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African swine fever in the Republic of Crimea in 2015–2018

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SUMMARY

During the analyzed period of 2015–2018 number of pigs kept on backyards and in agricultural organizations as well as number of wild boars living in the Crimean lands declined by 25.34% and 26.09%, respectively, due to African swine fever introduction. In 2016–2018, ASF epizootic situation in domestic pigs and wild boars was the most complicated in the Sovetsky, Razdolnensky, Belogorsky Raions and in Sudak municipality, respectively. The unauthorized burials of dead domestic pigs, which could have caused the dangerous disease agent introduction into the wildlife were detected. Number of tests for ASF carried out within both passive and active monitoring increased during the said period: 527 tests were carried out in 2015 and 7,754 tests were carried out in 2018. In 2018, ASF virus was detected with polymerase chain reaction (PCR) in 8 samples of pathological materials from wild boars, that was 0.1% out of total number of the samples tested in the FGBI "ARRIAH" Branch in the Republic of Crimea and FGI RC "Regional State Veterinary Laboratory of the Republic of Crimea". Large-scale diagnostic tests performed in domestic pigs and wild boars contributed to rapid diagnosis of outbreaks and disease eradication. It should be noted that in case of ASF occurrence in domestic pigs only, the disease could be eradicated with a complex of anti-epizootic measures in initial outbreak areas. Absence of the disease in the Crimean Peninsula during the last years proves the effectiveness of the measures taken for ASF spread prevention.

Keywords: African swine fever, wild boar, domestic pig, Republic of Crimea, epizootological monitoring

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Африканская чума свиней на территории Республики Крым в 2015–2018 гг.

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РЕЗЮМЕ

За анализируемый период с 2015 по 2018 г. на территории Республики Крым вследствие заноса африканской чумы свиней численность поголовья домашних свиней в личных подсобных хозяйствах и сельскохозяйственных организациях сократилась на 25,34%, популяция дикого кабана, обитающего в крымских угодьях, уменьшилось на 26,09%. В 2016–2018 гг. наиболее напряженная эпизоотическая ситуация по африканской чуме среди домашних

свиней сложилась в Советском, Раздольненском, Белогорском районах, а среди диких кабанов – в городском округе Судак. Выявлены факты несанкционированных захоронений трупов домашних свиней, которые, возможно, явились причиной заноса возбудителя опасной болезни в дикую фауну. За данный период времени количество проводимых лабораторных исследований на африканскую чуму свиней в рамках как пассивного, так и активного мониторинга увеличилось: в 2015 г. было проведено всего 527 исследований, а в 2018 г. выполнено 7754 исследования. В 2018 г. в 8 образцах патологического материала от диких кабанов с использованием полимеразной цепной реакции был выявлен вирус африканской чумы свиней, что составило 0,1% от общего количества исследований, проведенных в Филиале ФГБУ «ВНИИЗЖ» и ГБУ РК «Региональная государственная ветеринарная лаборатория Республики Крым». Реализация широкомасштабных диагностических исследований среди поголовья домашних свиней и диких кабанов способствовала быстрому выявлению вспышек и ликвидации заболевания. Следует отметить, что при возникновении африканской чумы свиней только среди домашних свиней болезнь удается искоренить с помощью комплекса общепринятых противоэпизоотических мероприятий в первичных очагах. Отсутствие заболевания на территории Крымского полуострова в последние годы доказывает эффективность проводимых профилактических мероприятий по недопущению распространения африканской чумы свиней.

Ключевые слова: африканская чума свиней, дикий кабан, домашняя свинья, Республика Крым, эпизоотологический мониторинг

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INTRODUCTION

The Russian Federation is perceived in the world as an unpredictably endemic territory for contagious animal diseases posing a threat to global livestock sector. In this regard, epizootological surveillance of dangerous infectious diseases becomes extremely important [1–6].

Therewith, epizootological surveillance refers to the process of continuous animal health monitoring including recording data on the disease spread and the analysis of the collected data. The surveillance results are the basis for predicting the epizootic situation development and used for targeting the infectious animal disease agent containment measures. The surveilance is also required for determination of the epizootic status of a particular territory for international trade and transportation [4, 6, 7].

