

## SECURITY OF PORK MEAT AFFECTED BY AFRICAN SWINE FEVER AND ITS IMPACT ON THE STATE BUDGET AND E.U. BUDGET

Gabriel Iuliu MALOȘ, Gabriela MALOȘ

University of Agronomic Sciences and Veterinary Medicine, 59, Mărăști, București, România

Corresponding author email: iuliugabrielmalos@yahoo.com

### Abstract

*The legitimacy of a state is the capacity to provide food security, that is to have sufficient availability of agricultural products and foods to cover the food needs for all inhabitants within its borders. Food security aims to ensure that everyone has access to as healthy a food as possible and ensures and respects the right of every person to a healthy and nutritionally balanced diet. Vulnerabilities in agriculture and the food industry can also be highlighted by identifying hazards, threats and risks, with African Swine Fever (ASF) in our case. ASF is a viral disease of domestic and wild pigs, with a rapid evolution and mortality of up to 100% for sick pigs. The occurrence and evolution of ASF (14779 outbreaks in the two years studied: 2018 and 2019) led at national level to the risk of the safety of pig meat being affected by the high number of animals that died, were euthanised or were slaughtered (approx. 2 million head), with a decrease of 31,6% in pig numbers in 2019 compared to 2017, it also helped to destabilize the pig meat market in quantitative terms, with the production of live-weight pigs falling by 210.777 tons (31,7%) in 2019 compared to 2017. To these losses are added significant costs for implementing control and quarantine measures, compensation (payment to breeders), etc.*

**Key words:** African Swine Fever Epidemic (ASF), ASF outbreaks, food security.

### INTRODUCTION

African Swine fever is a rapidly evolving infectious disease, where mortality is 100% where it occurred, without prevention and control treatment. The first disease outbreaks occurred in Romania in the Danube Delta Biosphere, Tulcea county, in the wild pig (wild boar) from which it spread rapidly to households and livestock complexes specialized in pig farming. In Tulcea county ASF has expanded to neighboring counties and from here to all over the country, namely in 38 counties.

The purpose of this study is to quantify the economic impact of the occurrence and evolution of this disease in Romania, in its counties, in order to justify the economy and to establish the necessary control measures.

The appearance of the ASF required preventive control measures to be put in place:

- the notification of the relevant structures at national and European level as well as the World Organization of Animal Health about the confirmation of the outbreak of African swine fever on Romania's territory;
- informing the CNSSU, MADR, MAP, MAI, MDRAP, Hunting Associations, Pig producers' Associations, the European Commission,

Member States and neighboring Third Countries of the confirmation of the outbreak of ASF;

- specific measures have been taken to combat ASF, establish restricted zones: Protection (3 km) and surveillance (10 km);

- the local veterinary authorities reinforced border controls;

- training has been carried out at local offices and the veterinarian, several grades of tasks have been issued from central to local level, stressing the importance of early warning and the importance of specific awareness: farmers of all types, hunters, carriers, sales agents, etc.;

- information campaigns were targeted at farmers, hunters, the general public on the clinical signs of ASF and biosecurity measures;
- MADR press releases on the ASF hazard;

Food security is the capacity to provide or have sufficient availability of agricultural products and foodstuffs capable of meeting food needs for all inhabitants within its borders, and to ensure and respect the right of every person to a healthy and nutritionally balanced diet.

### MATERIAL AND METHODS

The study was carried out on the basis of data collected from the representatives of the county

veterinary departments and the local councils (mayors) both in terms of the number of animals and the amounts allocated per head of animal slaughtered or dead and of the data collected from the county agricultural Departments, Institution subordinate to the Ministry of Agriculture and Rural Development on the evolution of livestock and meat production provided by them.

The data have been processed statistically into national animal herds, their meat production based on their processing, outbreaks of ASF disease, economic operators and private households. The data was collected over a period of two years (2018 – 30 November 2019), i.e. from 2018 when this epidemic occurred to date.

