of movement of domestic pigs, semen, ova, embryos, meat or products originating from the infected zone;
- Sampling of domestic pigs (for serological and virological testing) within the infected zone;
- Enhanced biosecurity measures.

Measures adopted in buffer zones after ASF detection in the wild boar:

- Ban of driven hunt (individual hunting possible)
- Searching for wild boar carcasses

- Movement of domestic pigs from industrial farms for fattening or immediate slaughter and from type A pig farms for immediate slaughter only further to pre-movement testing, biosecurity protocols applied and under official control. Movement of pig meat and products obtained only from the aforementioned categories of holdings;
- Enhanced clinical and biosecurity checks in pig holdings;
- Notification to Official veterinarian/Regional Food Safety Agency Offices for each wild boar found dead and immediate disposal under official control of the carcasses after sampling.

VI. CONCLUSIONS AND RECOMMENDATIONS

- Veterinary Authority has knowledge of the ASF susceptible population (domestic pigs and wild boar). This means that, in relation to domestic pigs, holdings are registered and identified and are categorized based on their level of risk.
  - **However, in backyards the level of control of the registration system has to be improved.**

- Biosecurity rules are in the national legislation, activities are carried out by the Veterinary Authority to check their implementation in the field, based on a national control plan.

- An area at risk for ASF has been established in Bulgaria 2 years before the introduction of the disease, taking into account possible risk factors. ASF has been introduced in the territory already considered at risk of introduction.

- Thanks to the support of Veterinary Authority, the basic principle of bio-security during hunting had already been implemented before the introduction of ASF in the current infected area.

- A mobile application has been developed to speed up the report of the results of the lab testing. It contains also other useful devices, for the collection of geographical coordinates and to send pictures of the affected animals.
  - **However, since ASF samples are taken in combination with *Trichinella* samples, the results should be provided in combination, to avoid that carcasses are released immediately after obtaining the results for *Trichinella*.**

- In infected area Veterinary Authority tend to reduce the number of backyard based on their level of bio-security.

- The commercial holding visited has high standards of biosecurity and high standards of productions. The level of bio-security has also been improved as a reaction of the presence of ASF in the neighbouring countries.

- Veterinary Authority had a proper reaction to the presence of ASF in a backyard farm. Eradication activities were properly conducted in the area under restriction and no secondary outbreak was detected.
  - **Connection between private/official and state vets should be improved throughout awareness campaign.**

Other recommendations:

- **Areas in which positive animals have been detected have to be marked to the public as infected areas.**

- **The level of passive surveillance needs to be improved. One of the possible means of improvement for WB is to provide an economic incentive for the reporting of sick and dead animals and for the destruction of the carcasses.**