

# Frequency analysis of changes and disease symptoms in wild boars in Poland in 2015-2019



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## Abstract

The aim of the study was to analyse the results of the post-mortem sanitary and veterinary examinations of wild boar by the Veterinary Inspection in Poland between 2015 and 2019. The examination took into account changes such as emaciation, septicaemia and pyaemia, parasitic diseases and other. Analyses determined the number of animals examined, the number of carcasses with lesions, and the number of carcasses declared unfit for consumption. During the study period, more than 680,000 wild boars were subjected to sanitary and veterinary tests in Poland. Symptoms or lesions were found in 11,566 animals (1.70%), and 10,883 (1.60%) animals were declared unfit for consumption. The percentage of wild boar carcasses with lesions examined by year ranged from 1.23% in 2015 to 2.02% in 2019 and the percentage of wild boar carcasses declared unfit in relation to all carcasses tested ranged from 1.23% in 2015 to 1.88% in 2019. Parasitic lesions were found in 3488 wild boar carcasses, accounting for 30.16% of all changes recorded in wild boar carcasses. The most common parasitic disease was trichinellosis and the most frequent change was emaciation, which was recorded in 2665 (0.39%) animals. Putrefaction is a

common lesion in wild boar carcasses, and was detected in 2546 (0.37%) animals. Territorial differences were found in the frequency of lesions in wild boars in Poland. The most trichinellosis cases in carcasses was recorded in Zachodniopomorskie Voivodeship (748) and Wielkopolskie Voivodeship (638). Kujawsko-pomorskie Voivodeship and Wielkopolskie Voivodeship together had a total of 2324 cases of emaciation, accounting for 87.2% of all cases of these changes registered in the study period. The largest number of wild boar carcasses declared unfit for consumption was found in Kujawsko-pomorskie Voivodeship (3356) and Zachodniopomorskie Voivodeship (2692), together accounting for 6048 unfit carcasses, or more than 55% of all carcasses declared unfit for consumption during the study period. The number of wild boars diagnosed with trichinellosis increased during the study period and was highest during 2019, with a systematic increase in the percentage of carcasses declared unfit for consumption in relation to the total.

**Key words:** *wild game; wild boar; sanitary and veterinary examination; lesions; quality deviations*

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## Introduction

In the European Union, the control of animal herd health status is based on periodic clinical and serological studies. The health condition of herds is also monitored on the basis of post-mortem examination results. Only countries that guarantee that their animals are free of the most serious infectious diseases have a chance of free international trade. This applies primarily to exports to other EU Member States (Hill et al., 2014).

Meat from free-living animals demonstrates valuable taste and nutritional qualities (Razmait et al., 2009). Wild game meat contains more protein and less fat than meat from slaughter animals (Hoffman, 2008). The nutritional value of wild game meat is determined by its low energy value, high mineral and vitamin content, favourable fatty acid composition and low cholesterol content (Higgs, 2000). Conjugated linoleic acid dienes, carnosine, anserine, vitamin E, coenzyme Q10, taurine and haeme iron are found in significant amounts in wild game meat (Purchas et al., 2010; Quaresma et al., 2012; Triumph et al., 2012).

In Poland, about 20 thousand tonnes of large game (deer, roe deer, wild boar) meat is obtained annually (UNECE, 2018), and most is exported to Germany, the Netherlands, Italy and Sweden (CSO, 2019). As a raw material in the human diet, wild game meat can pose a threat to health and even life, due to the presence of many diseases of viral, bacterial or parasitic aetiology in free-living animals. Throughout the world, wild boars are carriers of numerous diseases, including foot and mouth disease, Aujeszky's disease, classical swine fever and brucellosis (Perez et al., 1998; Watarai et al., 2006; Zanella et al., 2008; Meng et al., 2009). The use of wild boar meat is also associated with a risk of trichinellosis, particularly *Trichinella*

*spiralis*, and accordingly wild boar meat must be screened, as the frequency of this parasite is much higher than in domestic pigs (Żmijewski et al., 2019).