## RESULTS AND DISSCUSSIONS

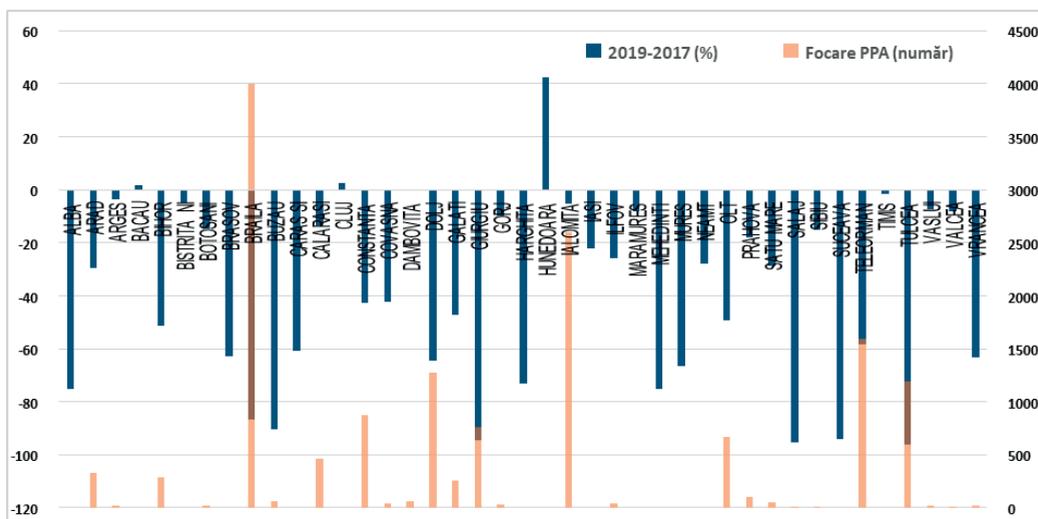
From the data presented in Table 1, Picture 1, it can be observed that the number of animals decreased significantly in 2019 compared to 2017 by 1933,88 thousand head.

The counties that have significantly contributed to the reduction of livestock numbers are: Braila with 176,136 heads, Brasov with 157,490 heads, Vrancea 145,755 heads, Tulcea 114,593 heads,

Arad 108,656 heads, Suceava 100,555 heads and less The County of Dambovita with 0,130 thousand heads, but there are also counties where the number has increased as compared to the year taken as a reference, Hunedoara county with 37,773 heads, Cluj County with 1,830 heads and Bacau County with 1,779 heads.

As an evolution of the ASF we can say that the number of pigs herds suffered heavy losses where outbreaks occurred. Of the total pigs killed and slaughtered by 530,919 heads as a result of the occurrence of ASF outbreaks, both in the sector of large complexes and in private households, i.e. 431,804 heads in complexes and 99,115 heads in private households. The counties most affected by the ASF are Braila with 234,861 heads, Tulcea with 72,368 heads, Calarasi with 42,078 heads, Ilfov with 37,395 heads, Arges with 29,376 heads, Giurgiu with 6,978 heads, Olt with 3,774 heads, Dambovita with 3,587 heads and Vaslui with 1,387 heads. The mathematical calculation shows that the Romanian State lost 6.371.028 lei, respectively 1.332.851 euros.

Evolution of production, presented in Table 2, Picture 2, of live weight pigs has suffered heavy losses, i.e. 210,777 thousand tons liveweight.



Picture 1. Quantification of African swine Fever (ASF) influence on the evolution of number of pigs in Romania's counties in 2019 as compared to 2017

Table 1. Quantification of African swine Fever (ASF) influence on the evolution of number of pigs in Romania's counties in 2019 as compared to 2017

