

RELIGIOUS SLAUGHTER OF ANIMALS IN POLAND

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Abstract

The aim of this study is to show various aspects related to the slaughter of cattle and poultry in Poland for religious purposes and attempt to estimate the scale of this slaughter and possible economic losses for companies in the meat and poultry industry if a ban on religious slaughter was introduced. The slaughter of animals for slaughter in Poland for religious purposes is carried out on an industrial scale and mainly concerns two species of animals, i.e. cattle and poultry. Its size can be determined only on the basis of estimates, which in the case of cattle and poultry may be 20-40% and 35-55% of the export volume, which in absolute values would correspond to 75-150 thousand tons and 500-800 thousand tons (in hot carcass weight) of beef and poultry meat, respectively. Thus, these are not small amounts. The possible introduction of a ban on the slaughter of animals for slaughter for religious purposes in Poland (with the exception of religious communities) would mean measurable financial losses for the meat and poultry industries, as well as for slaughter cattle and poultry producers. Appropriate indicators were used to determine changes over time. Descriptive and graphical analysis of statistical data was performed and a simulation calculation was made.

Keywords: animal slaughter, cattle, poultry, religion, foreign trade.

JEL codes: J21, L23, L66.

Introduction

Religious slaughter of cattle, sheep, and poultry is dictated mainly by religious (cultural) reasons and practiced mostly by followers of Islam (Muslims) and Judaism (Jews). It involves killing an animal without prior stunning (deprivation of consciousness). The slaughter of animals for slaughter, regardless of its form, with or without prior stunning in order to render the animal unconscious, is the most drastic moment in the whole production cycle of live animals, the purpose of which is to obtain meat. Therefore, it is important that this moment be as painless as possible for the animals and carried out in a professional manner.

In an age of rapid internationalization of trade, as a result of growing processes of globalization, well-developed logistic systems provide fast and efficient transport of commodities (products) over long distances. The possibility to sell products in a given market is determined by signed trade agreements between countries or membership in a particular grouping of countries (organizations), while the criteria determining the competitiveness of a commodity (product) primarily include its price and quality (Mroczek and Drożdż, 2019). This also applies to food and agricultural raw materials. Therefore, some meat industry companies operating in Poland slaughter animals for slaughter (mainly cattle and poultry) for religious purposes in other countries on economic grounds.

Aim of the paper

The aim of this study is to show various aspects related to the slaughter of cattle and poultry in Poland for religious purposes and to attempt to estimate its scale, as well as the economic benefits for meat and poultry companies. The analysis focuses, inter alia, on export destinations of beef and poultry meat from Poland, so as to identify the major potential customers, i.e. 1) countries where Islam or Judaism are the dominant religions, and 2) countries where followers of these religions constitute a significant proportion of the citizens. The lack of reliable data was a major difficulty in assessing this phenomenon. Although the analysis mainly focuses on the financial aspect, we must not forget about the social (ethical) or humanitarian aspects which are difficult to measure. The following data sources were used in analyzing the phenomenon:

- Central Statistical Office (CSO),
- Ministry of Finance (MF),
- Eurostat,
- United States Department of Agriculture (USDA),
- Polish Meat Association,
- Association of Polish Beef Cattle Producers (PZPBM),
- direct interviews with experts.

The essence of religious slaughter and the legal situation in Poland

The religious slaughter¹ of cattle, sheep, and poultry is dictated mainly by religious (cultural) reasons and practiced mostly by followers of Islam (Muslims) and Judaism (Jews). The meat – *halal* and *kosher* – must come from conscious animals (without prior stunning), which are killed by cutting the main arteries and veins on the neck in order to bleed them out. While some Muslims allow an animal to be stunned during bleeding, the Jewish tradition does not permit it. The point is that the heart of an animal being slaughtered should beat as long as possible to pump out as much blood as possible, without paralyzing the nervous system, which occurs when a metal bolt destroys the brain structure of a stunned cattle. For this reason, slaughter without prior stunning is considered inhumane, mainly in Europe.

In January 2013, the EU Council Regulation on the protection of animals at the time of killing entered into force, which enables slaughter without stunning for the needs of religious communities and allows the Member States to either allow or ban it. The regulation on religious matters refers to the Charter of Fundamental Rights.

Currently, the religious (ritual) slaughter in Europe is completely banned in:

- Denmark (since February 2014),
- Sweden (since 1937),
- Norway,
- Switzerland,
- outside Europe, it is banned in New Zealand (since 2010).

In the majority of the European Union countries, slaughter for religious purposes is subject to certain restrictions such as stunning or anesthetizing an animal during or immediately after slaughter, or the exemption of Muslim and Jewish communities from these restrictions after submitting a relevant application to the authorities (*Ubój rytualny...*, 2017). Thanks to such simple solutions, in the vast majority of EU-28 countries the religious slaughter of animals for slaughter is monitored and, to some extent, supervised by local authorities.

The differences between *kosher* and *halal* meat originate in scientific interpretations of original religious texts, which, in turn, define religious laws. *Kosher* rules are stricter than *halal* rules. A key issue in *kosher* slaughter is also the person who carries out this slaughter, who should be a specially trained man – a religious devout Jew, with a deep knowledge of the Talmud – *a shochet*.

Slaughter according to *halal* rules must meet, *inter alia*, the following requirements:

- The animal should be aligned with the direction of the Muslim prayer (*qiblah*), i.e. the city of Mecca,
- During the slaughter, the formula “Bismillah” must be uttered,
- The slaughter must be carried out by a Muslim,

¹ In the media, the term “ritual slaughter” is more commonly used.

- At the time of the slaughter, the arteries and jugular veins of an animal must be sliced with one clean cut to make it bleed as quick as possible, as the blood is considered unclean. The time between cutting the main blood vessels and the loss of consciousness, as evidenced by behavioral and central nervous system reactions, is 20 seconds in sheep, up to 2 minutes in cattle, up to 2.5 minutes or more in poultry, and sometimes more than 15 minutes or more in fish (*Halal jako...*, 2017).

