



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

Standing Group of Experts on African Swine Fever in the Baltics and Eastern Europe Region under the GF-TADs

Expert mission on African Swine Fever in **Serbia** **REPORT**¹

❖ **Period of the mission:** 10-13 December 2019.

❖ **GF TADs team:** Petr Šatrán (team leader, CZ), Konstantin Gruzdev (RU)

❖ **Places visited during the mission:**

1. *Central Veterinary directorate Belgrade*
2. *Regional Veterinary Service, Regional Crisis centrum and Regional veterinary institute in Novi Sad*
3. *2 pig Farms – big and medium size*
4. *Hunting ground*
5. *On the spot visit in Mladenovac*

❖ **Terms of Reference**

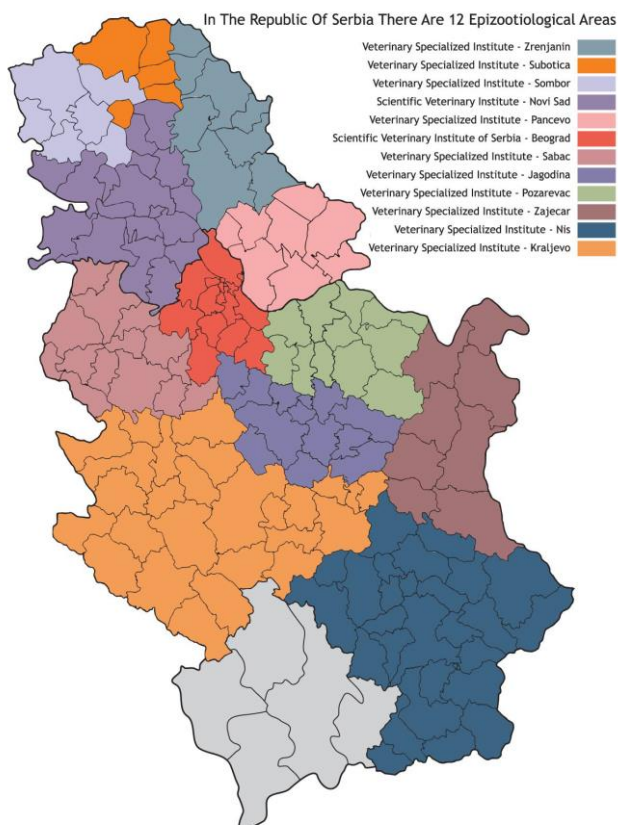
1. The experts should perform on the spot visits (as detailed in the Annex) in order to gather data and be in a position to formulate recommendations on disease management.
2. The experts should work with the Veterinary Services in order to determine the following aspects:
 - a. If African swine fever (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.

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 organization, nor of the EC, OIE or FAO

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 Europe SGE on ASF.
4. The experts should report to the Veterinary Services of the country visited and to the GF-TADs Europe SGE on ASF. A written report should be produced for each mission.

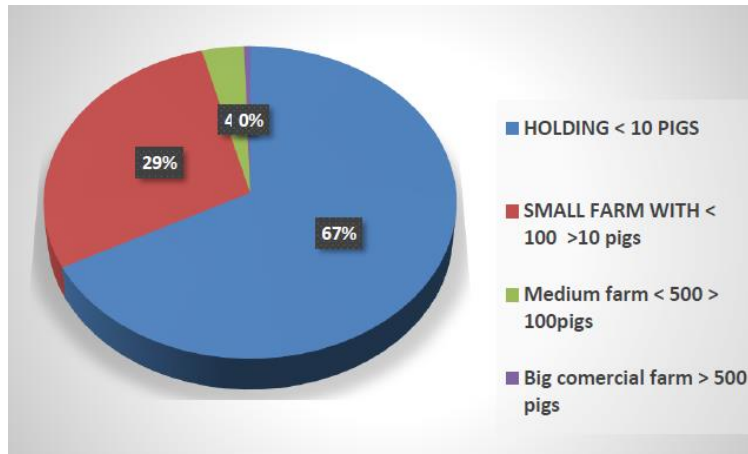
The total area of Serbia has 77,474 km². Serbia is administratively divided into 25 districts. The country is bordering with Hungary, Romania and Bulgaria (ASF infected countries). Serbia has 355 veterinary stations (staffed with a minimum of three veterinarians) and 627 veterinary ambulances (staffed with a minimum of one veterinarian). They may be authorized to carry out some official duties on behalf of the Veterinary Directorate, such as animal health monitoring, issuing of animal health certificates, identification of animals and support for the registration of holdings vaccination against CSF. Local Veterinary Inspectors are obliged to conduct regular checks of those veterinary stations and veterinary practices and report the findings to the Veterinary Directorate.

