

**THE REASONS OF MORTALITY OF FATTENING SWINES IN
INTESIVE SWINE PRODUCTION****I. Vrbanac, T. Balenović, R. Pavešić, I. Valpotić, V. Zidar****Summary**

The research study was carried out in "Dubravica" a large scale swine farm near by Zaprešić. The necropsy of dead fattening swines was conducted in the period between June 1, 1991 and May 31 1992.

The results of pathomorphologically examination of dead carcasses during the investigation period was established the structure of the mortality rate. The mortality rate of 279 or 32.69% fatteners was recorded for gastrointestinal syndrom; 111 or 13.0% for myocardial failure; 123 or 14.4% for pneumonia; 31 or 3.6% for septic condition; 25 or 2.9% for gastric ulcer; 11 or 1.3% for hepatitis; and 10 or 4.26% carcasses were dead from others causes. During the production phase were eliminated 44 carcasses in different ages; from fracture of bone (2), cannibalism (1), and others according very different pathological causes.

The distribution of losses during the economic year reveal a great influence of the season and climate on the most common causes of dead (the gastrointestinal syndrome, myocardial failure and sepsis). However, the season did not have any influence on the incidence of losses causes by other reasons such as: pneumonia, polyserositis, gastric ulcerations, cannibalism etc...), either regarding the rate nor the structure.

The aim of this research was to study different risk groups of current pathology and diseases. Also, to provide for focusing on monitoring, prevention and control of losses.

Key words: Monitoring, pathology, fattening swines

Introduction

The therapy for disease in domestic animals in the intensive production is very expensive for both producers and customers. Thus, for the producers the control and prevention of diseases is a continuous task. Diagnosis, therapy and vaccination have good effects in the control of many swine diseases. Some of

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these diseases have negative effects in swine production due to great numbers of dead or eliminated animals in a very short time. So losses and damages in the swine production have very negative effects on the prices of the final product-carcasses.

If we want to reduce losses in the fattening phase of swine production, to the minimum it is necessary to fulfil the following: to organize an effective diagnostic service in the field, and to establish monitoring of losses on the basis of pathomorphological findings. The use of record information on type and incidence of fattening swine mortality on a long term basis may help in the development of effective strategies to reduce/control losses until the carcasses slaughtering. In swine production it is very important to speak in favor of the health class of feeder pigs from the farrowing units, free of clinical signs of respiratory diseases, swine dysentery and free of mycoplasma hyopneumoniae antibodies by Finland feeder pigs producers. It was to back up the evidence of the field trials by Touvinen et al. (1994) when they confirmed that in batches Health class (HC) they had less mortality by 20% than in the control batches feeder pigs by condemnation liver and other organs (health status unknown). Very important are liver and lungs from parasitic infection in combination with lung lesion (reduction in slaughter weight by up to about 11 kg). The cause of the liver and lungs parasitism is the deep litter system favoring this current pathology (Hoy, 1994).

Material and Methods

Study population

The study of the mortality rate in the fattening phase of swine production was performed in large scale swine farm in Croatia, during the period from May 1991 to June 1992. The farm was of a closed type and comprised all stages of industrial swine production (farrowing to finishing) including breeding.

The herd size was 1450 sows and gilts of the Swedish landrace breed which were mated to Yorkshire boars. Weaned piglets were transferred to the prefattening units after 58 days of housing in rearing pens. The piglets weighing less than 18 kg from the rearing period were culled (sold or slaughtered) or they were moved back into nursery units. After 2 months of housing in prefattening units they were transferred to fattening units in the next 2 months.

Diagnostic criteria

Prior to the initiation of the study we defined the diagnostic criteria on the causes of fattening pigs mortality together with producers (veterinarians). All dead fattening swine were necropsied by the farm veterinarian or pathologist from the research team usually not later than 4-12 hours post mortem. The cause of death was determined by post-mortem examination (described using standard necropsy form). The most common categories in the fattening swine were assigned to 4 major groups (Table 1).