The surveillance is divided into passive and active depending on the used data collection methodology and tools. Passive surveillance is mainly aimed at early detection of infected animals (incident diagnosis). Active surveillance provides for broader population-based studies to estimate the disease prevalence or to prove absence of the disease.

Historically, measures attributed to passive surveillance were predominantly carried out in Russia while active surveillance measures were carried out rarely.

In 2011, the Russian Federation joined the World Trade Organization (WTO). Annual official laboratory epizootological surveillance for highly dangerous animal diseases is one of the requirements of the Agreement on Russia's accession to the WTO. Accordingly, the first Official Laboratory Epizootological Monitoring Plan[1] was approved by Rosselkhoznadzor Order No. 120 of 8 April 2011. Tests carried out under this Order were of active surveillance character, but, probably, in order not to confuse epizootological surveillance with the veterinary surveillance, term used in Russia, a similar term is used for its designation – epizootological monitoring [6, 8, 9].

Official laboratory epizootological monitoring covering extensive list of infectious animal diseases including African swine fever (ASF) has been carried out annually in the Russian Federation for the Agreement implementation since 2011 [8].

MATERIALS AND METHODS

Data on ASF situation, numbers of domestic pigs and wild boars in the Republic of Crimea in 2015–2018 were obtained from the Federal State Statistics Service Department for the Republic of Crimea and city of Sevastopol, Rosselkhoznadzor Territorial Administration for the Republic of Crimea and city of Sevastopol, State Veterinary Committee of the Republic of Crimea, Ministry of Agriculture of the Republic of Crimea, State Committee for Forestry and Hunting of the Republic of Crimea. The methodology for wild boar number estimation was not specified.

Pathological material samples collected from domestic pigs and wild boars for testing were provided by the Raion

[1] Laboratory tests to be performed within the Rosselkhoznadzor measures taken for compliance with the WTO SPS Agreement requirements at the Russian Federation accession to the WTO for 2011: approved by Rosselkhoznadzor Order No. 120 of 8 April 2011. Accessed at: https://base.garant.ru/2175474.

Veterinary Prophylactic Centers and hunting farms of the Republic of Crimea and city of Sevastopol as agreed by the Rosselkhoznadzor Territorial Administration for the Republic of Crimea and city of Sevastopol. Pathological material sampling methods were not indicated in the accompanying documents.

Results of laboratory tests for ASF were provided by GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" and supplemented by the data obtained in the framework of official epizootological monitoring for ASF carried out by the Laboratory for Molecular Diagnostics of the Laboratory and Diagnostic Centre of the FGBI "ARRIAH" Brach in the Republic of Crimea.

ASF virus DNA was extracted from tested samples using sorbent method in accordance with the instruction for use of "Ampli Prime DNA-sorb-V" reagent kit for DNA extraction from clinical samples ("NextBio" LLC, Russia).

Real-time polymerase chain reaction (rtPCR) was performed with "ASF" test system for detection of African swine fever virus (FBSI "Central Research Institute of Epidemiology" of the Federal Service for Consumer Rights Protection and Human Welfare, Russia) and Rotor-Gene Q amplifier (QIAGEN GmbH, Germany).

Analysis of the ASF outbreaks reported in the Republic of Crimea was carried out based on open publications of the Rosselkhoznadzor and World Organization for Animal Health (WOAH) databases [8, 10].

Maps were provided by the Information Analysis Centre of the FGBI "ARRIAH" (Vladimir).

The purpose of this work was to provide a general overview of the ASF situation in the Republic of Crimea in 2015–2018, to study of wild boar and domestic pig population dynamics as well as to analyze passive and active monitoring data for determination of the disease introduction risk and disease spread in the region.

RESULTS AND DISCUSSION

Despite the fact that Republic of Crimea was ASF free, disease prevention centre was established in 2015 in view of expansion of the epizooty in Ukraine. According to the State Veterinary Committee of the Republic of Crimea, the centre staff-members monitored the health status of wild boars living in the eastern part of the peninsula, and together with Rosselkhoznadzor specialists participated in inspections of foodstuffs supplied to Crimea from Ukraine [11, 12].

There were 2,300 wild boars and 167,151 domestic pigs including 77,340 domestic pigs kept in backyards and 89,811 domestic pigs kept in agricultural holdings in the Republic of Crimea in 2015 [13–15].