From the epidemiological point of view, the territory of the Republic of Serbia is divided into twelve epidemiological areas, as follows: Subotica, Sombor, Novi Sad, Zrenjanin, Pancevo, Belgrade, Sabac, Pozarevac, Nis, Jagodina, Zajecar and Kraljevo. Local authority officers (district chief officers and inspectors) conduct food safety, animal health and welfare surveillance and law enforcement activities.



DOMESTIC PIGS POPULATION

In 2019, a total of 73,856 pig holdings were registered in Serbia, of which 49 691 kept up to 10 pigs, 21 209 kept 10 to 100 pigs, medium commercial farms of 100 to 500 pigs were 2 588 and large commercial farms with more than 500 pigs were 368. The highest concentration of holdings is in the northwest part of the country.



In 2019, a total of 2,889,099 pigs were identified and registered.



Rearing pigs in small, backyard holdings is very common and tradition in the rural areas. This type of rearing is still a significant part of the agricultural practices. Backyard pigs usually are not slaughtered in slaughterhouse. The home slaughtering is usually performed in winter time, around Christmas or whenever new meat supplies are needed. It is very difficult to ensure biosecurity measures in these backyard holding including swill feeding.

SYSTEM OF MARKING AND REGISTRATION OF PIGS IN SERBIA

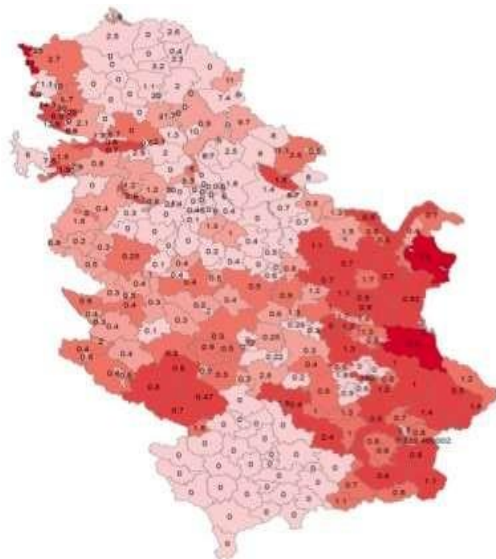
Legal basis is done by Law on Veterinary Matters, Rulebook on marking and registration of pigs, Rulebook on Animal Health Measures Program. Registration of birth is on 7th day, marking until 45 days of age, usually during first vaccination against CSF. Each pig receive unique number of ear tag, which enable traceability during the entire life of pig. This individual marking system allows for a wide range of analyses. The registration of pig holdings is done by registration in the Central database. The holding is registered with location of the holding with GPS coordinates, type of holding, authorized person, number and categories of pigs. Each farm draws up an annual health plan.

WILD BOAR POPULATION AND HUNTING

Hunting rules are set by the Hunting Act. Most hunting grounds are under the control of the state or hunting unions. There are 362 hunting grounds in Serbia, while the minimum hunting area is 20 km². The game is considered a public matter belonging to the state. Wild boar population is relatively stable 23 000 pcs, ie 1 WB / km² hunting grounds, or 0.25 WB / km² of Serbia.