| Specification   | Number of pigs<br>2017<br>(thousand heads) | Number of pigs<br>2019<br>(thousand heads) | Number of ASF<br>outbreaks<br>extinguished<br>2018 + 2019 | Differences<br>2019 - 2017 |              |
|-----------------|--|--|---|----------------------------|--------------|
|                 |  |  |   | Thousand<br>heads          | %            |
| Alba            | 112,000                                    | 27,900                                     |   | - 84,100                   | - 75.1       |
| Arad            | 367,316                                    | 258,660                                    | 326   | -108,656                   | -29.6        |
| Argeş           | 279,375                                    | 269,040                                    | 25  | -10,335                    | -3.7         |
| Bacău           | 95,531                                     | 97,310                                     |   | +1,779                     | +1.9         |
| Bihor           | 186,597                                    | 90,954                                     | 292   | -95,643                    | -51.2        |
| Bistriţa N.     | 79,580                                     | 75,688                                     |   | -3,892                     | -4.9         |
| Botoşani        | 136,155                                    | 116,121                                    | 19  | -20,034                    | -14.7        |
| Braşov          | 250,171                                    | 92,681                                     |   | -157,490                   | -63.0        |
| Brăila          | 202,844                                    | 26,708                                     | 3,996   | -176,136                   | -86.8        |
| Buzău           | 47,600                                     | 4,550                                      | 58  | -43,050                    | -90.4        |
| Caraş S.        | 155,817                                    | 60,996                                     |   | -94,821                    | -60.9        |
| Călăraşi        | 241,240                                    | 208,884                                    | 458   | -32,356                    | -13.4        |
| Cluj            | 68,069                                     | 69,899                                     |   | +1,830                     | +2.69        |
| Constanţa       | 225,512                                    | 129,479                                    | 875   | -96,033                    | -42.6        |
| Covasna         | 86,828                                     | 50,016                                     | 43  | -36,812                    | -42.4        |
| Dâmboviţa       | 28,830                                     | 28,700                                     | 65  | -0,130                     | -0.5         |
| Dolj            | 46,590                                     | 16,530                                     | 1,273   | -30,060                    | -64.5        |
| Galaţi          | 63,839                                     | 33,581                                     | 252   | -30,258                    | -47.4        |
| Giurgiu         | 50,416                                     | 2,692                                      | 759   | -47,724                    | -94.7        |
| Gorj            | 29,537                                     | 26,598                                     | 32  | -2,939                     | -10.0        |
| Harghita        | 21,907                                     | 5,867                                      |   | -16,040                    | -73.2        |
| Hunedoara       | 88,903                                     | 126,676                                    |   | +37,773                    | +42.5        |
| Ialomiţa        | 145,091                                    | 137,699                                    | 2,604   | -7,392                     | -5.1         |
| Iaşi            | 250,888                                    | 194,835                                    |   | -56,053                    | -22.3        |
| Ilfov           | 23,061                                     | 17,059                                     | 45  | -6,002                     | -26.0        |
| Maramureş       | 319,082                                    | 293,212                                    |   | -25,870                    | -8.1         |
| Mehedinţi       | 30,053                                     | 7,495                                      |   | -22,558                    | -75.1        |
| Mureş           | 131,260                                    | 44,087                                     |   | -87,173                    | -66.4        |
| Neamţ           | 146,418                                    | 105,647                                    |   | -40,771                    | -27.8        |
| Olt             | 97,190                                     | 49,338                                     | 667   | -47,852                    | -49.2        |
| Prahova         | 196,802                                    | 160,892                                    | 105   | -35,910                    | -18.2        |
| Satu Mare       | 75,630                                     | 54,000                                     | 55  | -21,630                    | -28.6        |
| Sălaj           | 88,508                                     | 3,981                                      | 4   | -84,527                    | -95.5        |
| Sibiu           | 66,614                                     | 56,533                                     | 7   | -10,081                    | -15.1        |
| Suceava         | 106,780                                    | 6,225                                      |   | -100,555                   | -94.2        |
| Teleorman       | 100,464                                    | 41,658                                     | 1,590   | -58,807                    | -58.5        |
| Timiş           | 1,029,206                                  | 1,013,827                                  |   | -15,379                    | -1.5         |
| Tulcea          | 119,263                                    | 4,670                                      | 1,188   | -114,593                   | -96.1        |
| Vaslui          | 21,400                                     | 19,820                                     | 18  | -1,580                     | -7.4         |
| Vâlcea          | 76,180                                     | 69,913                                     | 2   | -6,267                     | -8.2         |
| Vrancea         | 230,148                                    | 84,393                                     | 21  | -145,755                   | -63.3        |
| <b>TOTAL RO</b> | <b>6,118,696</b>                           | <b>4,184,814</b>                           | <b>14,779</b>   | <b>-1,933,880</b>          | <b>-31.6</b> |

The counties that contributed to the drop in the production of live weight are the same counties that had a small number of swine heads in 2019 (Arad, Bihor, Braşov, Brăila, Caraş Severin, Constanţa, Galaţi, Iaşi, Mureş, Suceava, Tulcea,