In recent years, amendments to the legal situation in Poland with regard to the slaughter of animals for slaughter without prior stunning have been considerable and caused some turbulence in the market. Chronologically, the situation runs as follows:

- On October 24, 1997, the Act on the protection of animals of August 21, 1997 (*Ustawa...*, 1997) entered into force and contained a provision that an animal may be slaughtered after prior deprivation of consciousness, but allowed an exception for slaughter in a manner prescribed by religious rites.

The amendment to the Act on the protection of animals, which entered into force on September 28, 2002, decreed that an animal may only be slaughtered after prior stunning and did not include any exception for religious slaughter.

- On November 27, 2012, the Constitutional Tribunal (CT) ruled that the Regulation of the Minister for Agriculture, adopted in 2004 and concerning the conditions for religious slaughter (in particular, the admission of religious slaughter without prior stunning) (*Rozporządzenie...*, 2004) was inconsistent with the Act amended in 2002 and that the Minister for Agriculture had exceeded his powers by issuing a regulation without due legal authorization.
- From January 1, 2013, after the CT judgment became final, until December 12, 2014, religious slaughter without prior stunning was totally banned in Poland.
- On December 10, 2014, the CT lifted the ban on religious slaughter. In the Tribunal's opinion, this ban violated freedom of religion and conscience.
- In November 2017, a deputies' bill was submitted to the Sejm to amend the Act on the protection of animals and on the ban on religious slaughter in Poland, with the exception of religious communities. The Minister for Agriculture announced its withdrawal in July 2018.
- In September 2020, the Sejm referred an amendment to the Act on the protection of animals, commonly known as the "Five for Animals", for consideration of the Polish Senate. One of the points applies to the introduction of a ban on the slaughter of animals for slaughter for religious purposes (except for religious communities for their own needs). Prior to this, the Senate submitted several tens of amendments to the Act, including, *inter alia*, extending the period before which the legislation on the religious slaughter of cattle for export would enter into force by 5 years, i.e. until December 2025. In the meantime, the government submitted an amendment on excluding poultry from the ban on religious slaughter, which was approved by the Senate. As a matter of urgency, a special

commission was set up within the MARD, whose task was to develop a compensation mechanism for farmers and meat processors who would suffer possible losses as a result of the ban on the slaughter of cattle for religious purposes for export. At present (November 2020), it is difficult to predict the future of the Act going forward.

The slaughter of animals for slaughter without prior stunning raises many emotions and controversy, *inter alia*, through social organizations fighting for the greater legal protection of animals and arguing that in the case of slaughter for religious purposes, animals feel greater pain and suffering than during the humane slaughter (applicable in EU countries).

Poultry meat and beef market in Poland

According to Eurostat data, the production of poultry meat in Poland in 2019 amounted to about 2.6 million tons in hot carcass weight (hew), which made Poland the largest producer of this meat among the EU-28 countries, ahead of the United Kingdom, having left the European Union, by 37%, and then of Spain and France – by 53% (in production volume), followed by Germany (1.6 million tons) and Italy (less than 1.4 million tons) (Table 1). The poultry industry has been striving for this success for the last 15 years, as evidenced by, *inter alia*, the export of poultry meat (code 0207) from Poland, which in 2019 stood at 1,461 thousand tons and was 50% higher than its production in 2004.

Poland is also a major producer of beef in the European Union (with a production of around 560 thousand tons in hew), which ranked Poland seventh after France, Germany, the United Kingdom, Italy, Spain, and Ireland (1.4-0.6 million tons) (Table 1).

Table 1

The largest producers of beef and poultry meat in the EU-28 in 2019

No.	Poultry meat		Beef	
	country	thousand tons (in hew)	country	thousand tons (in hew)
1.	Poland	2,593	France	1,428
2.	United Kingdom	1,899	Germany	1,106
3.	Spain	1,705	United Kingdom	914
4.	France	1,698	Italy	780
5.	Germany	1,584	Spain	695
6.	Italy	1,366	Ireland	620
7.	Hungary	533	Poland	560
8.	Romania	448	Netherlands	424

Source: <https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tag00044&plugin=1> (access date: 25.11.2020).

The meat industry is the largest processing sector in the Polish food industry, as in 2018 (unpublished data from the Central Statistical Office and own estimate):

- the value of production sold (at basic prices) of the meat industry (PKD 10.11 and 10.13)² amounted to PLN 57.2 billion, accounting for 23.8% of the value of production sold of the whole food industry (including the tobacco industry), and together with the poultry industry (PKD 10.12) it amounted to PLN 71.5 billion (29.8%);
- the meat industry employed 92.9 thousand persons, which corresponded to 23.2% of labor resources in the whole food industry (including the tobacco industry) and together with the poultry industry – 110.3 thousand persons (27.6%);
- the share of the meat industry in Poland's GDP, measured by gross value added, amounts to 0.5-1.0%, and with the poultry industry – 0.7-1.2%.

Between 2011 and 2019, the number of meat industry companies (employing more than 9 persons) decreased by 13% to 1,021 companies, and the value of production sold within this sector at current prices increased by about 80% (from PLN 34.2 to 61.3 billion). In the poultry industry, the number of industrial enterprises remained at a relatively stable level (166-174 entities) and the value of production sold increased by about 17% (from PLN 13.2 to 15.4 billion)³ (Table 2). The meat and poultry industries, despite their increasing production concentration, are still considered to be fairly fragmented – the share of small companies in the value of production sold of the sector is 10-20%, and of small and medium-sized enterprises in total – 40-45% (Drożdż and Mroczek, 2020).