The most common is driven hunt with 3 to 20 hunters. On 5 February 2019, a regulation introducing an ASF early detection system was issued. In border areas with RO, hunting is intensified. A risk area has been defined for these purposes. Passive monitoring is in place and in 2019 a total of 25 dead wild boars were examined. No compensation is paid for finding a dead wild boar. If a sanitary blast takes place, it must be reported to the veterinarian. The suspected piece is released after the tests have been completed. Each hunting user is obliged to report deaths and to set up a weekly hunting ground search schedule. Every week a passive surveillance report and a biosecurity checklist are sent to the crisis centre.

Map of wild boar density



EPIDEMIOLOGICAL SITUATION

Serbia was officially free of ASF until August 2019. The first confirmed outbreak was reported in a backyard holding with four pigs in County of Mladenovac, on 13th August 2017 with 24 pigs. Other three outbreaks were confirmed in the same area also in back yard holdings. So far, ASF has not been detected in the wild boar population in Serbia.

RABROVAC first ASF outbreak: 29.7. one sow found dead in backyard holding. Samples were taken by NIVS Belgrade, 30. 7. ASF confirmed in NRL NIVS Belgrade, 31.7. stamping out of infected holding (24 pigs culled), 31. 7. stamping out of 202 pigs on 17 contact holdings (8 were positive), 30. - 31. 7. active surveillance of 1447 pigs in 124 holdings in Rabrovac. 17 samples were taken, 8 positive, 9 negative.

The very first ASF outbreak in Rabrovac - veterinary technician visited this holding (legal and officially) but the 2. ASF was in Velika Krsna which is the holding of mentioned veterinary technician. In his freeze was found meat of piglet slaughtered on 8.5.2019. It was ASF positive. All meat from freeze was destroyed. The other outbreak in V. Krsna were in holdings close to veterinary technician holding. Finally it can be considered, that source of infection in Serbia was human factor and thank to the very good early detection system and measures taken, the disease was effectively eradicated.

CONTINGENCY PLAN

Contingency plan is implemented by regional local crisis centres established by the Minister and in accordance with the regulations on state administration. Funds for procurement,

storage and replenishment of minimum supplies of necessary equipment and resources for crisis centres are provided in the budget of the Republic of Serbia.

The Ministry prepares and conducts simulations of outbreaks of certain infectious diseases to verify CP. The Ministry develops and organizes education on the detection, monitoring, control and eradication of certain infectious animal diseases.

CRISIS CENTRE

In the event of the occurrence and spread of infectious animal diseases, dangerous to animal and human health with crises situation in the country and surrounding countries, ensure the planning, coordination, operation management and implementation of ordered measures throughout the entire national territory.

REGIONAL CRISIS CENTRES FOR RAPID RESPONSE

There are 4 Rapid Response Centres established in the territory, which have veterinary and scientific experts available to deal with crisis situations. The centres are in Novi Sad, Beograd, Nis and Kraljevo. As part of regional crisis centres is 350 veterinary stations (approx. 300 under contract for conducting Animal Health Protection Measures and approx. 650 veterinary ambulances). Regional crisis centres are very well organized and very close collaboration is between official and private veterinarians. This is very important in relation to high number of small backyard holdings.

LABORATORY DIAGNOSTIC

There are in total 12 state veterinary institutes in Serbia. During the mission, ASF diagnostic laboratories were visited in Belgrade and Novi Sad. The NRL for ASF is in Belgrade. The NRL has been equipped within the IPA project and it is possible to carry out appropriate laboratory tests for the detection of ASF. There are 14 veterinarians and 12 technicians in the laboratory. The methods are certified according to ISO 170 25. NRL cooperates with the EU RL in Madrid and participates in the ring tests. The ring tests are also organized at national level. Currently, 4 laboratories are testing for ASF in Serbia. The laboratory works 24 hours a day. The methodology is very well managed to carry out its own molecular and serological tests. Laboratories operate in biohazard at BSL2 level under limited operating conditions that limit the capacity of laboratory diagnostics. NRL and other laboratories are trained and personally involved in field sampling. In case of suspicion, they cooperate closely with the regional crisis centre.