Pathomorphological examination

The causes of fattening pigs mortality were pathologically at necropsy. Each category of losses was based upon the ultimate cause of death, except in pigs that died from traumatization and were not pathomorphologically examined. The pathological examination was conducted in the necropsy room of the farm. The necropsy was performed by the incision from manubrium-up to symphysis followed by systematic examination of all internal organs. The presence of inflammatory processes in the gastric and intestinal mucus was established by general examination of the gut. In the cases of gastroenteritis mucus was edematous and hyperemic, and mesenteric lymph nodes were swollen. Inflammation of the lungs and presence of fibrin in the thoracic cavity were very often found with the lung congestion and pleurisy in fattening swine.

Results

Table 1. - THE MOST COMMON CATEGORIES OF LOSSES IN FATTENING SWINES

Categories of the losses	Number of lost eliminated	Carcasses dead	%
Gastrointestinal syndrome		279	32.6
Miocardial failure		186	21.7
Pneumonia		111	13.0
Septic condition		123	14.4
Eliminated	44	-	5.1
Polyserositis		31	3.6
Gastric ulcer		25	2.9
Hepatitis		11	1.3
Cannibalism		10	1.2
Others		36	4.2
Total	44	812	100

The incidence of different causes of carcass losses is given in Table 1. Nearly 32.6% of all losses was a gastrointestinal syndrome recorded in the prefattening and fattening swines (with total incidence rate 5.0%). The most important cause of losses among fattening swines was myocardial failure (21.7%), Pneumonia (13.9%), septic condition (14.4%), followed by the pronounced states of diseases such as polyserositis (3.6%), a gastric ulcer (2.9%), hepatitis (1.2%), cannibalism (4.2%). Eliminated (due to fracture of bones, traumatisation or chronic diseases etc) were 5.1%.

Table 2. - THE STRUCTURE OF THE LOSSES OF FATTENING SWINES MONTHS IN YEAR 1991/1992

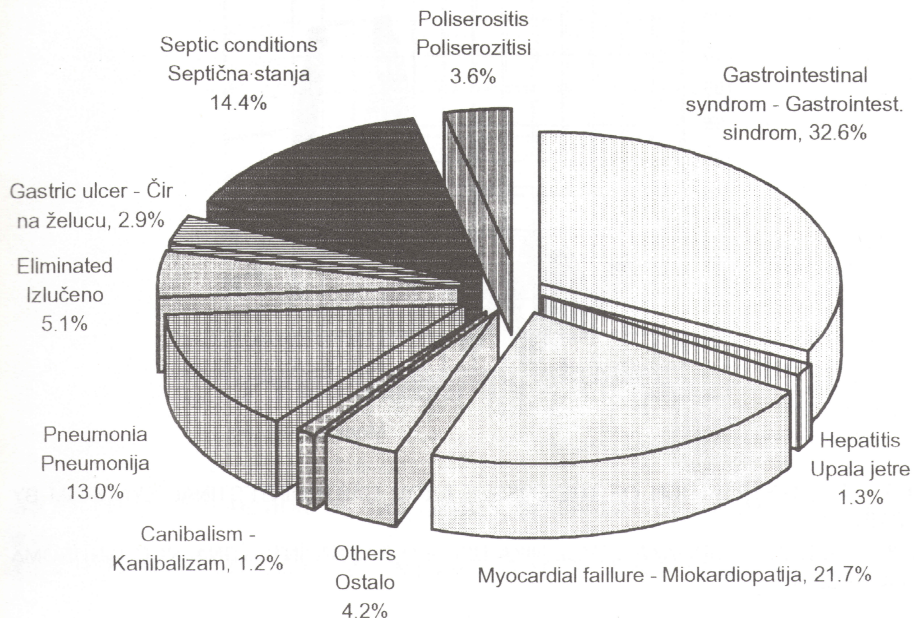
Categories of the losses	Month											
	6	7	8	9	10	11	12	1	2	3	4	5
Gastrointestinal syndrome	16	27	40	41	38	21	6	15	28	13	20	14
Myocardial failure	24	13	36	22	18	10	8	16	5	9	12	13
Septic conditions	12	19	22	19	20	7	4	5	6	1	6	-
Pneumonia	6	1	16	23	37	9	2	2	9	1	4	1
Eliminated						1	36	2	3	-	-	1
polyserositis	3	8	1	7	4	1	36	2	3	-	-	1
Gastric ulcer	3	1	4	7	3	-	1	-	1	2	3	-
Hepatitis	-	1	-	-	-	8	-	-	-	-	-	-
Cannibalism	2	4	4	4	-	-	-	-	-	-	-	-
Rupture hepatitis	-	-	1	1	2	-	-	-	-	-	-	-
Strangulation of intestins	-	-	-	-	-	-	-	-	-	2	-	-
Hernia	1	-	-	-	-	-	-	-	-	2	-	-
Asphyxias	-	-	-	1	-	-	-	-	-	-	-	-
Rupture of spleen	-	-	-	1	-	-	-	-	-	-	-	-
Volvulus of intestins	-	-	-	-	-	-	-	-	-	1	-	-
Volvulus of gastric	-	-	-	-	-	-	-	-	-	-	-	-
Cahexia	4	4	3	-	3	9	-	-	-	-	2	-