Table 2

Number of companies and the value of production sold within the meat industry^a (PKD 10.11 and 10.13) and the poultry industry^a (PKD 10.12)

Item	2011	2012	2013	2014	2015	2016	2017	2018	2019 ^b
Meat industry									
– number of companies	1,173	1,138	1,134	1,132	1,059	1,047	1,025	1,024	1,021
– value of production sold (billion PLN)	34.2	40.3	45.1	45.0	45.6	49.7	55.9	57.2	61.3
Poultry industry									
– number of companies	167	171	172	168	164	174	166	166	170
– value of production sold (billion PLN)	13.2	13.7	11.1	11.4	11.6	12.0	13.4	14.3	15.4

^a employing 10 and more persons, ^b estimate by the IAFE-NRI based on other data from the Central Statistical Office, i.e. data from companies submitting financial statements and information about producer prices and the production of large and medium-sized industrial companies

Source: own study based on unpublished data from the Central Statistical Office.

² In the Polish Classification of Business Activities (PKD), designations for major products of the meat industry (PKD 10.1) are as follows:

PKD 10.11 – processing and preserving of meat, excluding poultry meat,

PKD 10.12 – processing and preserving of poultry meat,

PKD 10.13 – production of meat products, including poultry meat products.

³ The decrease in the value of production sold in the poultry industry in 2013 resulted from changing the classification of business activities by meat companies rather than from an actual decline in the production of poultry meat, as some meat companies expanded their activities to include poultry meat.

The profitability of the meat and poultry industries is one of the lowest among all sectors of the food industry. Between 2011 and 2019, the net profitability of meat industry companies ranged from 1.95% to 3.01% and was by 1-2 percentage points lower than the food industry on average in (excluding the tobacco industry). An even lower profitability index was achieved by the poultry industry (from 1.03% to 3.19%) (Fig. 1). What is important is the fact that these are average profitability rates for both industries, which include companies with various production profiles. The lowest profitability among meat and poultry companies is achieved by entities which are involved solely in the slaughter of animals for slaughter – at a level of 1-2%. As a rule, companies involved in the slaughter and cutting of meat have a higher profitability, while those with a full production profile – i.e. slaughter + cutting + processing – have the highest profitability.

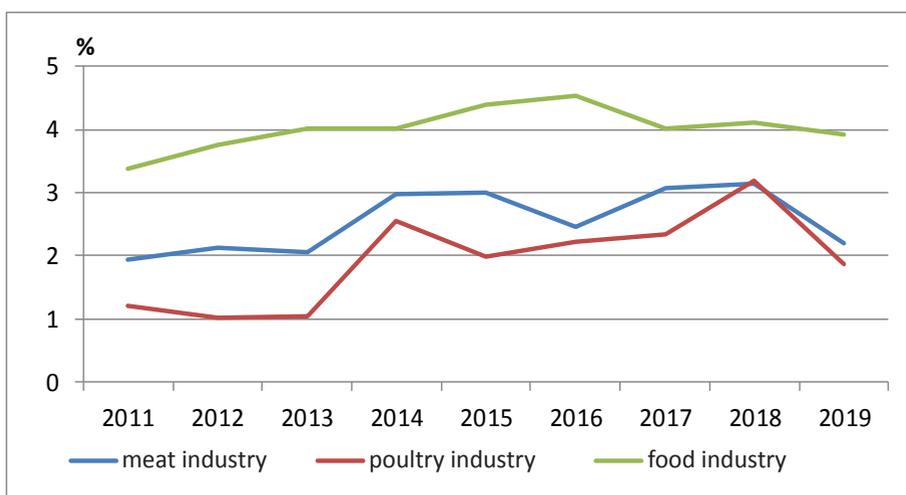


Fig. 1. Net profitability^a of the meat and poultry industries compared with the food industry (excluding the tobacco industry).

^a expressed by net profit in percentage of revenue

Source: own study based on unpublished data from the Central Statistical Office from F-01 financial statements submitted by various enterprises.

Between 2010 and 2018, livestock commodity production increased in current prices from PLN 33.2 to 53.8 billion, i.e. by 62%, and its share in the agricultural commodity production increased by 2.4 percentage points to 62.3%. This increase resulted mainly from the growing commodity production of live animals for slaughter, which increased by 69% (from PLN 18.7 to 31.6 billion). In the production of live animals for slaughter, the commodity production of live cattle increased the most – more than twice (from PLN 3.2 to 6.8 billion) and the production of live poultry recorded an equally quick, almost double, increase (from PLN 6.6 to 12.8 billion) (Table 3).

Table 3

Structure of agricultural commodity production in Poland

Item	2010		2015		2018 ^a	
	billion PLN	%	billion PLN	%	billion PLN	%
Agricultural commodity production	59.4	100.0	74.2	100.0	86.4	100.0
including:						
livestock production	33.2	55.9	43.4	58.5	53.8	62.3
including:						
of live animals	18.7	31.5	26.2	35.3	31.6	36.6
including: production of live:						
pigs	8.2	13.8	9.9	13.3	11.7	13.5
cattle	3.2	5.4	5.2	7.0	6.8	7.9
poultry	6.6	11.1	10.8	14.6	12.8	14.8

^a inconclusive data

Source: own study based on (GUS, 2019).

In a relatively short period, i.e. three years, the population of broiler chickens in Poland increased by 60% from 79.5 million head in 2013 to 127 million head in 2016. The percentage of these birds in the largest flocks numbering 10 thousand and more head increased by 4.2 percentage points to 97.9%, and the average size of the flock of broiler chickens increased by 70% (from 1,156 to 1,968 head) (Table 4).

The number of farms involved in rearing and breeding broiler chickens slightly decreased by 1.4% (from 65.4 to 64.5 thousand farms). The share of farms with flocks of 10 thousand or more broiler chickens increased by 1 percentage point to 3.8% in 2016 (Table 4). The presented changes and a large increase in the size of the average flock of broiler chickens (up to 1,968 head), amounting to 70%, attest to the growing concentration of production of poultry in Poland, as confirmed by the rapidly growing production and export of poultry meat.