The correct manner of obtaining wild game, evisceration hygiene, and proper cooling and handling of the carcass during transport and at the collection site are a guarantee of the health safety of game meat. Diseases and quality deviations detected during the sanitary and veterinary examination conducted at the processing plant also affect food safety (Tropiło and Kiszczak, 2008). Game meat testing is often successful in breaking the epizootic or epidemiological chain, eliminating carcasses showing quality deviations that affect their suitability of consumption (Stärk et al., 2014).

The aim of this study was to analyse the results of the post-mortem inspection of wild boars in 2015–2019 conducted by the Veterinary Inspectorate in Poland.

## Materials and methods

The analysed data included sanitary and veterinary survey results published in the annual reports of the General Veterinary Inspectorate (RRW-6) between 2015 and 2019. Data on the total number of wild boar (*Sus scrofa*) was taken from the data of Statistics Poland (2015-2019). The numbers are given for the beginning of a specific hunting season, according to estimates made in March (Table 1).

**Table 1.** The number of wild boars in Poland in the years 2015-2019 (in thousand heads)

Specification	
2015	264.8
2016	250.5
2017	215.7
2018	87.9
2019	71.8

Between 2015 and 2019, 680,453 wild boars were subjected to sanitary and veterinary examinations. The post-mortem sanitary and veterinary examinations of wild boars were carried out in accordance with Regulation (EC) No 854/2004. Internal organs and carcasses were examined. Lung examination consisted of external visual inspection, examination of lymph nodes, visual inspection of lung and tracheal section. During the examination of the liver, attention was paid to oedema, petechiae and necrotic foci. Hepatic lymph nodes were visually inspected. When examining the heart, attention was paid to inflammatory lesions of the pericardium and pericardial sac. Next, the epicardium and myocardium were examined, paying attention to petechiae, cysticerci and degenerations. When examining the spleen, attention was paid to its enlargement, oedema, petechiae and foci in infectious diseases. Sexual organs were examined to rule out infectious diseases. When examining the carcasses, attention was paid to the presence of a gunshot wound, the condition of the integument (bristles, skin), especially in the axilla and inguinal regions, lower limbs, snout, oral cavity, tongue and eyes. The pleura and parietal peritoneum and internal surfaces of accessible abdominal muscles were examined. The condition of inguinal superficial and medial iliac lymph nodes was examined. The condition of available muscle surfaces and their cross-sections was evaluated, paying particular attention to cysticerci. Wild boar meat was tested for trichinellosis.

The assessment took into account changes and symptoms such as emaciation, putrefaction, septicaemia or pyaemia, cysticercosis, trichinellosis and other parasites. The analysis of test results took into account the number of animals examined, the number of carcasses with lesions, and the

number of carcasses declared unfit for consumption. Carcasses were assessed as unfit for consumption when finding: signs of natural death of the animal, diseases communicable to humans and animals, cancer, disseminated parasite infections, trichinellosis, poisoning, extensive injuries and watery infiltrates, putrefaction, significant changes in colour and taste, significant changes in consistency, and stains that cannot be removed by thorough cleaning (Tropiło and Kiszczak, 2008). The collected specimen was compared with the frequency of pathological changes found in the sanitary and veterinary examination of wild boars, and the percentage structures were determined. Changes in the frequency of pathological conditions and disease changes in wild boars in the years 2015-2019 was also analysed.

## Results and Discussion

Between 2000 and 2013, the number of wild boars in Poland more than doubled. In 2013 and 2014, the size of the wild boar population was estimated at over 280,000. In subsequent years, there was a gradual decline, with only 71,800 wild boars registered in 2019 (Table 1; SP, 2019). In Poland, a plan to reduce the wild boar population is being implemented with the aim of minimizing the risk of African swine fever (ASF) spreading to the country (Król, 2020), as wild boars are a source of ASF in the European environment (Frant et al., 2020). The carcasses of affected wild boars may even remain infectious for several months (Podgórski and Śmietanka, 2018).

During the study period (2015-2019), 680,453 wild boars were subjected to sanitary and veterinary testing (Table 2).

During the study, 11,566 animals (1.70%) were diagnosed with symptoms or lesions, while 10,883 animals (1.60%) were declared unfit for consumption.