The highest numbers of cases of gastrointestinal syndrom was in September (41) and the lowest in December (6). The highest mortality rate due to myocardial failure was found in August (36), and the lowest in February (5). The highest number of cases of septic condition as in July (22) and the lowest number was in May (0). The highest number of pneumonia was in October (37), and the lowest in March and May (1). Other causes of the losses during the months throughout the economic year 1991/1992 showed different incidence. The influence of the seasons during the surveyed year on mortality rate was not established.

The separation of the total losses in the fattening phase of swine production to the diseases is presented in graf 1.

Graf 1. - THE DISTRIBUTION OF THE TOTAL LOSSES OF CARCASSES DISEASES

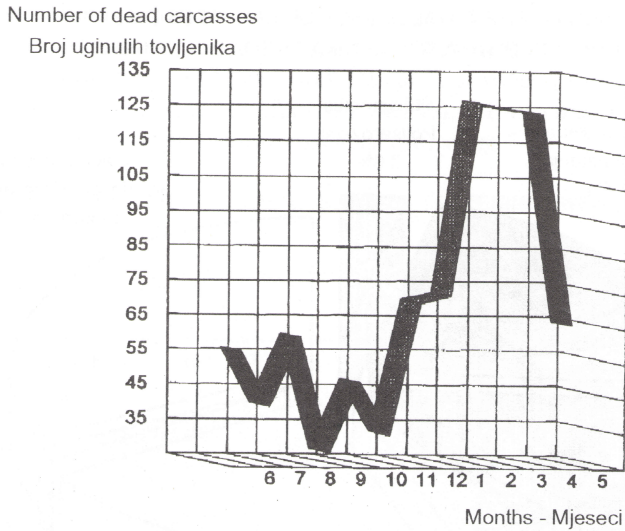
Graf 1. - RAZDIOBA UKUPNIH GUBITAKA TOVLJENIKA PREMA BOLESTIMA