A total of 527 pathological and biological material samples from domestic pigs kept in backyards and agricultural holdings as well as from wild boars were tested with PCR at the GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" in 2015 in the framework of passive surveillance for determination of ASF introduction risk and spread in the region (Table 1).

A total of 158 and 145 pathological (biological) material samples were collected from domestic pigs kept in agricultural holdings and backyards, respectively, that accounted for 0.18 and 0.19% of the total population; 224 pathological material samples collected from wild boars were tested that accounted for 9.74% of total wild boar population. No ASF virus genome was detected in the tested samples.

In 2015, the Republic of Crimea was considered ASF free based on the test results for but the disease outbreaks were reported in domestic pigs and wild boars in bordering countries and in the Krasnodar Krai [11, 16, 17].

In 2016, the wild boar population decreased by 23.22% (1,766 animals), and domestic pig population decreased by 13.47% (79,578 animals in backyards and 65,062 animals in agricultural holdings) [11, 15, 18].

According to the State Veterinary Committee of the Republic of Crimea and the Rosselkhoznadzor Territorial Administration, the first ASF outbreak was reported in late January 2016 on the farm (s. Novoselovskoe, Razdolnensky Raion) and adjacent territories where unauthorized burials of domestic pigs were found. Notice on imposed quarantine was published on the Rosselkhoznadzor Territorial Administration site. Later, the disease outbreaks were registered in the Belogorsky (s. Aromatnoe) and Leninsky Raions [8, 11, 15].

Multiple unauthorized burials of domestic pigs and dead domestic pigs were found in the Republic of Crimea that facilitated the said infectious disease spillover

Table 1
Laboratory tests for ASF carried out by the FGI RC "Regional State Veterinary Laboratory of the Republic of Crimea" in 2015

Raion in the Republic of Crimea	Pathological (biological) materials			
	from domestic pigs		from wild boars	
	number of samples	PCR results	number of samples	PCR results
Bakhchisaraysky	16	–	132	–
Belogorsky	16	–	25	–
Dzhankoi	15	–	–	–
Kirovsky	2	–	2	–
Krasnogvardeysky	158	–	–	–
Krasnoperekopsky	15	–	–	–
Leninsky	10	–	1	–
Nizhnegorsky	10	–	–	–
Pervomaysky	15	–	–	–
Razdolnensky	10	–	–	–
Saksky	15	–	–	–
Simferopolsky	5	–	22	–
Sovetsky	5	–	–	–
Chernomorsky	10	–	–	–
Alushta/Yalta	–	–	22	–
Simferopol	1	–	–	–
Sudak	–	–	20	–
Total	303	0	224	0

Table 2
Laboratory tests for ASF carried out by the FGI RC "Regional State Veterinary Laboratory of the Republic of Crimea" in 2016

Raion in the Republic of Crimea	Pathological (biological) materials			
	from domestic pigs		from wild boars	
	number of samples	PCR results	number of samples	PCR results
Bakhchisaraysky	146	–	41	–
Belogorsky	80	–	21	–
Dzhankoi	81	–	–	–
Kirovsky	45	–	–	–
Krasnogvardeysky	936	–	–	–
Krasnoperekopsky	135	–	–	–
Leninsky	103	–	–	–
Nizhnegorsky	30	–	–	–
Pervomaysky	92	3	–	–
Razdolnensky	220	26	–	–
Saksky	137	–	–	–
Simferopolsky	240	–	11	–
Sovetsky	35	–	–	–
Chernomorsky	127	–	–	–
Alushta/Yalta	1	–	1	–
Kerch	4	–	–	–
Simferopol	4	–	2	–
Sudak	10	–	–	–
Feodosia	4	–	11	–
Total	2,430	29	87	0

to wildlife. Thus, a dead wild boar was found on Yevpatoria city beach in January 2016. ASF virus genetic material was detected in pathological material samples collected from the said animal and simultaneously tested with PCR at the FGBSI "Federal Research Centre for Virology and Microbiology" and at the ASF Reference Laboratory of the FGBI "ARRIAH".

State of natural emergency had been introduced in the Republic of Crimea since February 8, 2016 due to ASF outbreak.