DIAGNOSTIC TESTS AND SAMPLING PLAN FOR AFRICAN SWINE FEVER

Hunted wild boars

For the purpose of monitoring and surveillance, a number of wild boars shall be examined on the ASF, especially in the period of intensive hunting (November-March), i.e. on ASF in accordance with the official testing plan by Ministry (VD).

Dead wild boars or wild boars shot in a “sanitary hunting”

All found dead wild boars and wild boars shot in a sanitary hunting where certain disorder of health or clinical signs noticed must be shot, reported and tested on Classical Swine Fever and African Swine Fever.

Hunting legal entities, i.e. hunting clubs, are obliged to report hunting to the veterinary inspector in charge of the territory or hunting area where wild pigs are to be hunted, as well as to the competent veterinary institute or veterinary station, not later than 48 hours prior the hunting starts, in order to organize veterinary inspection and sampling at the time.

Sampling

Wild boars shot in a commercial and sanitary hunting shall be transported to the site designated facility (collection center) for veterinary and sanitary examination for the presence of pathological changes typical of CSF and ASF and sampling for laboratory testing at. Inspection of dead or shot wild boars and sampling for laboratory testing are to be performed by an epidemiologist from the competent scientific or specialist veterinary institute or by veterinarian from the competent veterinary station. If, for objective reasons, sampling is carried out on the spot or at another location outside the facility, sampling may also be carried out by the hunter or person responsible for in the hunting area.

Surveillance and diagnostics

As a part of the monitoring and surveillance plan for ASF in wild boars in accordance with the 2018/2019 AKS. 62 border hunting grounds (30 in northern part-Vojvodina and 32 in central Serbia) in 10 counties bordering to Hungary, Romania and Bulgaria were included.

The 2019/20 testing plan in wild boars in further includes the same area (border hunting grounds) as in 2018/2019 by testing all wild boars tested according to parallel serological testing on CSF within calculated sample size (Molecular Testing PCR). In order to ensure continuity of surveillance on ASF, after the completion of intensive hunting, all wild pigs that have been hunted during the off-season period for certain categories of wild boar shall be examined.

In the event of a change or worsening of the epizootiological situation, the schedule of the diagnostic examination may be modified or extended within calculated sample size (Molecular Testing PCR). In order to ensure continuity of surveillance on ASF, after the completion of intensive hunting, all wild pigs that have been hunted during the off-season period for certain categories of wild boar shall be examined.

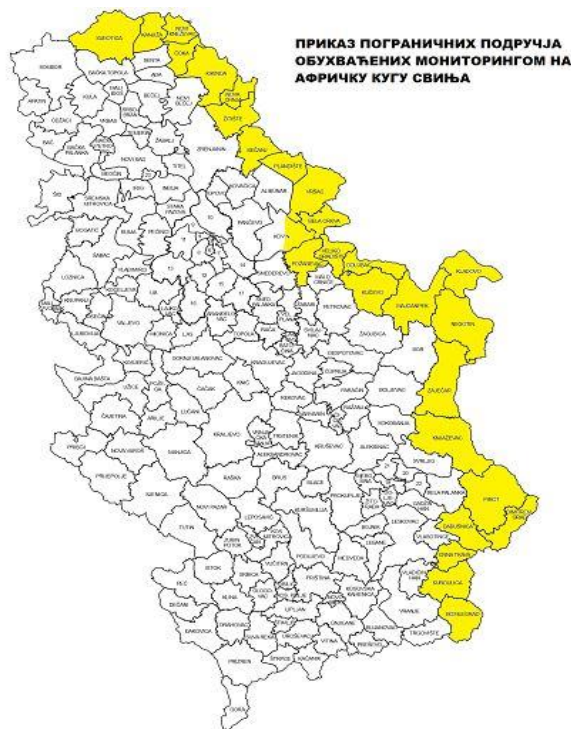
In the event of a change or worsening of the epizootiological situation, the schedule of the diagnostic examination may be modified or extended.