Discussion

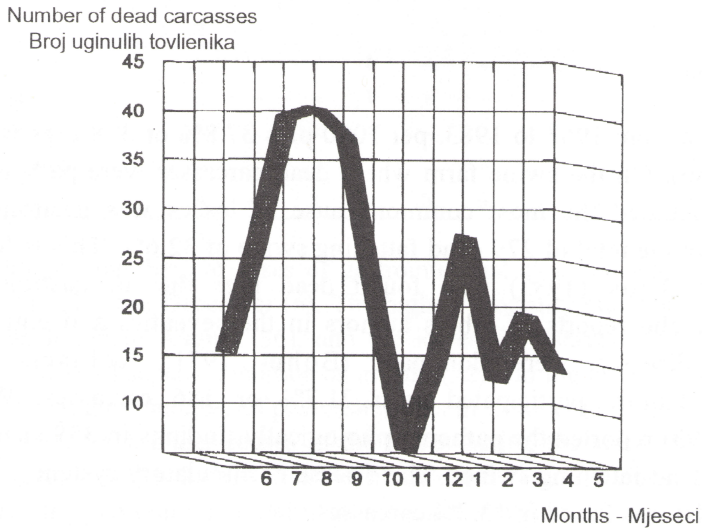
In Croatia from 1963 to 1983, per 1000 pigs 37.8% or 378 pigs were lost (Biloš, 1986). On the swine farm where dead carcasses were pathomorphologically examined the most common cause of losses was gastrointestinal syndrom with the total of 279 dead fattening swine of 32.6%. This is less than reported by Biloš (1985) who found dead pigs due to gastrointestinal syndrome. In the reports of others authors in the seventies and eighties the respiratory diseases were dominant (Bohm 1971; Kobisch, 1985). Myocardial failure participated with 21.7% or 186 carcasses. Wagner Georgia (1993) reported the pathomorphologically findings in 359 slaughtered and in 241 dead fattening swines. The disease of circulatory system (heart and blood vessels) was found in 13.7% carcasses.

Graf 2. - THE DISTRIBUTION OF THE TOTAL LOSSES THROUGH MONTHS DURING 1991/1992.
Graf 2. - RAZDIOBA UKUPNIH GUBITAKA TOVLJENIKA PO MJESECIMA TIJEKOM 1991/92. GODINE



Graf 3. - THE DISTRIBUTION OF THE LOSSES FROM GASTROINTESTINAL SYNDROM BY MONTHS

Graf 3. - RAZDIOBA GUBITAKA TOVLJENIKA USLIJED GASTROINTESTINALNOG SINDROMA PO MJESECIMA

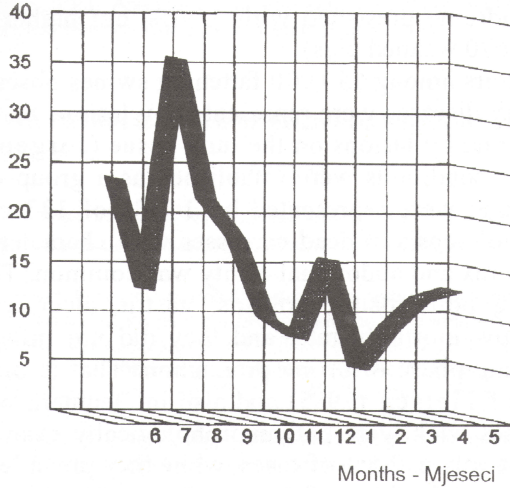


Graph 4. - THE DISTRIBUTION OF MYOCARDIAL FAILURE BY MONTHS.

Graf 4. - RAZDIJOBA GUBITAKA TOVLJENIKA USLIJED MIOKARDIOPATIJE PO MJESECIMA

Number of dead carcasses

Broj uginulih tovljenika

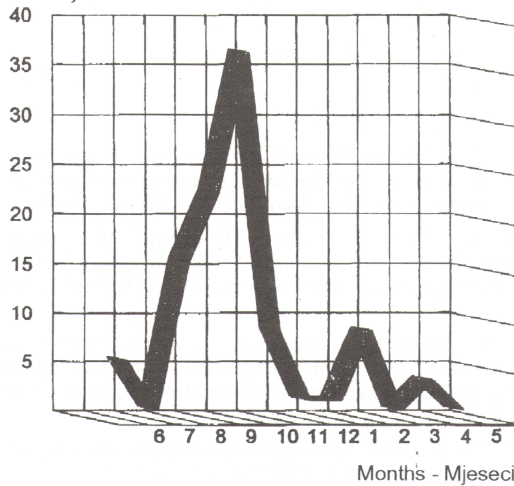


Graf 5. - THE DISTRIBUTION OF THE LOSSES OF CARCASSES FROM PNEUMONIA BY MONTHS

Graf 5. - RAZDIJOBA GUBITAKA TOVLJENIKA USLIJED PNEUMONIJE PO MJESECIMA

Number of dead carcasses

Broj uginulih tovljenika



During recent years of investigations into current pathology on large scale swine farms (1978-1979) in the Republic of China 27.3% pigs died from gastrointestinal syndrom in the prefattening stage, and in the fattening stage 29% of carcasses of the total of 1152 fattening swines included in the field trials which was lower than our results in the swine farm "Dubravica" where gastrointestinal syndrome presented with 32.6%, but higher than the, in the fattening stage (36.670 weaned pigs).