Between 2013 and 2016, the population of cattle in Poland stood at a similar level of about 5.9 million head, whereby a decrease in the number of cows by 4.5% (from about 2.5 to 2.4 million head) was compensated by an increase in the population of other cattle (from about 3.4 to 3.6 million head). The number of farms involved in rearing and breeding cattle decreased by 19.1% to 343.2 thousand, and the number of farms with cows fell by more than 1/5 (decrease to 267 thousand), while the number of farms with other cattle increased by 8.6 thousand, i.e. by 12.7% (increase to 76.2 thousand) (Table 5). This demonstrates that small farmers abandoned milk production and that farmers are more interested in rearing cattle for slaughter.

Table 4

The population of broiler chickens and the number of farms involved in their rearing and breeding (as of June)

Item	2013	2016
Pogłowie brojlerów kurzych (mln szt.)	79.5	127.0
Structure of population by scale of rearing (flock size)		%
• 1-499 head	1.9	1.1
• 500-4,999 head	0.5	0.2
• 5,000-9,999 head	3.9	0.8
• 10,000 and more head	93.7	97.9
Average flock size (head)	1,156	1,968
Number of farms (thousand)	65.4	64.5
Structure of farms by scale of rearing (flock size)		%
• 1-499 head	96.4	95.8
• 500-4,999 head	0.2	0.2
• 5,000-9,999 head	0.6	0.2
• 10,000 and more head	2.8	3.8

Source: GUS, 2017.

Table 5

The population of cattle and the number of farms involved in rearing and breeding cattle (as of June)

Item	2013	2016	Change 2016/2013 %
Cattle population in total (thousand head)	5889.7	5951.3	101.0
including:			
• cows	2503.9	2366.9	94.5
• other cattle	3385.8	3584.4	105.9
Number of farms in total (thousand)	424.4	343.2	80.9
including:			
• farms with cows	356.8	267.0	74.8
• farms with other cattle	67.6	76.2	112.7
Average herd size of other cattle (head)	50.1	47.0	93.8

Source: GUS, 2017.

In 2017, industrial slaughter of poultry in slaughterhouses and abattoirs in Poland amounted to almost 1.2 billion head. The largest group of slaughtered birds were broilers and hens (1.1 billion head). In live weight, this was around 2.7 million

tons, accounting for 82.6% of the total volume of slaughtered poultry. Less popular positions, with markedly lower production, were occupied by: turkeys (14.2%), ducks (2.1%), and geese (1.1%) (Table 6, Fig. 2).

Table 6

Industrial slaughter of poultry in slaughterhouses and abattoirs^a in Poland in 2017

Poultry in total	including:				
	broilers and hens	ducks	geese	turkeys	other poultry, including ostriches
thousand head					
1,175,833.6	1,112,704.5	20,720.1	5,872.0	35,984.4	552.7
thousand tons in live weight					
3,313.3	2,736.4	68.6	36.5	470.7	1.2

^a according to data provided on the General Veterinary Inspectorate websites, in Poland there were about 160 poultry abattoirs

Source: GUS, 2018.

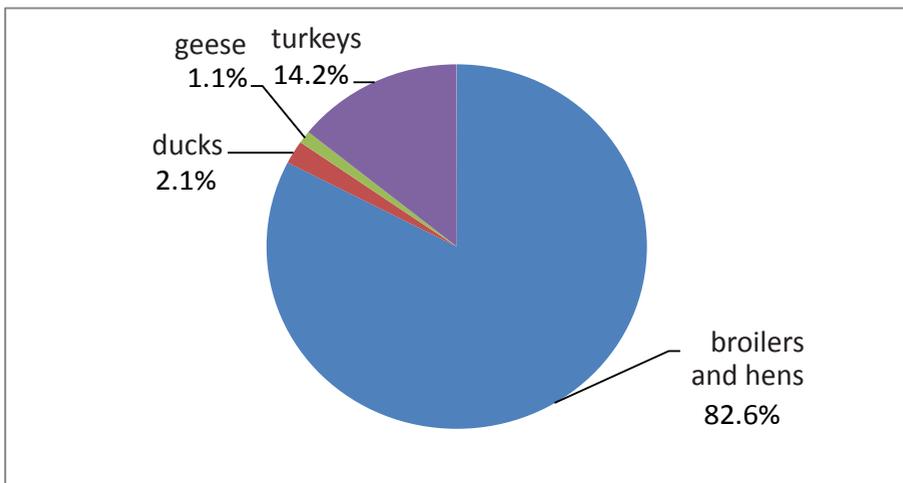


Fig. 2. Distribution of slaughter of poultry in terms of live weight (volume) of individual groups of birds.

Source: own study based on Table 6.

In 2017, nearly 2.0 million head of cattle were slaughtered in Poland. In terms of the number of slaughtered cattle, the largest group were bulls (961 thousand head), followed by cows (602 thousand head) and heifers (307 thousand head). About 64 thousand calves were also slaughtered, i.e. several times fewer than a few years ago, which is a positive phenomenon and indicates a greater interest on the part of farmers in fattening cattle until they reach a higher body weight. In live weight, bulls, cows, heifers, and calves accounted for 55.3%, 29.8%, 14.3%, and 0.5% of slaughtered cattle in total, respectively (Table 7, Fig. 3).

Table 7

Industrial slaughter of cattle in slaughterhouses and abattoirs^a in Poland in 2017

Cattle in total	Calves	Adult cattle in total	including:		
			heifers	cows	bulls
thousand head					
1,933.1	63.7	1,869.3	306.6	602.1	960.6
thousand tons in live weight					
1,119.2	5.8	1,113.4	160.5	333.8	619.1

^a according to data provided on the General Veterinary Inspectorate websites, in Poland there were about 300 cattle abattoirs

Source: GUS, 2018.