The disease outbreaks were registered on the pig farm located in the Prevomaysky Raion and in the Leninsky Raion (s. Pesochnoe) in November 2016.

According to the Rosselkhoznadzor Territorial Administration, the quarantine zone covered three settlements: Pesochnoe, Ostanino and Zeleny Yar. Therewith, 180 pigs (0.23% of the total domestic pig population) were found to be infected and destroyed in the backyard of the outbreak [8, 11].

In 2016, 2,517 PCR tests of pathological and biological material samples taken from domestic pigs kept in backyards, agricultural holdings and from wild boars were carried out at the GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" in the framework of passive monitoring for ASF in the region (Table 2).

A total of 1,176 and 1,254 pathological and biological material samples were collected from domestic pigs raised in agricultural holdings and in backyards, respectively, that accounted for 1.81 and 1.58% of the total domestic pig population, and tested. Eighty-seven pathological material samples were collected from wild boars (4.93% of the wild boar population recorded in the peninsular) and tested.

It should be noted that ASF virus genome was detected in 29 pathological material samples from backyard domestic pigs that accounted for 1.15% of total number of tests.

According to the Rosselkhoznadzor Territorial Administration data, seven ASF outbreaks in domestic pigs (s. Aromatnoe, s. Pesochnoe, s. Dmitrovka, s. Chapayevo, s. Novoselovskoe, s. Berezovka, s. Razdolnoe) were detected and officially confirmed in the Belogorsky, Leninsky, Sovetsky, Pervomaysky and Razdolnensky Raions. A total of 268 infected backyard pigs (0.34% of total number of pigs in the said backyards) were destroyed in the infected settlements (Figure 1).

In the beginning of 2017 the number of domestic pigs in the peninsular decreased by 9.15% (66,489 backyard pigs and 64,913 pigs kept in agricultural holdings), and number of wild boars decreased by 11.10% (1,570 animals) as compared to that ones in 2016 [15, 18].

In 2017 the first ASF outbreaks were reported in January in the backyards in s. Dmitrovka, Sovetsky Raion. Hence, state of local emergency was introduced and quarantine was imposed (Figure 2).

In March 2017, ASF outbreaks were detected in s. Karasevka (Belogorsky Raion) as well as in the Sovetsky Raion (near s. Zavetnoe and s. Dmitrovka), where two sites of unauthorized burials of dead pigs were found. The results of laboratory tests carried out at the FGBI "ARRIAH" revealed ASFV genome in some samples taken on the burial sites [8, 11, 12].

In May 2017, dead wild boars were found 2.5–3 km from s. Gromovka (Sudak municipality), 1.5 km from Sudak city, and 1.3 km from s. Fersmanovo (Dobrovskoe rural community, Simferopolsky Raion). ASFV genome was detected in some pathological material samples collected from the dead wild boars and tested at the FGBI "ARRIAH" [8, 11].

Earlier, the Rosselkhoznadzor Territorial Administration for the Republic of Crimea informed on detection of unauthorized dead animal dumping sites in the Belogorsky and Sovetsky Raions, ASFV genome was detected in all biomaterial samples taken from the said dead animals. The zone of the imposed quarantine covered areas adjacent to s. Mezhgorye (Zelenogorskoe rural community, Belogorsky Raion) where dead wild boars were found and three sites near s. Kurortnoe (Aromatnovskoe rural community, Belogorsky Raion) where wild boar remains were found. Three areas of Sudak municipality (2.5 and 3 km north-west from s. Gromovka and 1.5 km north-west from