In high-risk hunting areas within the area declared under protection and surveillance zone endangered by ASF in domestic pigs, all found dead, sick or hunted wild boars will be tested (molecular testing - PCR), in a representative sample size (2% expected prevalence, 95% confidence level), relative to the hunting bag, for the duration of the measures applied, in accordance with the Ordinance and the particular regulation. If this plan is not fulfilled, in order to ensure continuity in the surveillance of ASF, after the cessation of measures in the

restricted area of ASF in domestic pigs, testing of all hunted will continue, until the end of intensive hunting, as well as all wild boars shot during the hunting off-season.

In hunting areas with positive cases declared infected with ASF in wild boar, all shot wild boars shall be examined during the duration of the measures and the duration of the surveillance for molecular and if necessary serological testing, for at least 12 months period, except during the hunting ban, in accordance with the Order and special regulation.

Hunting grounds in bordering areas



PLAN ON AFRICAN SWINE FEVER (ASF) SURVEILLANCE AND DIAGNOSTIC TESTS IN DOMESTIC PIGS IN THE REPUBLIC OF SERBIA

This Plan defines in more detail the methods and procedure for surveillance on African swine fever (ASF) in domestic pigs, in accordance with the Rules for Planning the Program of Animal Health Measures for 2019 (hereinafter: Program of Measures), with the aim of early detection of African swine fever virus, in particular, gathering relevant data for better perception at the epidemiological situation in relation to ASF in the Republic of Serbia.

GEOGRAPHICAL AREA COVERED BY THE PROGRAM

The surveillance plan shall be applied throughout the territory of the Republic of Serbia, except in the areas where specific measures are being implemented upon the decision on the identification of the African swine fever infected and threatened area, as well as additional surveillance zones in the high-risk area are implemented, in accordance with the epidemiological situation in the country and the region.

SURVEILLANCE AND TRAGET ANIMALS

African swine fever surveillance is carried out on all holdings where pigs are kept and raised and includes:

- Visiting farms/holdings, determining the health status of pigs and completing the Questionnaire;
- Sampling and
- Diagnostic examination for the presence of the African swine fever virus genome.

The target group for testing for African swine fever virus includes domestic pigs older than 2 months, or any other category in case no pigs older than 2 months are present at the farms/households.

ORGANISATION OF ACTIVITIES

ASF surveillance program is carried out by veterinary institutes and veterinary stations/services which are under the Animal Health Measures Program.

Veterinary stations shall submit a weekly surveillance plan to the competent veterinary institute and the competent veterinary inspection prior to surveillance.

Veterinary professionals visit **all the holdings** where pigs are kept and raised according to the following plan:

- On farms/holdings which are holding more than 10 sows, surveillance shall be carried out every seven days;
- On farms/holdings which are holding more than 150 fatteners, supervision shall be carried out every seven days;
- On farms/holdings which are holding up to 10 sows, surveillance shall be carried out every seven or 14 days at least;
- On farms/farms which are holding up to 150 fatteners, surveillance shall be carried out every seven or 14 days at least.

When visiting the holdings, the veterinary officers shall:

- A) Determine the health status of pigs,
- B) Interview the owner/keeper of the animals and complete the Questionnaire (*"Questionnaire on the number of animals on the holding and the observed changes in the health status of pigs"*) which the owner signs under criminal and material responsibility and

C) Take samples as follows:

1) Farms/holdings which are holding up to 10 sows or up to 150 fattening pigs sampling shall be performed as follows:

- in the case of sick pigs over 2 months of age, a sample of two sick animals with haemorrhagic syndrome/fever/treated with antibiotics longer than 3 days is taken;

- in the case of death, a sample of two dead animals older than 2 months is taken, unless this category is not present on the holding in which case samples from 2 pigs are taken regardless of their age;

2) Taking samples on farms/holdings which are holding more than 10 sows or more than 150 fattener pigs must be performed on a weekly basis regardless of expected mortality, and even if mortality is lower than expected:

- in case of each and every dead sow, gilt and boar,
- at least two dead pigs older than 2 months, or at least 2 dead pigs regardless of their age (in case of a holding with no pigs older than 2 months)
- in case of a holding without any death, but with sick animals with hemorrhagic syndrome/fever/treated with antibiotics longer than 3 days – samples from 2 sick pigs shall be taken.