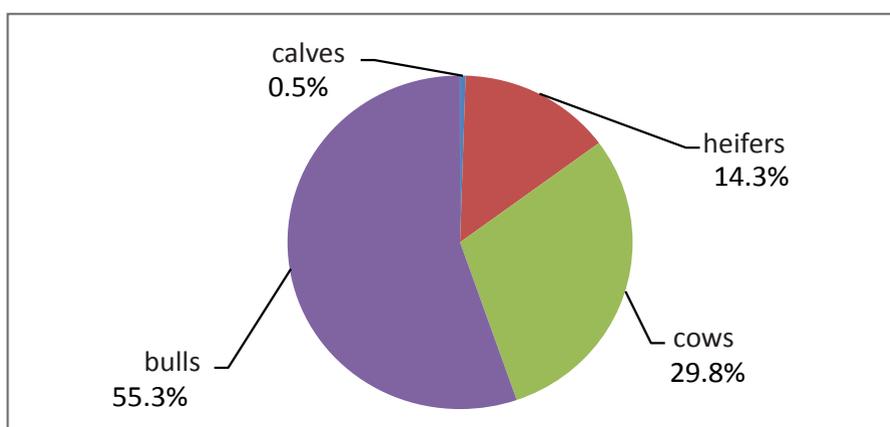


Fig. 3. Distribution of slaughter of cattle in terms of live weight (volume) of individual groups of cattle.

Source: own study based on Table 7.

Production of poultry meat and beef in Poland and major export destinations

Between 2010 and 2019, the production of poultry meat in Poland increased from 1,374 to 2,707 thousand tons in hot carcass weight, i.e. growing at a rate of 7.8% per annum, while the production of beef increased from 390 to 567 thousand tons (in hcw), i.e. increasing by 4.2% per annum (Tables 8 and 9).

In the years analyzed, i.e. 2010, 2013, 2016, and 2019, the major foreign outlet market for poultry meat from Poland were European Union countries, where 71-82% of meat sold was exported. The percentage of meat exported to the Commonwealth of Independent States (CIS) was 5.5%-10.8%, while the quantity of poultry meat exported from Poland to Muslim countries and countries where Judaism is the main religion was small and accounted for only 0.1-0.6% of the total export of poultry meat (Fig. 4).

Table 8

Production and export of poultry meat from Poland (in thousand tons hcw)

Item	2010	2013	2016	2019
Production of poultry meat	1,374	1,660	2,241	2,707
Export (code CN 0207) ^a	411.5	587.1	1,025.0	1,460.9
including:				
– EU-28	323.5	479.7	785.3	1,038.6
– CIS	30.2	32.2	74.1	111.8
– other countries	57.8	75.2	164.2	310.5
including:				
– Turkey, Bosnia and Herzegovina, Egypt, Iran, Israel	1.8	3.5	4.0	1.3
– other countries (Hong Kong, Ukraine, China)	56.0	71.7	160.2	309.2

^a meat and offal

Source: own study based on Rynek mięsa, 2014, 2016, 2018; data from the Ministry of Finance.

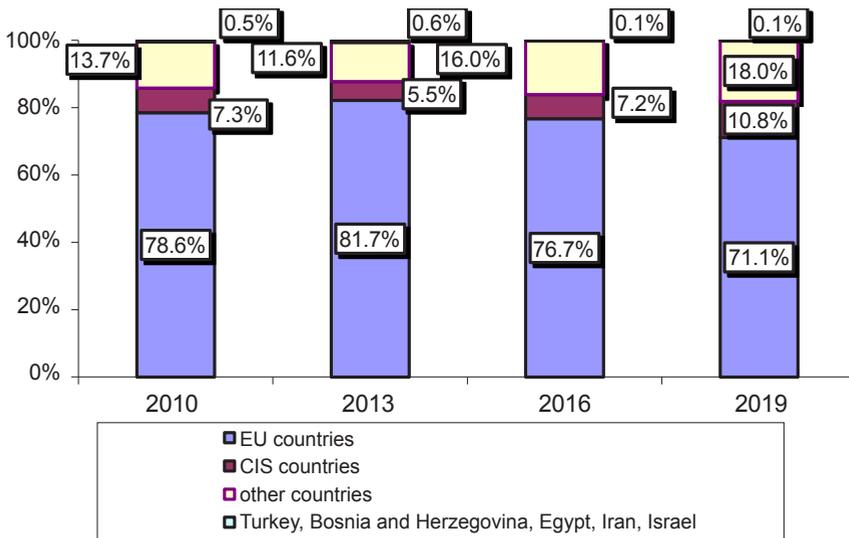


Fig. 4. Structure of the export of poultry meat (code 0207) from Poland in 2010, 2013, 2016, and 2019 (by sales destinations).

Source: own study based on Table 8.

Most beef produced in Poland is sold abroad and its main customers are the EU-28 countries. More than 85% of beef is exported there from Poland. Then, there is a group of countries, such as: Turkey, Bosnia and Herzegovina, Egypt, Iran and Iraq, i.e. potential customers of ritually slaughtered meat. According to the Ministry of Finance (MF) data on trade, 2.1%-10.3% of beef (codes 0201 and 0202) (Table 9, Fig. 5) was exported to these countries in the years analyzed.

Table 9

Production and export of beef from Poland (in thousand tons hcw)

Item	2010	2013	2016	2019
Production of beef	390.0	373.0	501.0	567.0
Export (code CN 0201 and 202) ^a	265.7	288.1	363.0	382.1
including:				
– EU-28	221.3	259.7	299.7	348.8
– CIS	12.0	18.2	5.9	1.5
– other countries	32.4	10.2	42.3	31.9
including:				
– Turkey, Bosnia and Herzegovina, Egypt, Iran, Israel	27.3	6.0	30.1	18.2
– other countries (Hong Kong, Ukraine, China)	5.1	4.2	12.2	13.7

^a 0201 – fresh and chilled beef, 0202 – frozen beef

Source: own study based on Rynek mięsa, 2014, 2016, 2018, 2020; unpublished data from the Ministry of Finance.