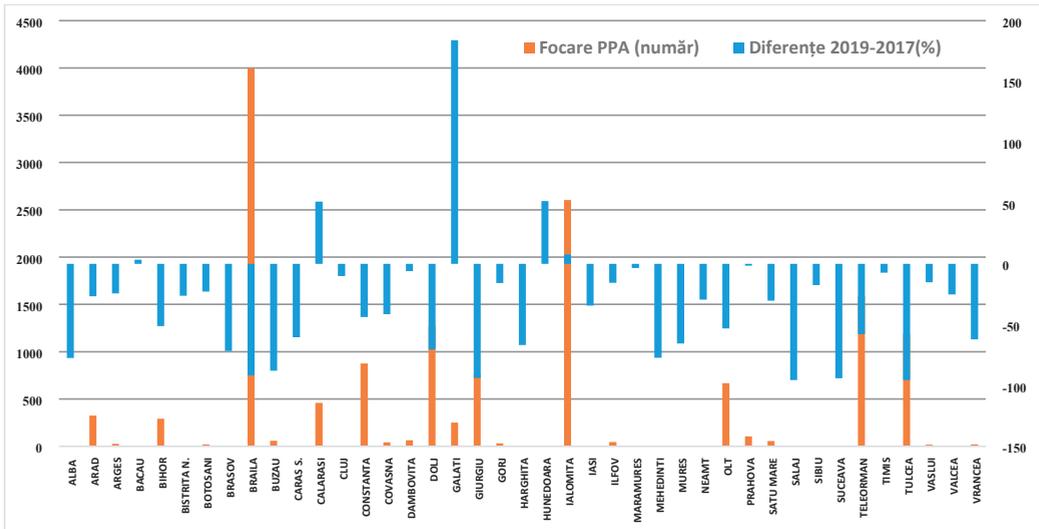
Vrancea). Losses caused by ASF by the reduction in the number of animals and the consequent reduction in meat production have affected national food security.

Table 2. Quantification of African Swine Fever (ASF) influence on the evolution production of live weight pigs in Romania counties, in 2019 as compared to 2017

| Specification   | Swine Production 2017<br>(thousand tons live weight) | Swine Production 2019<br>(thousand tons live weight) | Number of ASF outbreaks extinguished 2018 + 2019 | Differences 2019 - 2017   |              |
|-----------------|--|--|--|---------------------------|--------------|
|                 |  |  |  | Thousand tons live weight | %            |
| Alba            | 13,620   | 3,065  |  | -10,555                   | -77.5        |
| Arad            | 40,447   | 29,716   | 326  | -10,731                   | -26.5        |
| Argeş           | 22,934   | 17,349   | 25   | -5,585                    | -24.4        |
| Bacău           | 11,559   | 11,958   |  | +0,399                    | +3.5         |
| Bihor           | 20,808   | 10,175   | 292  | -10,633                   | -51.1        |
| Bistriţa N.     | 7,782  | 5,745  |  | -2,037                    | -26.2        |
| Botoşani        | 14,977   | 11,554   | 19   | -3,426                    | -22.9        |
| Braşov          | 36,622   | 10,427   |  | -26,195                   | -71.5        |
| Brăila          | 22,584   | 1,871  | 3996   | -20,713                   | -91.7        |
| Buzău           | 4,488  | 0,546  | 58   | -3,942                    | -87.8        |
| Caraş S.        | 18,111   | 7,193  |  | -10,918                   | -60.3        |
| Călăraşi        | 16,133   | 24,400   | 458  | +8,267                    | +51.2        |
| Cluj            | 6,216  | 5,599  |  | -0,620                    | -10.0        |
| Constanţa       | 24,968   | 14,036   | 875  | -10,932                   | -43.8        |
| Covasna         | 9,141  | 5,364  | 43   | -3,777                    | -41.3        |
| Dâmboviţa       | 3,594  | 3,384  | 65   | -0,210                    | -5.8         |
| Dolj            | 6,337  | 1,875  | 1273   | -4,462                    | -70.4        |
| Galaţi          | 6,473  | 18,377   | 252  | +11,904                   | +183.9       |
| Giurgiu         | 5,564  | 0,350  | 759  | -5,214                    | -93.7        |
| Gorj            | 3,250  | 2,739  | 32   | -0,511                    | -15.7        |
| Harghita        | 2,677  | 0,892  |  | -1,785                    | -66.7        |
| Hunedoara       | 8,894  | 13,479   |  | +4,585                    | +51.6        |
| Ialomiţa        | 14,449   | 15,556   | 2604   | +1,107                    | +7.66        |
| Iaşi            | 32,963   | 21,625   |  | -11,338                   | -34.4        |
| Ilfov           | 2,384  | 2,015  | 45   | -0,369                    | -15.5        |
| Maramureş       | 33,232   | 32,078   |  | -1,154                    | -3.5         |
| Mehedinţi       | 3,584  | 0,820  |  | -2,764                    | -77.1        |
| Mureş           | 15,303   | 5,286  |  | -10,017                   | -65.5        |
| Neamţ           | 17,264   | 12,176   |  | -5,088                    | -29.5        |
| Olt             | 10,588   | 4,974  | 667  | -5,614                    | -53.0        |
| Prahova         | 16,992   | 16,746   | 105  | -0,246                    | -1.4         |
| Satu Mare       | 8,308  | 5,800  | 55   | -2,508                    | -30.2        |
| Sălaj           | 9,293  | 0,417  | 4  | -8,876                    | -95.5        |
| Sibiu           | 7,195  | 5,935  | 7  | -1,260                    | -17.5        |
| Suceava         | 11,250   | 0,678  |  | -10,572                   | -94.0        |
| Teleorman       | 11,330   | 4,791  | 1590   | -6,539                    | -57.7        |
| Timiş           | 113,212  | 105,051  |  | -8,161                    | -7.2         |
| Tulcea          | 12,271   | 0,550  | 1188   | -11,721                   | -95.5        |
| Vaslui          | 2,570  | 2,180  | 18   | -0,390                    | -15.2        |
| Vâlcea          | 9,901  | 7,417  | 2  | -2,484                    | -25.1        |
| Vrancea         | 25,316   | 9,621  | 21   | -15,695                   | -62.0        |
| <b>TOTAL RO</b> | <b>664,586</b>                                       | <b>453,810</b>                                       | <b>14779</b>                                     | <b>-210,777</b>           | <b>-31.7</b> |

