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TECHNICAL, ECONOMIC AND LEGAL ASPECTS REGARDING THE EVOLUTION OF AFRICAN SWINE PLAGUES IN ROMANIA

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Abstract

African swine plague causes great economic losses due to the catastrophic depopulation of pig farms in the areas affected by their death and slaughter, by the implementation of approved sanitary measures and trade restrictions. African swine plague is a transboundary disease that can spread rapidly from one country to another and is one of the most dangerous diseases of pigs, being included in list A of „The World Organization for Animal Health (OIE)". In this paper we analyzed some technical aspects related to the occurrence and evolution of African swine plague in the world and in our country. Due to the extremely rapid evolution of this disease in south-eastern Europe and especially in Romania, we considered it very important to analyze the economic aspects of this virus, especially the damages produced, and to see what the applicable European and national laws African swine plague and whether these normative acts have been enforced and respected in preventing the onset and transmission of the disease.

Key words: *African swine plague, DNA, epidemic, legislation*

INTRODUCTION

African swine fever, also called African swine fever or „Montgomery disease, is a highly contagious and very severe febrile hemorrhagic viral disease of domestic swine and wild boar caused by a double-stranded DNA virus from the aspharvirus family propagating very rapidly in the pig population through direct or indirect contact" [2]. The disease is characterized by anatomopathology, by generalized haemorrhagic diathesis, by degenerative and necrotic injuries in different organs, and clinically in acute forms of hyperthermia (40.5-42.2°C), skin lesions (erythema, skin cyanosis, especially in the ears dyspnoea, tachypnoea, intermittent breathing, coughing, bloating of the mouth), disturbances (dyspnoea, tachypnoea, dyspnoea, bruising, bloating), Nervousness (somnolence, apathy, adynamics, unstable walking, cramps, hyperexcitation, seizures, paresis and paralysis, lateral decubitus), conjunctivitis, serous nasal secretions, serum or mucopurulent or epistaxis, in pregnant sows is one of the first symptoms observed abortion. Mortality is 90-100% for overactive and acute forms of the disease. „African swine fever causes large economic losses due to the catastrophic depopulation of pig farms in the areas affected by their death and slaughter, by the implementation of approved sanitary measures and the imposition of trade restrictions" [3]. African swine fever is a cross-border disease that can spread rapidly „from one country to another and is one of the most dangerous diseases of pigs and is included in the A list of the World Organization for Animal Health (OIE)" [4]. African swine fever is endemic in Sub-Saharian Africa where wild pigs are affected: Phacochoerus and potamochoerus, and often domestic swine. The cause of the disease is a DNA virus called African swine fever virus of the genus Asfivirus (Asfarviridae family), transmitted to Africa by ticks of the genus Ornithodoros, but the virus is easily transmitted by infected animals (domestic swine, wild boar) or indirectly through feed, water, litter, other materials, means of transport contaminated with secretions and excretions from contaminated animals or by contaminated clothing of pig breeders and veterinarians.

MATERIALS AND METHODS

In this paper we analyzed and interpreted the data provided by „the Romanian Ministry of Agriculture and the National Sanitary Veterinary Authority"[1]. To analyze this phenomenon globally, we have used data provided by OIE. Outbreaks of African swine fever in boars and domestic swine have recently occurred in Eastern Europe (Caucasus, Ukraine, Russia, Belarus, Baltic States, Czech Republic, Hungary, Romania, Republic of Moldova), South America and the Caribbean (Dominican Republic). African swine fever arrived in China in August 2018, which is the world's largest pork producer, responsible for almost half of the world's swine population.[11] Although Bulgaria elaborated an intervention plan and took measures to prevent above mentioned fever from entering the country, including raising a border fence with Romania to prevent wild boar, the Bulgarian authorities announced that they had detected the first case of the plague from this country on 31 August 2018, on a farm near the border with Romania. More recently, the swine fever virus was identified on 13 September 2018 in the wild boar in Belgium, about ten kilometers from the border with France, and the French authorities were alerted. In the past, this disease was recorded in Western Europe (France, Spain, etc.), where it was eradicated.[13]

„Legal basis:

• Article 45 of Council Regulation (EC) No 882/2004 of the European Parliament and of the Council on official controls according to the law.

• Article 20 of Council Directive 2002/60 / EC laying down specific provisions for the control of African swine fever and amending Directive 92/119 / EEC as regards Teschen disease and African swine fever.

• Article 37 of Regulation (EU) No 652/2014 of the European Parliament and of the Council and reproductive material modifying Council Directives 98/56/ EC, 2000/29/EC"[6].

RESULTS AND DISCUSSIONS

In the (member or candidate) countries of the European Union, between 1 January 2018 and 25 September 2018, „1,214 outbreaks of African swine plague were confirmed in domestic swine", Table 1 [5].