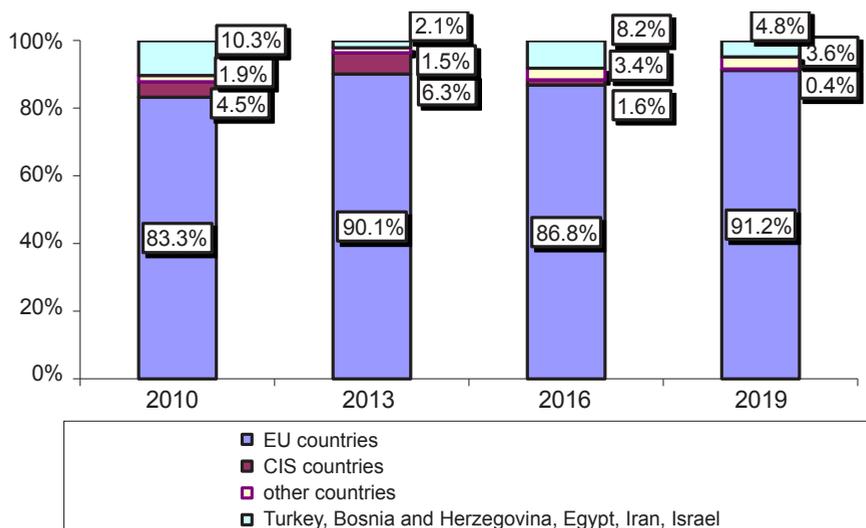


Fig. 5. Structure of the export of beef from Poland in 2010, 2013, 2016, and 2019 (by sales destinations).

Source: own study based on Table 9.

The export of poultry meat and beef was, and still is, a driver for the development of the production of these meat types in Poland, practically since its accession to the European Union. Between 2010 and 2019, the export share of poultry meat in its production increased from 29.8% to 54.0%, i.e. by 24.2 percentage points, while for beef it ranged from 67.0 to 77.8%⁴ (Table 10).

⁴ Taking into account the export of live animals and products, this share would be several percentage points higher.

Table 10

Production and export of poultry meat and beef

Year	Poultry meat		Share of export in production	Beef		Share of export in production
	Production ^a	Export ^b		Production ^a	Export ^c	
	thousand tons		%	thousand tons		%
2010	1,380.0	411.5	29.8	389.0	275.8	70.9
2015	1,988.0	849.6	42.7	476.0	370.0	77.8
2018	2,597.0	1,324.6	51.0	573.0	395.8	69.0
2019	2,707.0	1,460.9	54.0	567.0	382.1	67.0

^a in hot carcass weight (hew); ^b poultry meat (code 0207); ^c fresh and chilled beef (code 0201), frozen beef (code 0202)

Source: data from the Ministry of Finance and Central Statistical Office, 2019; Rynek mięsa, 2020).

Poland is a net exporter of meat, especially as regards poultry meat and beef⁵. In addition, the self-sufficiency rate for the production of beef and poultry meat is around 360% and 180%, respectively. In other words, the production of beef exceeds its consumption by 3.5 times and in the case of poultry meat the production is almost double its consumption (Mroczek, 2017).

$$\text{WSPM} = \frac{\text{production}}{\text{consumption}} * 100\%$$

where consumption = production + import-export

If we take into account the fact that the European Union is self-sufficient in the production of beef and has a surplus of about 7% in the production of poultry meat (USDA 2020), meat companies operating in Poland must look for outlet markets in other countries and adapt production to the needs of specific customers.

Our own estimates as well as those of two industry organizations, i.e. the Polish Meat Association and the Association of Polish Beef Cattle Producers (PZPBM) concerning the scale of poultry and cattle religious slaughter in Poland, indicate that from 2015 to 2017 the average production of halal and kosher poultry meat in Poland was between 200 and 500 thousand tons, which accounted for 9-22% of total poultry meat produced and 20-47% of its export volume (Table 11). Therefore, these quantities are significant, both for producers and processors of poultry meat, and a prohibition on the sale of such meat could disrupt the entire poultry sector in Poland (all the more since 50% of production is to be exported). The slaughter of poultry for religious purposes is related to a specific order for this type of meat (batch of product) and 40-50 plants have been prepared to provide such a “service” (Mroczek, 2018).

⁵ In terms of pork, Poland is a net importer.

Table 11

*Production of poultry meat and beef in Poland for religious purposes
(on average from 2015 to 2017)*

Item	Poultry meat			Beef		
	Production for religious purposes (thousand tons)	Share of <i>kosher</i> and <i>halal</i> meat		Production for religious purposes (thousand tons)	Share of <i>kosher</i> and <i>halal</i> meat	
		in production (%)	in export (%)		in production (%)	in export (%)
Polish Meat Association	450-500	22	47	100	19	26
Association of Polish Beef Cattle Producers	.	.	.	120	23	32
Own estimate	200	9	20	60	12	16

Source: own study based on unpublished data from the Polish Meat Association, the Association of Polish Beef Cattle Producers and on own estimates.

The estimated quantity of beef obtained from religious slaughter ranged from 60 to 120 thousand tons, which accounted for 12-23% of the production volume and 16-32% of the volume of meat sold abroad (Table 11). The slaughter of cattle without prior stunning is more extreme than that of poultry, where on the production line it is enough to disconnect an electrical impulse which makes the birds unconscious.

The slaughter of animals for slaughter (poultry and cattle) carried out in Poland for religious purposes is geared towards export (to countries where only such meat is consumed, or which are inhabited by a significant population of followers of Islam or Judaism) and is mainly motivated by economic factors. The domestic demand is relatively low due to the small percentage of national minorities, i.e. Muslims and Jews.⁶

Carrying out such slaughter is a way of increasing the revenues and profits of the meat industry, and thus also results in the development of production and an increase in income for producers of cattle and poultry for slaughter, thereby stimulating an additional demand for live cattle and poultry. The greater diversification of outlet markets, in the context of highly volatile global markets resulting from various factors, mitigates risk in the production of meat.