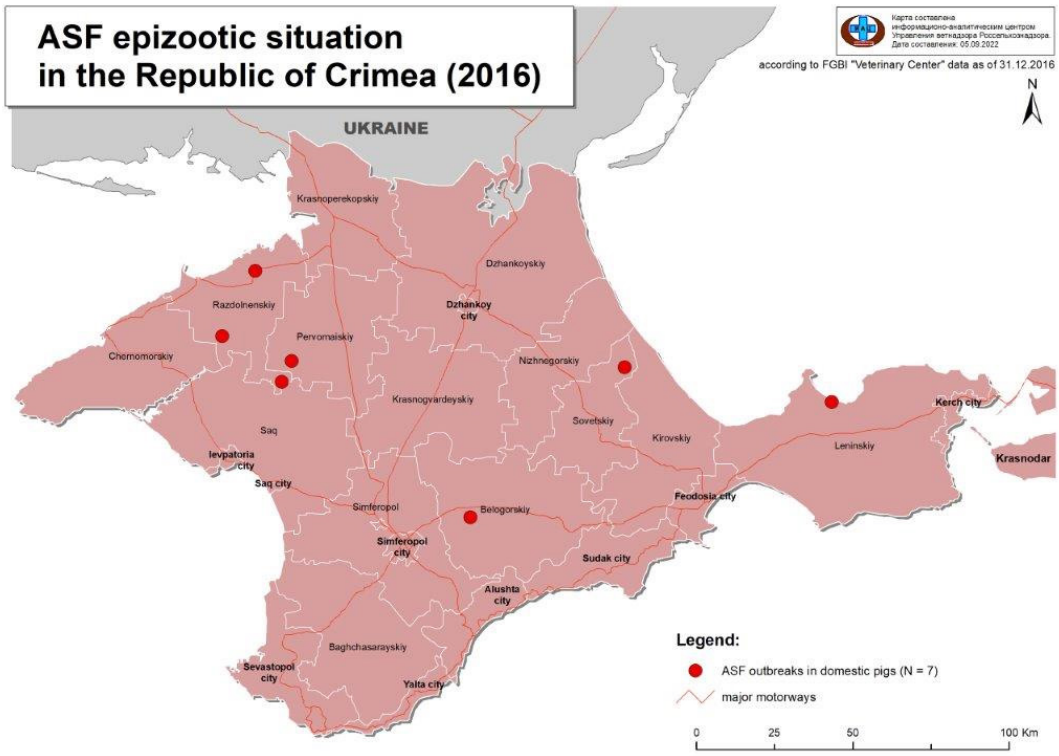

Fig. 1. ASF epizootic situation in the Republic of Crimea in 2016

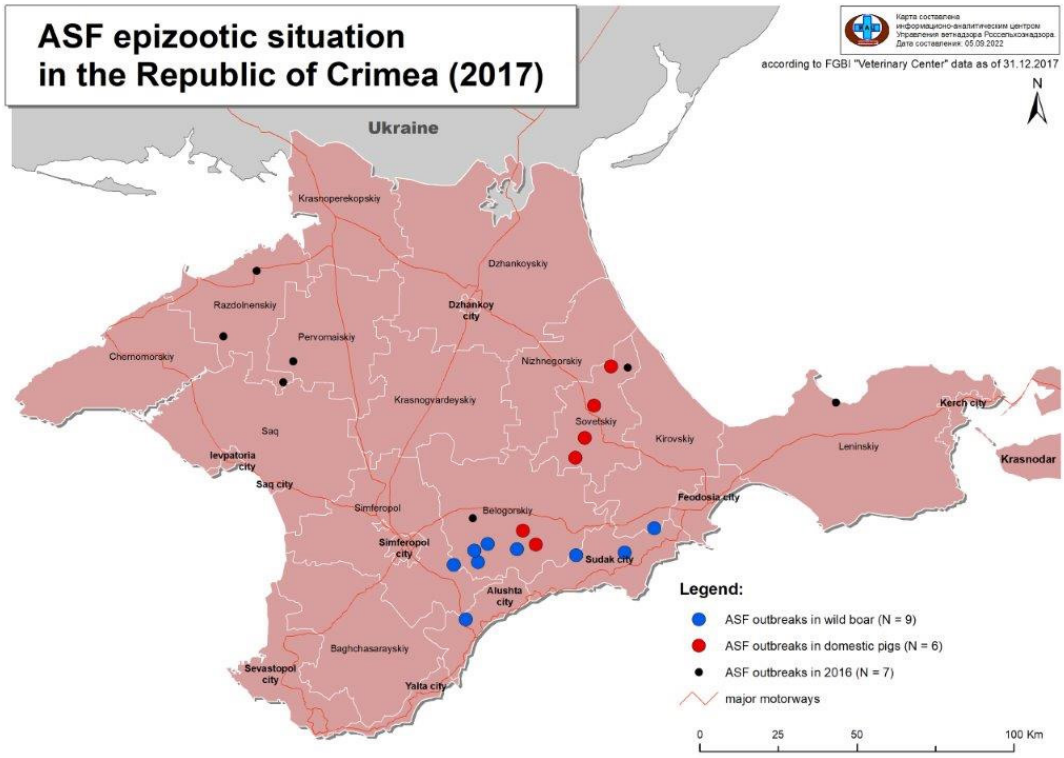

Fig. 2. ASF epizootic situation in the Republic of Crimea in 2017

Sudak city) were also included in the quarantine zone. The Rosselkhoznadzor experts noted that ASF outbreaks were reported in wildlife [8, 11, 12].