**Table 2.** Results of post-mortem examination of wild boar in Poland in 2015-2019

Year	Number of examined animals	Number and percentage of animals with lesions or pathological symptoms	Number and percentage of carcasses unfit for consumption
2015	134,373	1659 (1.23)	1653 (1.23)
2016	132,734	2223 (1.67)	2042 (1.54)
2017	138,966	2742 (1.97)	2526 (1.82)
2018	139,801	2233 (1.60)	2139 (1.53)
2019	134,087	2709 (2.02)	2523 (1.88)
Total	680,453	11,566 (1.70)	10,883 (1.60)

**Table 3.** Frequency of disease lesions in 2015-2019

Lesion type	Number and percentage of animals with lesions or pathological symptoms in relation to the number of examined animals					
	2015	2016	2017	2018	2019	2015-2019
Emaciation	336 (0.25)	467 (0.35)	648 (0.47)	575 (0.41)	639 (0.48)	2665 (0.39)
Putrefaction	282 (0.21)	641 (0.48)	500 (0.36)	526 (0.38)	597 (0.44)	2546 (0.37)
Septicaemia and pyaemia	16 (0.01)	49 (0.04)	39 (0.03)	8 (0.01)	3 (0.00)	115 (0.02)
Cysticercosis	0 (0.00)	0 (0.00)	0 (0.00)	4 (0.00)	0 (0.00)	4 (0.00)
Trichinellosis	752 (0.56)	679 (0.51)	615 (0.44)	535 (0.38)	719 (0.54)	3300 (0.48)
Other parasites	47 (0.04)	17 (0.01)	43 (0.03)	35 (0.02)	42 (0.03)	184 (0.03)
Other changes	226 (0.17)	370 (0.28)	897 (0.64)	550 (0.39)	709 (0.53)	2752 (0.40)
Total	1659 (0.24)	2223 (0.33)	2742 (0.40)	2233 (0.33)	2709 (0.40)	11,566 (1.70)

The mean annual percentage of wild boar carcasses with lesions was 1.70%, and ranged from 1.23% in 2015 to 2.02% in 2019, while the percentage of carcasses declared unfit for consumption of the total ranged from 1.23% in 2015 to 1.88% in 2019. Table 3 shows the frequency of lesions in wild boars in the years 2015-2019.

The sanitary and veterinary examination in wild boar carcasses identified cases of emaciation, septicaemia and pyaemia, putrefaction, cysticercosis, trichinellosis and other parasites and other changes. Table 3 shows that between 2015 and 2019, there

was a gradual increase in the proportion of wild boars with lesions. The finding of trichinellosis, emaciation and septicaemia in a significant number of animals is of particular concern. An increase in the number of carcasses declared unfit for consumption was also found. Comparing the results of the study with those of 2010, we can see a decrease in the percentage of wild boars with symptoms or lesions from 1.97% to 1.70% (Lis and Iwanina, 2012). When comparing the results of this study to similar observations in the years 2000-2011, a decrease is also evident in the percentage of wild boars with symptoms or lesions from 2.79%

to 1.70%. In contrast, the percentage of animals declared unfit for consumption increased slightly from 1.37% to 1.60% (Szkucik et al., 2012).

The most frequent lesion found in the carcasses of wild boars was trichinellosis. Wild boars are known as a major source of *Trichinella* in wildlife in Poland. Permanent monitoring of the presence of trichinellosis in wild boar meat is essential for food safety, with the implementation of the etching method to determine the presence of *Trichinella* (Pozio et al., 2009). The percentage of infected wild boars between 2015 and 2019 was 0.48% (Table 4). In comparison, the incidence of trichinellosis in wild boars in 2007–2011 was 0.35% (Szkucik et al., 2012). Over time, there has been a systematic increase in the prevalence of trichinellosis in wild boars in Poland. In 1964, trichinellosis was found in only 0.11% of examined wild boars, in 1976–1981, it was 0.18%, and in 1992 it was 0.39% (Lis, 1995). In 2000–2001, the trichinellosis incidence decreased to 0.18 and 0.19%, with a further increase of 0.27–0.40% in 2002–2006.

In the period 2007–2011, the yearly average number of human cases of trichinellosis was 81. Over the last five years, the number of human cases has decreased to 9 per year on average (PZH, Annual Reports).