In September 2020, the Sejm received a deputies' bill regarding an amendment to the Act on the protection of animals, commonly known as the "Five for Ani-

⁶ During the Polish Census of 2011 (GUS, 2012), 97.1% of respondents (including those declaring a second nationality) declared Polish nationality. National minorities living in Poland and potential consumers of halal and kosher meat, i.e. Jews, Armenians, Tatars, Arabs, and Turks, amounted to about 15.5 thousand people, half of whom were Jews. Within this group we should also include foreigners living in Poland, but they would not significantly increase the population of Muslims and Jews. The largest European Muslim community, of about 4 million people, lives in France.

mals”. One of its points applies to the introduction of a ban on the slaughter of animals for slaughter for religious purposes (except for religious communities for their own needs). However, there is no reliable, confirmed data on the scale of this slaughter and the number of facilities involved (Bryła, 2020).

Therefore, the simulations carried out, based on the assumptions made, only represent certain estimates of possible economic losses that the meat and poultry industries and producers of live cattle and poultry may suffer.

Assumptions

1. The value of the commodity production of live cattle and poultry and the value of export of beef and poultry meat of 2019 (GUS, 2020; Ministry of Finance).
2. The share of beef obtained from religious slaughter in the total export of beef was given three estimates (20%, 30%, and 40%), while for poultry meat estimated shares of 35%, 45%, and 55% of the export of poultry meat were adopted.
3. Sales margins for meat from religious slaughter were assumed to be the same for beef and poultry meat, i.e. 5.0%, 7.5%, and 10.0 %.
4. A possible decrease in the procurement prices of live cattle and poultry due to the ban on the religious slaughter of cattle and poultry by 5.0%, 10.0%, and 15.0%.

Simulation account for the beef market (processors and producers of cattle for slaughter) for 2019

1. The value of the commodity production of live cattle – PLN 6,537 million.
2. The export volume of beef (code 0201 – fresh, chilled beef and code 0202 – frozen beef) – 382.1 thousand tons (worth PLN 6,008 million)
 - the share of meat from religious slaughter: 20%, 30%, and 40% of the export volume of beef, which gives about 76, 115, and 152 thousand tons and in value terms PLN 1,202, 1,808, and 2,404 million, respectively.
3. The value of sold beef from religious slaughter reduced by margins: 5.0%, 7.5%, and 10.0%
 - with a sales value of PLN 1,202 million (potential loss from PLN 60.1 to 120.2 million),
 - with a sales value of PLN 1,802 million (potential loss from PLN 90.1 to 180.2 million),
 - with a sales value of PLN 2,404 million (potential loss from PLN 120.2 to 240.4 million).
4. A decrease in the procurement prices of live cattle from 5% to 15% (in relation to the value of the commodity production standing at PLN 6,537 million), may result in a decrease in the value of production sold for producers of live cattle, from PLN 327 to 981 million.

Simulation for the poultry meat market (processors and producers of live poultry) for 2019

1. The value of the commodity production of live poultry – PLN 13,576 million.
2. The export volume of poultry meat (code 0207) – 1,461 thousand tons (worth PLN 11,240 million)
 - the share of meat from religious slaughter: 35%, 45%, and 55% of the export volume of poultry meat which gives about 511, 657 and 804 thousand tons and in value terms PLN 3,934, 5,058 and 6,182 million, respectively.
3. The value of sold poultry meat from religious slaughter reduced by margins: 5.0%, 7.5%, and 10.0%
 - with the sales value of PLN 3,934 million (potential loss from PLN 196.7 to 393.4 million),
 - with the sales value of PLN 5,058 million (potential loss from PLN 252.9 to 505.8 million),
 - with the sales value of PLN 6,182 million (potential loss from PLN 309.1 to 618.2 million).
4. A decrease in the procurement prices of live poultry from 5 to 15% (in relation to the value of the commodity production standing at PLN 13,576 million) may result in a decrease in the value of production sold for producers of live poultry from PLN 679 to 2,037 million.

Adopting the average values of exported meat from religious slaughter – beef at a level of 30% of the export of beef and poultry meat at a level of 45% of the export of poultry meat, the value of these markets in 2019 amounted to PLN 1,808 and 5,058 million, respectively, which gives a total of PLN 6,866 million. In terms of the meat and poultry industries, profits with a 5% margin on the sale of meat from religious slaughter could amount to PLN 90 million (in the case of beef) and PLN 253 million (in the case of poultry meat), which gives a total of PLN 343 million, and with a 7.5% margin the profit would increase to about PLN 515 million and with a 10% margin – to about PLN 686 million. Such profits (in the form of a higher margin) would not be gained by the meat and poultry industries after introducing a ban on religious slaughter in Poland (except for religious communities). If we take into account the fact that religious slaughter is only carried out by some entities (60-100 slaughterhouses), then the economic consequences resulting from a potential ban on this form of slaughter would be even more severe for these companies.

It should be assumed that meat from religious slaughter is more expensive than from “humane” slaughter (with stunning). How much more expensive is it? It is a trade secret, and probably the most valuable cuts of meat fetch the highest margins. The Act in process, in the point regarding the ban on religious slaughter, in its original form assumed an entry into force of 12 months after the date of publication of this Act⁷. It also provided for compensation for potential losses, but without providing

⁷ The period for the entry of the above-mentioned Act into force is shorter, and the market disruptions are stronger (price fall, no time to fulfill contracts concluded or to find new customers).

any details for whom and in what amount. Other market participants, including, *inter alia*, producers of feedstuffs and chick hatcheries, would also be affected by the possible limitation of the production of beef and poultry meat, as a result of the deterioration in the profitability of production due to the ban on religious slaughter.