At national level, during the period under study, 14779 files were submitted per holding for compensation for the mortality or killing of pigs in the ASF outbreaks worth 392801,44 lei, out of this total number of files submitted for

compensation, 13701 files were paid for 330641,27 lei, with the remaining 341 files worth 62160,17 lei being on the work, to be paid when they were completed.



Picture 2. Quantification of African Swine Fever (ASF) influence on the production evolution of live weight pigs in Romania counties, in 2019 as compared to 2017

## CONCLUSIONS

Losses caused by the occurrence of ASF have led to a decrease in pig numbers in households and the closure of pig rearing complexes. The Romanian pig is grown in households and therefore the synthetic (high genetical level) pig raised in the livestock units cannot be raised at family level.

The swine sector is depleted by biological material, and as a result, the import of young pigs for growth and fattening is increasingly used.

The losses caused by the ASF by the very high mortality caused, have increased the import of meat in a massive way and also increased the cost per kg of meat.

Romania through ASF, has lost in zootechnical terms animal losses, but also in economic terms, namely costs of disinfection, rendering and compensation for livestock farmers (pigs), etc.

## REFERENCES

Decisions of National Committee for Special Emergency Situations (CNSSU):

*Decision number 1* - which states that Ministry of Defense will provide help in meaning of transporting two mobile incinerators (big capacity) for the National Sanitary Veterinary Authority for Food Safety, from Timiș county to Tulcea county, which was the most hit by ASF. Ministry of Environment, is rolling out campaigns, through Reservation Danube Delta, to identify and collect the corpses of wild boars. Ministry of Environment is supporting National Sanitary Veterinary Authority for Food Safety, to identify places, where the corpses of pigs and wild boars would be buried, if the capacity of mobile incinerators is exceeded.

*Decision number 2* - National Committee for Special Emergency Situations was empowered to ensemble Local Center for Fighting Diseases, under the authority of minister of internal affairs, and also was assigning responsibilities for central and local authorities in fighting against ASF. Imposing measures to stop spreading the disease and combating its effects within national territory.

*Decision number 3* - National Committee for Special Emergency Situations approved the Additional Plan for actions to fight against ASF.

Government Decision nr.1214/2009 - on the methodology for determining and paying the compensation to be paid to the owners of animals slaughtered, killed or otherwise affected with a view to rapid liquidation of outbreaks of disease transmissible to animals.