**Table 4.** Presence of trichinosis in wild boars and pigs in Poland in 2015–2019

Year	Wild boar	Pigs
	Number and percentage of animals	
2015	752 (0.56)	8 (0.00004)
2016	679 (0.51)	16 (0.00007)
2017	615 (0.44)	5 (0.00002)
2018	535 (0.38)	40 (0.0002)
2019	719 (0.54)	22 (0.0001)
Total	3300 (0.48)	91 (0.00008)

The most important reservoir and source of human trichinellosis worldwide is the domestic pig (Balić et al., 2021). In Europe, wildlife has played a significant role over the last thirty years (Jankowska-Mąkosza et al., 2019). Horses and sheep may also be sources of human invasion (Cabaj et al., 2004). In 2009, 972 cases of trichinellosis were recorded worldwide among free-living animals. The highest number of cases was found in Europe, where 17 countries recorded 970 cases, while only two cases were recorded in South America, in Argentina. In Europe, trichinellosis was diagnosed in 683 wild boars (70.5% of all cases). In 2009, 50,433 wild boars were tested in Poland, and *Trichinella* was diagnosed in 472 (0.93%) (OIE, 2010).

One of the most frequently observed lesions during the sanitary and veterinary examination of wild boars was emaciation. It was diagnosed in 2665 wild boars (0.39%) in the present study. The reason for this may be the reduced condition of the animals, particularly older ones. Carcasses with signs of emaciation may further show signs of systemic disease (Aguirre et al., 1999).

In addition to parasitic infestations, putrefaction was found in a significant number of wild boars. In this study, putrefaction was found in 2546 wild boar carcasses (0.37%), which may be attributable to inappropriate handling of carcasses by hunters in the hunting grounds or during their transport to the collection point. Increased incidence of putrefaction may also be associated with inappropriate evisceration or cooling (Giuggioli et al., 2017). After killing large wild game, the stomach and intestines should be removed as soon as possible and it should be bled out. Often times, animals are hunted in inaccessible places, which delays evisceration. Within just hours, intestinal bacteria can pass the intestinal barrier and contaminate the muscle tissue (Deutz et al., 2000).

**Table 5.** The number (%) of identified cases of trichinellosis in wild boars in individual voivodeships in Poland in 2015-2019

Voivodeship	Number and percentage of animals with trichinellosis in relation to the number of examined animal					
	2015	2016	2017	2018	2019	2015-2019
Dolnośląskie	1 (0.01)	1 (0.02)	4 (0.06)	2 (0.03)	10 (0.12)	18 (0.05)
Kujawsko-pomorskie	126 (1.25)	105 (1.21)	93 (1.11)	75 (0.85)	123 (1.03)	522 (1.09)
Lubelskie	27 (0.33)	29 (0.28)	20 (0.22)	8 (0.10)	14 (0.17)	98 (0.22)
Lubuskie	29 (0.52)	17 (0.34)	17 (0.33)	14 (0.25)	26 (0.56)	103 (0.39)
Łódzkie	15 (0.30)	10 (0.21)	13 (0.24)	11 (0.23)	11 (0.11)	60 (0.20)
Małopolskie	50 (1.07)	36 (0.63)	29 (0.37)	24 (0.32)	16 (0.15)	155 (0.43)
Mazowieckie	10 (0.15)	5 (0.07)	8 (0.12)	6 (0.08)	7 (0.07)	36 (0.09)
Opolskie	8 (0.14)	10 (0.22)	3 (0.06)	14 (0.28)	2 (0.04)	37 (0.14)
Podkarpackie	17 (0.22)	20 (0.21)	15 (0.13)	11 (0.25)	12 (0.10)	75 (0.17)
Podlaskie	21 (0.38)	10 (0.17)	7 (0.14)	43 (0.50)	5 (0.10)	86 (0.29)
Pomorskie	74 (0.61)	58 (0.50)	54 (0.44)	3 (0.02)	64 (0.43)	253 (0.39)
Śląskie	12 (0.22)	5 (0.08)	21 (0.30)	12 (0.21)	23 (0.27)	73 (0.22)
Świętokrzyskie	32 (1.60)	31 (0.83)	63 (1.21)	44 (0.10)	66 (0.97)	236 (1.06)
Warmińsko-mazurskie	28 (0.17)	36 (0.21)	25 (0.16)	34 (0.18)	34 (0.17)	157 (0.18)
Wielkopolskie	133 (0.78)	130 (0.88)	123 (0.80)	114 (0.71)	138 (0.71)	638 (0.77)
Zachodniopomorskie	169 (1.24)	176 (1.50)	120 (0.92)	120 (0.88)	163 (1.16)	748 (1.13)