In addition, other factors should be considered, which may, directly or indirectly, harm the beef and poultry meat markets in Poland in the near future, in the context of the possible introduction of a ban on religious slaughter, namely:

1. Following the withdrawal of the United Kingdom from the European Union on January 31, 2020, a transition period started, which will last until December 31, 2020. It is not known how the final phase of Brexit is going to end (whether a new trade agreement between the United Kingdom and the European Union will be negotiated), and this is important for Polish poultry and beef processors, as between 2017 and 2019 Poland exported to the United Kingdom 53.3 thousand tons of beef worth PLN 1,012 million and 330.7 thousand tons of poultry meat worth PLN 3,936 million.
2. The return of avian influenza to Poland at the end of 2020, which means the closure of third markets (as recently as December 2019, outbreaks of avian influenza in Poland were recorded and only in August 2020 was Poland declared free of this disease).
3. The difficult situation in the market of live pigs as a result of the spread of ASF and the deterioration of the profitability of pig production puts price pressure on the beef and poultry markets.
4. In December 2020, the President of the Republic of Poland was submitted an amendment to the Act on postponing the date when the ban on the use of genetically modified feed in animal nutrition would enter into force until January 1, 2023. A previous amendment to the Act of November 22, 2018 amending the Act of feedstuffs (Ustawa..., 2018) extended the moratorium on the use of GMO feedstuffs until January 1, 2021.
5. It remains unknown how the SARS-CoV-2 coronavirus pandemic is going to play out, whether trade restrictions will be imposed and whether a lockdown will be reintroduced (Mroczek, 2020).
6. The sector most affected by the COVID-19 pandemic was the HoReCa sector, which has developed rapidly in recent years and has been a regular customer of high-quality meat (including, *inter alia*, beef). Its recovery may take a lot of time.
7. An increase in the minimum pay in the economy also increases labor costs in meat and poultry companies, as the rate of pay in these industries is one of the lowest among the food sectors.

Conclusions

The volume of cattle and poultry slaughtered in Poland for religious purposes is difficult to be accurately quantified due to the lack of data on this phenomenon. Estimates carried out show that from 2015 to 2017, i.e. after lifting the ban on such slaughter in Poland (end of 2014), halal and kosher meat obtained in this way could have accounted for 12-23% of the total production and 16-32% of export (in quantitative terms) for beef, while in the case of poultry meat it could amount to 9-22% and 20-47%, respectively.

The slaughter of animals for religious purposes carried out in Poland is geared towards the export to countries where only such meat is consumed or to those inhabited by a significant population of followers of Islam or Judaism. The main customers of halal beef are Muslim countries (Turkey, Bosnia and Herzegovina, Egypt, Iran) as well as Germany, France, and the Netherlands, due to a large population of Muslims. In the case of halal and kosher poultry meat, its main customers are EU countries (inter alia, Germany, France, the United Kingdom).

A deputies' bill, recently in process, on amending the Act on the protection of animals and certain other acts, commonly referred to as the "Five for Animals" and prohibiting the religious slaughter of cattle and poultry in Poland entails adverse economic consequences for the meat and poultry industries and producers of live cattle and poultry, as well as potential losses for other participants in these markets, i.e. feed companies and chick hatcheries.

Simulations of economic consequences of introducing the ban on religious slaughter of animals for slaughter in Poland (mainly cattle and poultry), exclusive of religious communities, indicate losses to be suffered by the meat and poultry industries, and, in particular, by some companies (slaughterhouses), involved in the slaughter of cattle and poultry without prior stunning, as well as by producers of cattle and poultry for slaughter. The amount of potential losses (according to the assumptions adopted in the study) for companies involved in the slaughter of cattle for religious purposes could amount to PLN 60-240 million PLN and from PLN 197-618 million per annum for poultry companies. For producers of cattle for ritual slaughter, losses as a result of a possible fall in the procurement prices, due to the lower demand for live cattle, could amount to PLN 327-981 million and for producers of poultry for ritual slaughter – PLN 697-2,037 million.

The Act under process was not preceded by a substantive discussion, a real recognition of the scale of this phenomenon (the volume of slaughters of cattle and poultry for religious purposes), and the identification of how many slaughterhouses (abattoirs) carry out this form of slaughter. At the moment, the future of this Act is unknown, so are any potential amendments to the original version (deputies' bill submitted).

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UBÓJ RELIGIJNY ZWIERZĄT RZEŹNYCH W POLSCE

Abstrakt

Celem niniejszego opracowania jest pokazanie różnych aspektów związanych z ubojem bydła i drobiu w Polsce na potrzeby religijne oraz próba oszacowania skali tych ubojów i ewentualnych strat ekonomicznych dla firm przemysłu mięsnego i drobiarskiego, gdyby został wprowadzony zakaz uboju religijnego. Ubój zwierząt rzeźnych w Polsce na potrzeby religijne odbywa się na skalę przemysłową i dotyczy przede wszystkim dwóch gatunków zwierząt, tj. bydła oraz drobiu. Jego wielkość można określić tylko na podstawie szacunków, które w przypadku bydła mogą wynosić 20-40%, a drobiu 35-55% wolumenu eksportu, co w wartościach bezwzględnych odpowiadałoby 75-150 tys. ton mięsa wołowego i 500-800 tys. ton (w wadze bitej ciepłej) mięsa drobiowego. Nie są to więc małe ilości. Ewentualne wprowadzenie zakazu uboju zwierząt rzeźnych na potrzeby religijne w Polsce (z wyjątkiem gmin wyznaniowych) oznaczałoby wymierne straty finansowe dla branży mięsnej i drobiarskiej oraz producentów bydła rzeźnego i drobiu. Do określenia zmian w czasie posłużono się odpowiednimi wskaźnikami. Przeprowadzono analizę opisową i graficzną danych statystycznych oraz wykonano rachunek symulacyjny.

Słowa kluczowe: ubój zwierząt, bydło, drób, religia, handel zagraniczny.

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