Despite the fact that no new ASF outbreaks had been registered in the territory of the Republic of Crimea since June 2017, the State Veterinary Service of the region continued to carry out preventive measures aimed at the disease occurrence and spread prevention.

In October 2017, the burial of eight dead pigs was found 1.47 km to the north from s. Sovetsky. ASFV genome was detected in pathological material samples collected from all dead and subjected to laboratory testing [8, 11, 12].

Table 3
Laboratory tests for ASF in the Republic of Crimea in 2017

Raion in the Republic of Crimea	GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" (passive monitoring)				FGBI "ARRIAH" Branch in the Republic of Crimea (active monitoring)			
	pathological (biological) materials							
	from domestic pigs		from wild boars		from domestic pigs		from wild boars	
	number of samples	PCR results	number of samples	PCR results	number of samples	PCR results	number of samples	PCR results
Bakhchisaraysky	324	–	45	–	–	–	–	–
Belogorsky	110	–	19	–	–	–	5	–
Dzhankoi	330	–	–	–	–	–	–	–
Kirovsky	75	–	4	1	–	–	–	–
Krasnogvardeysky	1,600	–	–	–	200	–	–	–
Krasnoperekopsky	107	–	–	–	–	–	–	–
Leninsky	100	–	–	–	–	–	–	–
Nizhnegorsky	100	–	–	–	–	–	–	–
Pervomaysky	256	–	–	–	–	–	–	–
Razdolnensky	225	–	–	–	–	–	–	–
Saksky	230	–	–	–	–	–	–	–
Simferopolsky	435	–	8	–	200	–	13	–
Sovetsky	25	–	–	–	38	13	–	–
Chernomorsky	190	–	–	–	–	–	–	–
Sevastopol	–	–	–	–	–	–	53	–
Alushta/Yalta	5	–	–	–	–	–	7	–
Yevpatoria	5	–	–	–	–	–	–	–
Kerch	11	–	–	–	–	–	–	–
Simferopol	20	–	13	5	–	–	–	–
Sudak	10	–	–	–	–	–	–	–
Feodosia	15	–	–	–	–	–	–	–
Total	4,173	0	89	6	438	13	78	0

In 2017, 516 PCR tests of pathological and biological materials from backyard pigs and pigs kept in agricultural holdings as well as from wild boars were carried out by the FGBI "ARRIAH" Branch in the Republic of Crimea in the framework of active monitoring for determination of ASF introduction risk and spread in the region. The GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" performed 4,262 tests for the same period (Table 3).

Specialists of the Laboratory for Molecular Diagnostics of the FGBI "ARRIAH" Branch in the Republic of Crimea examined pathological and biological material from domestic pigs kept in agricultural holdings (200 samples) and in backyards (238 samples), which amounted to 0.31% and 0.36% of the total number of animals kept in holdings of different ownership types, respectively.

Seventy-eight pathological material samples (4.97% of total wild boar population) were collected from wild boars for testing.

ASF virus genome was detected in 13 pathological material samples collected from backyard pigs that accounted for 2.52% of total number of PCR tests performed in the FGBI "ARRIAH" Branch in 2017.

The GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" tested 2,254 pathological and biological material samples (3.47% of total population) taken from pigs kept in agricultural holdings and 1,919 pathological and biological material samples (2.89% of total population) taken from backyard pigs. Eighty-nine pathological material samples taken from wild boars (5.67% of the recorded population) were tested.

ASFV genome was detected in 6 pathological material samples from wild boars that accounted for 0.14% of total PCR tests carried out in the laboratory for reporting period.