Each farm/holding which is keeping more than 10 sows or more than 150 fattener pigs is obliged to develop its own surveillance plan according to its technology and scope of production which includes organization plan and designated location for carcass disposal in case of the disease outbreak.

Veterinary services established for the needs of their own livestock farms carry out daily monitoring on the farms, complete the Questionnaire and submit samples to the competent institute on a weekly basis in accordance with the aforementioned plan according to the number of animals. They shall inform the competent veterinary inspector and the competent veterinary institute thereof.

In addition to the visits in accordance with the surveillance plan, veterinary stations also work in the field and perform sampling for each reported death of gilts, sows and boars, or each pig in case of reasonable suspicion of ASF.

Veterinary stations are obliged to update the register of holdings on which pigs are kept, by deactivating the holdings with no pigs and by activating or registering in the register the holdings where pigs are present but are not in the register. Veterinary stations mark and vaccinate pigs against CSF in accordance with the Program of Measures on holdings where unmarked and unvaccinated pigs are found.

Diagnostic tests for the presence of the African swine fever virus genome are performed in accredited laboratories at the NVI of Serbia from Belgrade (NRL) and the NVI "Novi Sad" from Novi Sad.

National Reference Laboratory (NRL) for African swine fever - the Scientific Institute of Veterinary Medicine of Serbia, organizes and coordinates laboratory testing.

SAMPLING METHOD AND DISTRIBUTION OF SAMPLES

In case of sick pigs, blood samples are taken by puncturing the ear vein and taking the swab by soaking it well with blood. When sampling (vein puncture), the use of disposable needles for each pig is mandatory.

Spleen is sampled from dead animals by thrusting the swab into the spleen. In case opening of the carcass is not allowed, blood is sampled by puncturing the ear vein (disposable needle) and soaking the swab with blood.

The samples are marked containing the ID number of the holding and label of the sample and delivered to the competent veterinary institute along with the *Form for for sending material for laboratory testing*, within 24 hours, in a cold-chain at 4-8°C. Competent veterinary institutes deliver samples on a daily basis for laboratory testing from correspondence territory accompanied by the *Form for for sending material for laboratory testing*, based on the following table:

NVI OF SERBIA	NVI "NOVI SAD"	SVI NIŠ	SVI KRALJEVO
VI Požarevac	VI Subotica	VI Niš	VI Kraljevo
VI Jagodina	VI Zrenjanin		
VI Pančevo	VI Sombor		
VI Zaječar	VI Vršac		

Tests for the presence of the African swine fever virus genome are performed by PCR method at the NVI of Serbia in Belgrade and the NVI "Novi Sad" in Novi Sad. In case of undecided or positive result, NVI "Novi Sad" immediately informs NVI of Serbia and sends sample for confirmation testing.

PROGRAM DURATION

ASF surveillance program shall last for two months, in order that all holdings keeping pigs in the territory of the Republic of Serbia are to be tested.

In case a positive result in an area is obtained during the implementation of this Plan, surveillance in this way will be terminated and measures will be implemented in accordance with the decision on the identification of the infected and endangered area.

RESPONSIBILITIES

The veterinary station is responsible for the identification and sampling of the target animals, as well as the quality of the samples and their timely delivery to the Veterinary Institute.

Veterinary institutes are responsible for the timely distribution of samples to the diagnostic laboratory.

NVI of Serbia and NVI "Novi Sad" are responsible for the accuracy of the test results.