**Table 6.** The number (%) of cases of emaciation in wild boars in individual voivodeships in Poland in 2015-2019

Voivodeship	Number and percentage of animals with emaciation in relation to the number of examined animal					
	2015	2016	2017	2018	2019	2015-2019
Dolnośląskie	0 (0)	-	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Kujawsko-pomorskie	0 (0.00)	290 (3.34)	310 (3.72)	348 (3.95)	353 (2.95)	1301 (2.72)
Lubelskie	67 (0.83)	49 (0.47)	79 (0.86)	44 (0.54)	23 (0.28)	262 (0.59)
Lubuskie	0 (0.00)	0 (0.00)	2 (0.04)	1 (0.02)	0 (0.00)	3 (0.01)
Łódzkie	0 (0.00)	1 (0.02)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.00)
Małopolskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Mazowieckie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Opolskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Podkarpackie	0 (0.00)	0 (0.00)	3 (0.03)	0 (0.00)	0 (0.00)	3 (0.01)
Podlaskie	2 (0.04)	0 (0.00)	1 (0.02)	0 (0.00)	0 (0.00)	3 (0.01)
Pomorskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Śląskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Świętokrzyskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Warmińsko-mazurskie	7 (0.04)	0 (0.00)	19 (0.12)	4 (0.02)	0 (0.00)	30 (0.03)
Wielkopolskie	4 (0.02)	4 (0.03)	18 (0.12)	4 (0.02)	9 (0.05)	39 (0.05)
Zachodniopomorskie	256 (3.48)	123 (1.05)	216 (1.66)	174 (1.28)	254 (1.81)	1023 (1.55)



**Table 7.** The number (%) of observed cases of putrefaction in wild boars in individual voivodeships in Poland in 2015-2019

Voivodeship	Number and percentage of animals with putrefaction in relation to the number of examined animals					
	2015	2016	2017	2018	2019	2015-2019
Dolnośląskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Kujawsko-pomorskie	0 (0.00)	356 (4.10)	133 (1.59)	82 (0.93)	250 (2.09)	821 (1.71)
Lubelskie	166 (2.06)	216 (2.06)	261 (2.83)	236 (2.89)	131 (1.60)	1010 (2.29)
Lubuskie	0 (0.00)	0 (0.00)	14 (0.27)	62 (1.10)	14 (0.30)	90 (0.35)
Łódzkie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Małopolskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Mazowieckie	18 (0.28)	8 (0.12)	18 (0.26)	0 (0.00)	0 (0.00)	44 (0.12)
Opolskie	18 (0.32)	4 (0.09)	8 (0.15)	38 (0.75)	7 (0.14)	75 (0.29)
Podkarpackie	9 (0.12)	9 (0.09)	13 (0.12)	0 (0.00)	26 (0.21)	57 (0.13)
Podlaskie	3 (0.05)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	3 (0.01)
Pomorskie	0 (0.00)	0 (0.00)	0 (0.00)	11 (0.08)	0 (0.00)	11 (0.02)
Śląskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Świętokrzyskie	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Warmińsko-mazurskie	11 (0.07)	0 (0.00)	2 (0.01)	0 (0.00)	0 (0.00)	13 (0.01)
Wielkopolskie	34 (0.20)	43 (0.29)	41 (0.27)	49 (0.31)	58 (0.30)	225 (0.27)
Zachodniopomorskie	23 (0.17)	5 (0.04)	10 (0.08)	48 (0.35)	111 (0.79)	197 (0.30)

The frequency of conditions and lesions in wild boars in Poland shows territorial diversity. Tables 5 to 7 show the incidence of the most important conditions and lesions of wild boars in particular regions of Poland.