According to the Rosselkhoznadzor data, 15 ASF outbreaks were reported in the Republic of Crimea in 2017 including 6 outbreaks in pigs kept in backyards and agricultural holdings and 9 outbreaks in wild boar population. Six settlements located in the Sovetsky and Belogorsky Raions were recognized as ASF infected: s. Luchevoe, s. Khlebnoe, s. Dmitrovka, s. Rovenka, s. Alexeyevka, s. Karasevka.

ASF outbreaks in wild boar population were reported near s. Gromovka (Sudak municipality), s. Fersmanovo, s. Druzhnoe (Simferopolsky Raion), near s. Mezhgorye, s. Kurortnoe and s. Zemlyanichnoe (Belogorsky Raion) as well as s. Lavanda (Alushta municipality) (Figure 2).

At the beginning of 2018 the wild boar population increased by 7.65% and was 1,700 animals, whereas the domestic pig population decreased by 5.02% (59,900 backyard pigs and 64,900 pigs kept in agricultural holdings) [8, 11, 12, 15].

In 2018, 1,000 PCR tests of pathological and biological materials from pigs kept in backyards and agricultural holdings as well as from wild boars were carried out by the FGBI "ARRIAH" Branch in the Republic of Crimea in the framework of active monitoring for determination of ASF introduction risk and spread. The GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" performed 6,754 tests (Table 4).

In February 2018, ASFV genome was identified in the pathological materials collected from dead wild boars detected to the south of Asret district (Sudak municipality) and tested by specialists of the FGBI "ARRIAH" Branch in the Republic of Crimea. The said results were confirmed by the Reference Laboratory for African swine fever of the FGBI "ARRIAH" (Vladimir).

Table 4
Laboratory tests for ASF in the Republic of Crimea in 2018

Raion in the Republic of Crimea	GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" (passive monitoring)				FGBI "ARRIAH" Branch in the Republic of Crimea (active monitoring)			
	pathological (biological) materials							
	from domestic pigs		from wild boars		from domestic pigs		from wild boars	
	number of samples	PCR results	number of samples	PCR results	number of samples	PCR results	number of samples	PCR results
Bakhchisaraysky	219	–	294	–	60	–	–	–
Belogorsky	168	–	38	3	26	–	–	–
Dzhankoi	463	–	–	–	45	–	5	–
Kirovsky	270	–	3	–	–	–	–	–
Krasnogvardeysky	1882	–	–	–	–	–	–	–
Krasnoperekopsky	314	–	–	–	–	–	–	–
Leninsky	156	–	–	–	–	–	–	–
Nizhnegorsky	190	–	–	–	65	–	–	–
Pervomaysky	300	–	–	–	150	–	–	–
Razdolnensky	191	–	–	–	50	–	–	–
Saksky	590	–	–	–	–	–	–	–
Simferopolsky	1023	–	60	–	400	–	7	–
Sovetsky	146	–	–	–	–	–	–	–
Chernomorsky	199	–	–	–	56	–	2	–
Sevastopol	148	–	–	–	–	–	127	–
Alushta/Yalta	5	–	–	–	–	–	2	–
Kerch	12	–	–	–	–	–	–	–
Simferopol	20	–	3	–	–	–	–	–
Sudak	10	–	–	–	–	–	5	5
Feodosia	20	–	30	–	–	–	–	–
Total	6,326	0	428	3	852	0	148	5