REPORTS

Veterinary stations/services prepare reports on activities carried out on a weekly basis and submit to the competent veterinary institute (*Weekly report on activities carried out and the scope of sampling under the ASF Surveillance Plan*), together with copies of completed Questionnaires (copies are also provided to the Regional Veterinary Inspection Office).

In addition to the reports, the veterinary stations prepare an *invoice* on the activities carried out and the scope of sampling, addressed to the competent institute. The competent veterinary institutes shall, for their designated area, consolidate the data submitted by the veterinary stations and prepare a summary report (*Summary weekly report on the activities and scope of sampling under the ASF Surveillance Plan*) which is submitted on a weekly basis to the Veterinary Directorate and the Regional Crisis Centre by 12 noon each Friday for the previous week.

The NVI Novi Sad and the NVI of Serbia (NRL) on the performed laboratory tests submit a report (*Weekly laboratory report on the scope and results of testing under the ASF Surveillance Plan*) on a weekly basis (Monday to 12 noon for the previous week) to the Veterinary Directorate and NCC.

In case of a positive result, the NVI of Serbia immediately informs thereof the NCC/Veterinary Directorate and competent veterinary inspection.

The final report on the performed ASF surveillance, with a detailed analysis of the current epizootiological situation of ASF in the territory of the Republic of Serbia, is prepared by the NVI of Serbia (NRL) in cooperation with the NVI "Novi Sad".

CONCLUSIONS AND RECOMMENDATIONS

1. DOMESTIC PIGS

There is a very diverse structure of pig farms in Serbia. There are a large number of small, non-commercial farms and there are also large commercial farms. Monitoring was carried out during the mission, in line with EC recommendations. According to the information gathered, this monitoring will be completed. It will be necessary to provide a similar, sustainable, sufficiently sensitive system to ensure an early detection system. Biosecurity is very important. An intensive information campaign was carried out, many leaflets, articles, information were published. As part of the information campaign, the principles of biosafety should be practically explained to breeders. It is advisable to consult the biosecurity rules and principles given in the information leaflets directly in the farm. Here you can take advantage of very good cooperation veterinary administration with breeders. For large farms, it is necessary to focus on the correct implementation of biosecurity, carcass management, feed supply, etc. For smaller farms it is advisable to focus on swell feeding, entry of strangers, contact with wild pigs. In the case of free range farms, it would be advisable to consider the necessity of these farms, eventually ensuring double fencing, limiting the entry of persons into these farms. The system for compensation of breeders can be considered to be of high quality and functional.

2. WILD BOARS AND HUNTING

The wild boar population is relatively low in relation to other countries. A system for census of the WB population and hunting of feral pigs is in place. There was a huge communication campaign in relation to ASF risk. A high risk area has been identified along the border with Romania and Bulgaria. Passive monitoring is set up, including wild boars crashed in traffic accidents. However, the number of samples examined in this surveillance is insufficient. There is also relatively intense active surveillance. It would be appropriate to reassess the surveillance resources and to promote more passive surveillance. Passive surveillance should be performed throughout the year. Active search for dead feral pigs should be supported through financial contributions. In ASF-free areas, consideration should be given to removing carcasses from nature.

3. LABORATORIES AND DIAGNOSTICS

Laboratories for ASF diagnostics are well equipped and use accredited methods. Quality is also checked by international and national ring tests. In view of the development of the disease situation and the risk of ASF occurrence, it would be appropriate to reassess the capacities for laboratory diagnostics. Current capacities cover the current free period sufficiently. In the future, it would be advisable to consider the number of laboratories and to use fewer laboratories with higher capacity, modern technology and a better level of biological protection (BSL3). The participation of laboratories in breeding sampling can be considered very positive.

ACKNOWLEDGEMENT:

The working atmosphere during the mission was very positive. The colleagues from Serbia gave all their support and assistance to facilitate a fruitful mission. The team wishes to thank all colleagues from Serbia for their support and help given. All requested information and explanations were promptly received by the team.

Furthermore the support given by the interpreters was excellent and very professional.