In Danish abattoirs among 550.000 fattening swines observed during 1987 and 1988 respiratory diseases were represented by lesions on the nasal mucus, on thoraxes serosa and by lesions on the lung tissue (Jorgensen, 1988). The losses due to septic conditions were established as a group of losses of very different etiology and were represented by 14.4% of 123 carcasses of total losses. The finding of sepsis in dead carcasses with characteristic bleeding on the serosa of the thorax and abdominal cavity was common. The losses defined as others including polyserositis, arthritis, gastric ulcer, cannibalism were represented by a low mortality rate, and they did not influence the current pathology in fattening phase of swine production. That is in accordance with the investigations of Tielsen (1985) and also in Denmark where in abattoirs slaughtered carcasses which were pathomorphologically examined had lesions on organs in the gut only in 3.5% of cases, while they prevailed over lesions on the respiratory system. Lesions of the respiratory system were recorded at slaughter in 1772 fattening swines from 5 herds in Denmark where the prevalence of interlobar scars, chronic pericarditis, atrophic rhinitis, chronic visceral pleurisy may be used for retrospective evaluation of the expected losses associated with respiratory diseases. Conversely, recordings of acute subacute and some mycoplasma-like cases of pneumonia serve only as an indicator of the presence of respiratory diseases, and not of the extent of economic loss.

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RAZLOZI SMRTNOSTI TOVNIH SVINJA U INTENZIVNOJ SVINJOGOJSKOJ PROIZVODNJI

Sažetak

Istraživanja su provedena na velikoj svinjogojskoj farmi "Dubravica" kraj Zaprešića.

Sve uginule toвне svinje redovno su bile svakodnevno razučivane od 31. lipnja 1993. do 31. svinja 1992. godine.

Obradom dobivenih rezultata patomorfoloških pregleda uginulih tovljenika utvrdili smo strukturu mortaliteta. Ukupno je uginulo 812 tovljenika a bilo je izlučeno 44 tovnih svinja. Rizične skupine bile su: gastrointestinalni sindrom od kojeg je uginulo 279 tovljenika ili 32.60%; miokardijopatija od koje je uginulo 186 tovljenika ili 21.7%; pneumonija od koje je uginulo 111 tovljenika ili 13.0% u strukturi mortaliteta tovljenika; od sepse uginula su 123 ili 14.4% tovljenika. Manje rizične grupe tvorila su uginuća od poliserozitisa 31 ili 3.6%, čira na želucu 25 ili 2.9%; hepatitis 11 ili 1.3%; kanibalizam 10 ili 4.2% tovljenika. Izlučeno je iz tova 44 tšovljenika ili 5.1% zbog preloma novu 2 i drugi zbog ozljeca i kroničnih bolesti. Ostalih 44 izgubljenih tovljenika su različitih razloga uginuća.

Najveći utjecaj na patologiju tovljenika na farmi imale su sezonske klimatske prilike i to kod rizičnih skupina uginuća (gastrointestinalni sindrom miokardijopatija, i septična stanja) dok na pojavu uginuća od pneumonije, poliserozitisa, čira na želucu i kanibalizma sezonske klimatske prilike nisu imale utjecaja.

Cilj istraživanja je bio istražiti na velikoj svinjogojskoj farmi najrizičnije grupe bolesti i karentne patologije, kako bi se ciljano moglo usredotočiti u preveniranju, nadzoru i kontroli gubitaka.

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