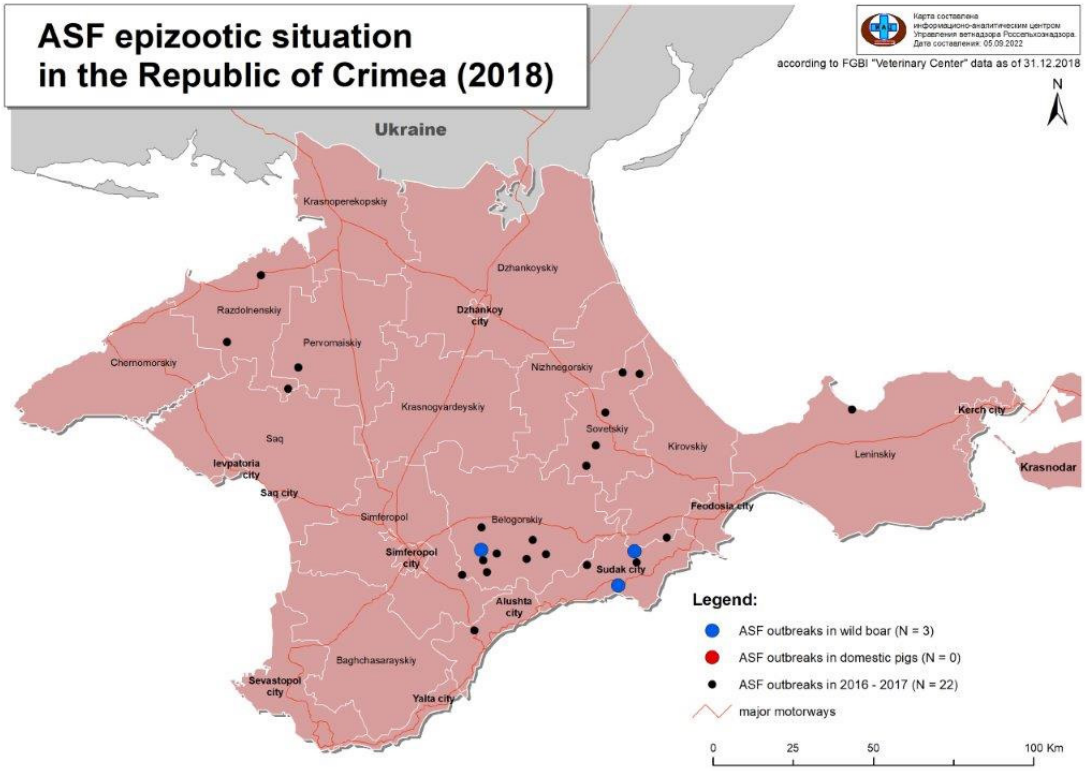

Fig. 3. ASF epizootic situation in the Republic of Crimea in 2018

In April 2018, ASFV genome was identified in the pathological materials collected from wild boars (s. Mezhgorye, Belogorsky Raion) and tested by specialists of the GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea" (Figure 3).

A total of 3,445 and 3,723 pathological and biological material samples from pigs kept in agricultural holdings and from backyard pigs that accounted for 5.32 and 6.22% of total pig population kept in holdings of different ownership type, respectively, were tested in 2018 [8, 11, 18]. A total of 576 pathological material samples from wild boars (33.88% of the total population) were tested. ASFV genome was detected in 8 pathological material samples that accounted for 0.1% of total PCR tests carried out in the FGBI "ARRIAH" Branch in the Republic of Crimea and the GBI RC "Regional State Veterinary Laboratory of the Republic of Crimea".

CONCLUSION

African swine fever has not been reported in the Republic of Crimea since 2016. Since logistics in the Republic is arranged in such a way that products come not only from the Subjects of the Russian Federation, the ASF virus can be introduced by any route: starting from unauthorized movements of domestic animals that could be ASFV infected, and products derived from them, ending with animal buyers, feed sellers, etc.

Unfortunately, it is the human factor that most often plays a role in the ASF virus spread, as evidenced by illegal burials of dead domestic pigs, which could have resulted in infection of wild animals.

Thousands of pigs had been destroyed in 2016–2018 due to ASF introduction to the Crimean peninsula. ASF epizootic situation in domestic pigs and wild boars was the most complicated in the Sovetsky, Razdolnensky, Belogorsky Raions and in Sudak municipality, respectively. As a result, the population of pigs kept in backyards and agricultural holdings and population of wild boars decreased by 25.34% and 26.09%, respectively.

Number of laboratory tests performed in the framework of passive and active monitoring aimed at determination of ASF introduction risk and spread had increased by ten-folds from 2015 to 2018. Thus, 527 pathological and biological material samples from domestic pigs and wild boars were tested in 2015 whereas in 2018 a total of 7,754 of such samples were tested. Large-scale diagnostic tests performed in domestic pigs and wild boars contributed to rapid diagnosis of outbreaks and timely anti-epizootic measures implementation.

The disease has been eradicated owing to timely measures for ASF spread prevention that is evidenced by results of monitoring tests carried out in the Republic of Crimea in following years.

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