Trichinellosis in wild boars was found in all 16 voivodeships, ranging from 18 cases in Dolnośląskie to 748 cases in Zachodniopomorskie Voivodeship. A total of 1908 cases of trichinellosis were found in the Kujawsko-pomorskie, Wielkopolskie and Zachodniopomorskie Voivodeships, accounting for 57.8% of all cases of the disease in 2015-2019 in Poland (Table 5).

Emaciation was found in the years 2015-2019 in 10 voivodeships (Table 5). The highest numbers of these changes in the carcasses of wild boars were recorded in the Kujawsko-pomorskie Voivodeship (1301) and Zachodniopomorskie Voivodeship (1023) regions, together

accounting for 87.2% of all cases of emaciation during the study period.

During the study period, changes in the form of carcass putrefaction of wild boars were found in 11 voivodeships (Table 7). The highest percentage of such changes was recorded in Lubelskie Voivodeship, while the lowest incidence of changes included the Warmińsko-mazurskie, Pomorskie, Podlaskie, Mazowieckie and Podkarpackie Voivodeships (less than 0.13%).

During the study period, 1.60%, or 10,883 of all examined wild boar carcasses nationwide were declared unfit for consumption (Table 2). The largest numbers of wild boar carcasses declared unfit for consumption was found in Kujawsko-pomorskie Voivodeship (3356), Zachodniopomorskie Voivodeship (2692) and Lubelskie Voivodeship (1852) (Table 7). The total number of carcasses declared unfit for consumption in these three voivode-

**Table 8.** Percentage of carcasses considered unfit for consumption by voivodeships in 2015-2019

Voivodeship	Number and percentage of carcasses unfit for consumption in relation to the number of examined carcasses					
	2015	2016	2017	2018	2019	2015-2019
Dolnośląskie	1 (0.01)	1 (0.02)	4 (0.06)	5 (0.07)	10 (0.12)	21 (0.06)
Kujawsko-pomorskie	128 (1.27)	795 (9.16)	979 (11.74)	651 (7.38)	803 (6.72)	3356 (7.01)
Lubelskie	286 (3.54)	333 (3.18)	466 (5.06)	432 (5.30)	335 (4.11)	1852 (4.2)
Lubuskie	35 (0.62)	17 (0.34)	37 (0.72)	90 (1.60)	40 (0.86)	219 (0.84)
Łódzkie	25 (0.5)	15 (0.31)	16 (0.29)	17 (0.35)	16 (0.17)	89 (0.3)
Małopolskie	50 (1.07)	38 (0.66)	29 (0.37)	25 (0.34)	18 (0.17)	160 (0.44)
Mazowieckie	33 (0.51)	17 (0.25)	30 (0.44)	6 (0.08)	7 (0.07)	93 (0.25)
Opolskie	26 (0.47)	14 (0.30)	13 (0.24)	17 (0.34)	15 (0.30)	85 (0.33)
Podkarpackie	30 (0.4)	32 (0.33)	32 (0.29)	53 (1.23)	38 (0.31)	185 (0.41)
Podlaskie	31 (0.56)	13 (0.22)	14 (0.28)	24 (0.28)	15 (0.30)	97 (0.32)
Pomorskie	74 (0.61)	58 (0.5)	54 (0.44)	48 (0.35)	68 (0.46)	302 (0.47)
Śląskie	25 (0.45)	14 (0.24)	58 (0.84)	53 (0.94)	55 (0.64)	205 (0.63)
Świętokrzyskie	32 (1.6)	32 (0.86)	63 (1.21)	44 (0.98)	70 (1.03)	241 (1.08)
Warmińsko-mazurskie	52 (0.32)	37 (0.22)	56 (0.36)	46 (0.24)	37 (0.19)	228 (0.26)
Wielkopolskie	199 (1.16)	207 (1.39)	189 (1.23)	195 (1.22)	268 (1.39)	1058 (1.28)
Zachodniopomorskie	626 (4.6)	419 (3.57)	486 (3.74)	433 (3.18)	728 (5.19)	2692 (4.08)

ships was 7900, accounting for more than 72% of all wild boar carcasses disqualified in Poland in 2015–2019. (Table 8).