Table 1. Situation of the outbreaks of African swine plague in domestic pigs in Europe

Country	Focus number
Bulgaria	1
Italy	10
Latvia	10
Lithuania	49
Poland	109
Romania	1,062
Ukraine	85

Source: SVFSA.

At the same time, 4,113 outbreaks of African swine plague from wild boar were confirmed, Table 2.

Table 2. Situation of the outbreak of African swine plague in boars in Europe

Country	Focus number
Belgium	5
Czech Republic	28
Estonia	198
Hungary	34
Italy	40
Latvia	549
Lithuania	1,233
Poland	1,941
Romania	142
Ukraine	36

Source: SVFSA.

According to data provided by SVFSA, on 01.11.2018 in Romania, African swine fever evolved in 17 counties (Sălaj, Bihor, Satu-Mare, Calarasi, Braila, Constanta, Ialomita, Galati, Ilfov, Tulcea, Buzau, Giurgiu, Dambovita, Teleorman, Maramures, Vrancea, Dolj) in 276 localities, with 1,062 outbreaks (of which 15 in commercial holdings). Also, 142 cases were recorded in wild boar. In total, 356,144 pigs affected by the disease were eliminated. First cases of African swine fever were confirmed in many countries, also in Romania at 31 July 2017 by „the Institute of

Diagnosis and Animal Health in a household from Satu-Mare"[8]. From January 1 to August 10 - 2018 - 645 cases of African swine fever in domestic swine and 30 cases of wild boar were confirmed in Romania; between 10 June and 10 July 2018, 300 outbreaks of swine plague were identified in which 268 pigs were found and 2080 pigs were sacrificed. The first cases of this severe fever in the Republic of Moldova were confirmed in September 2016 in Donduseni district (at Cernoleuca and Moşana), near the border with Ukraine; until 21.08.2018, were a total of 20 outbreaks of the disease (18 in domestic and 6 in wild pigs), of which 2 outbreaks in 2016, 10 outbreaks in 2017, 12 outbreaks in 2018.

Evolution of this sever fever epidemic in pigs Domestic (red) and boar (violet) in Eastern Europe between 1 January and 23 August 2018 is shown in Fig.1.

The disease occurs in several clinical forms: overacute, acute, subacute, chronic, subclinical. Overactive form is rare and is manifested by hyperthermia (40.5-42.2 ° C) without other symptoms, the illness lasts for 1-2 days and the end is always deadly. Acute form is most common and is manifested by fever, anorexia, cutaneous and digestive haemorrhage, respiratory distress; pig death occurs in almost all cases after a week of illness [9]. A characteristic sign of African swine fever is skin cyanosis at the extremities (ears, tail, limbs) and on the abdomen. In the more moderate, subacute form, the disease lasts for 5-30 days, death occurs at 15-45 days in 30-70% of cases.

Chronic form occurs in countries where disease has evolved for a long time; pigs may have hyperthermal pockets at irregular intervals, slimming to cahexia, arthritis, tendinitis, chestiness, cutaneous necrosis, especially in the head and neck region, the disease lasts for several weeks, even on months, most animals die eventually by exhaustion, following pulmonary and digestive lesions [1]. Subclinical forms are recorded in countries where disease has been developed; pigs, although they contain the virus in the body, show no clinical sign, behaving like perfectly healthy animals, but they are carrier and excretory virus, playing a key role in maintaining and spreading the virus.

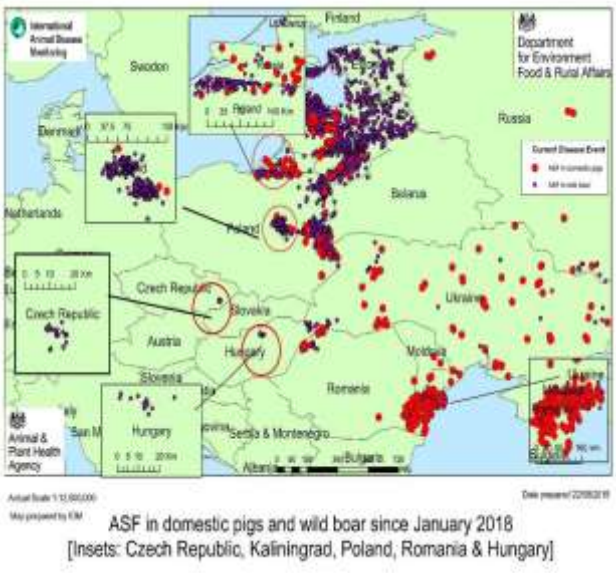

Fig.1. African Swine Fever in domestic pigs and wild boar since January 2018 (Czech Rep., Kaliningrad, Poland, Romania and Hungary).
Source: African Swine fever in Eastern Europe,
Ref: VITT/1200 ASF in Eastern Europe 23 Aug. 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/735994/asf-eastern-europe-update16.pdf, Accessed on Jan.5, 2019.