To conclude, it should be stated that in Poland in the years 2015-2019, the number of wild boars with lesions showed an upward trend. There was a decline in levels when analysing the percentage of carcasses with trichinellosis lesions, with the exception of 2019, when the number of carcasses with trichinellosis increased significantly. In the analysed period, there was an increase in the percentage of wild boar carcasses declared unfit for consumption in relation to the total. This could be due to inadequate cleaning of gunshot wounds by hunters in the hunting grounds, and improper and inadequate evisceration and bleeding. The quality of the raw material supplied for processing depends also on the skills of hunters. It is therefore advisable

to raise the requirements and enforce proper procedures for handling game in hunting grounds. It is also important that collection points ensure that the carcasses are properly stored.

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## Analiza učestalosti promjena i simptoma bolesti u divljih svinja u Poljskoj u razdoblju 2015.-2019.

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Cilj studije bio je analizirati rezultate obdukcijskog pregleda divljih svinja u Poljskoj između 2015. i 2019. godine. Analizirani su rezultati službenog sanitarnog i veterinarskog pregleda divljih svinja kojeg je obavila Veterinarska inspekcija. Procjena je uzela u obzir promjene poput mršavljenje, septikemije i pijemije, parazitskih bolesti i druge promjene. Analiza rezultata testa uzela je u obzir broj ispitanih životinja, broj leševa na kojima su otkrivene lezije i broj leševa proglašanih neprikladnima za konzumaciju. Više od 680 tisuća divljih svinja podvrgnuto je sanitarnim i veterinarskim testovima u Poljskoj između 2015. i 2019. godine. Tijekom studije otkriveni su simptomi ili lezije u 11566 životinja, što čini 1,70 %. 10883 životinja proglašeno je neprikladnima za konzumaciju. To je predstavljalo 1,60 % svih ispitanih životinja. U pojedinačnim godinama, postotak leševa divljih svinja na kojima su otkrivene lezije kretao se od 1,23 % 2015. godine do 2,02 % 2019. Postotak leševa divljih svinja proglašen neprikladnim za konzumaciju u odnosu na sve ispitane leševe kretao se od 1,23 % 2015. godine do 1,88 % 2019. Parazitske lezije otkrivene su na 3488 leševa divljih svinja. One su predstavljale 30,16 % svih promjena zabilježenih na leševima divljih svinja. Najčešća parazitska bolest otkrivena u divljih svinja bila je trihinelozna. Najčešća promjena u leševa divljih svinja bilo je mršavljenje. Ova promjena otkrivena je u razdoblju 2015.-2019. godine u 2665 divljih

svinja (0,39 %). Trulež je česta lezija u leševa divljih svinja. Takve promjene otkrivene su u razdoblju 2015.-2019. godine u 2546 divljih svinja (0,37 %). Učestalost lezija u divljih svinja u Poljskoj pokazuje teritorijalne razlike. Između 2015. i 2019. godine najveći broj slučajeva trihineloze u leševa divljih svinja zabilježen je u Zachodniopomorskie vojvodstvu (748) i Wielkopolskie vojvodstvu (638). U Kujawsko-pomorskie vojvodstvu i Wielkopolskie vojvodstvu, bilo je ukupno 2324 slučaja mršavljenja, što je činilo 87,2 % svih slučajeva ovih promjena zabilježenih u razdoblju 2015.-2019. godine u Poljskoj. Najveći broj leševa divljih svinja proglašanih neprikladnima za konzumaciju pronađen je u Kujawsko-pomorskie vojvodstvu (3356) i Zachodniopomorskie vojvodstvu (2692). Ukupni broj leševa proglašanih neprikladnima za konzumaciju u ova dva vojvodstva bio je 6048, što je više od 55 % svih leševa divljih svinja proglašanih neprikladnima za konzumaciju u Poljskoj u razdoblju 2015.-2019. godine. Između 2015. i 2019. godine broj divljih svinja u kojih je dijagnosticirana bolest bio je u porastu. U analiziranom razdoblju vidljiv je sistematični porast u postotku leševa divljih svinja proglašanih neprikladnima za konzumaciju u odnosu na sve ispitane. U 2019. godini, postotak slučajeva trihineloze u divljih svinja porastao je u usporedbi s rezultatima studije u razdoblju 2016.-2018. godine.

**Ključne riječi:** *divljač, divlja svinja, sanitarni i veterinarski pregled, lezije, odstupanja kvalitete*