Virus resists:

- 6-10 days in pork dejection;
- 10 weeks in corpses;
- 3-6 months in salted and smoked meat;
- 6-12 months in ticks of the Ornithodoros genus;
- 18 months in the blood at 4 ° C;
- 6 years in frozen blood;
- Two years in frozen meat.

It doesn't exist a treatment or vaccine. „In the absence of an effective vaccine, the only way to stop the spread of the virus among pigs is to kill all the pigs from the infected areas and to establish quarantine"[11]. In order to obtain a limitation of the disease spread, it is prohibited to import pork and wild boar from infected countries.

Preventive measures:

- the holding to be fenced;
- visits to farms will be prohibited without proper disinfection;
- it is forbidden for the staff employed to hold pigs in their own household or to contact other pigs;

• to enter the holding to comply with the sanitary-veterinary rules;
• all means of transport must be rigorously disinfected;
• mandatory filtering of road filters and sanitary filters in the farm for staff;
• access to the farm is done only through filters; [7]

African swine fever does not affect people, and there is no lower risk of disease for humans, but it is a fearsome epidemic of pigs that cause significant economic losses and has a huge social and media impact. EUVET does not recommend reducing the wildlife population, as there is no evidence that wild boar is an amplifier of the current situation of African swine fever epidemic in individual households in Romania.

African swine plague should not be confused with classical swine plague (pig's cholera) caused by a pestivirus (Flaviviridae family), the symptoms of which are very similar[6].

Until January 18th – 2019 – 8,535 owners were compensated, the total payment being 251,120,910 Lei (52,922,153.38 Euro).

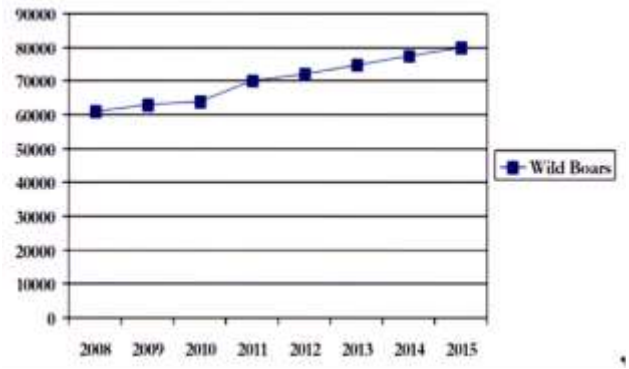

Fig.2. The evolution of the wild boar population 2008-2015,
Source MADR, 2016.

The evolution of this serious disease is constantly monitored by „specialised clinics and laboratories, and the up to date situation is analyzed daily, measures are applied and actions are taken according to circumstances" [10].

Table 3. Situation of compensation payments

Nr. Crt.	County	Number of compensated holdings	Number of affected holdings	Payments performed (LEI)
1	SATU MARE	20	20	63,260
2	BIHOR	230	230	1,077,040
3	TULCEA	1,162	1,174	46,564,960
4	BRĂILA	3,208	3,217	171,990,200
5	CONSTANTA	849	849	3,951,600
6	IALOMIȚA	2,389	2,500	6,531,000
7	GALAȚI	83	83	248,000
8	ILFOV	7	7	71,640
9	CĂLĂRAȘI	314	314	19,020,820
10	TELEORMAN	10	10	47,570
11	VRANCEA	1	1	7,000
12	GIURGIU	116	116	1,105,850
13	DOLJ	20	20	74,000
14	BUZĂU	2	2	3,300
15	ARGEȘ	1	1	2,000
16	OLT	123	125	362,670

Source: MADR, 2019.

SVFSA calls for support and understanding of citizens to comply with these measures, given the severity of the disease and the vulnerability of economic consequences generated by its occurrence. „The actions of the authorities are conjugated and undertaken to effectively manage outbreaks of disease, to stop and prevent the spread of the disease"[12].

CONCLUSIONS

According to the SVFSA, no less than 361,132 animals have already died of the plague or preventively killed in an attempt to stop the spread of the virus in Romania. SVFSA has announced that the evolution of „this serious disease is constantly monitored by specialised clinics and laboratories, and the current situation is analyzed daily, measures are applied and actions are taken according to circumstances"[13]. Disease progression is „permanently monitored through clinical and laboratory exams, and the current Any suspicious of sick animals should be announced immediately to the veterinarian or county DSVSA in order to take measures if will be needed"[7]. In order to prevent the risks, all suspicious animals must be sacrificed and neutralized, and the owners will be compensated by the state under the

conditions laid down by law. The over 7,000 owners who were left without animals because of the plague - be they big farmers or simple households - already received damages amounting to 205,580,960 lei, or over 44 million euros. In the first stage, much of this amount was paid from the state budget, the authorities trying to recover the money from the EC. It remains to be seen whether they will succeed or not, given that more European officials have said that compensation will be paid only if authorities show that they have fulfilled their obligations according to this disease. The reports from past years of the european institutions showed the fact that the authorities did not applied all the measures in order to prevent the spread of the plague.

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