



**Project n° 043969
PIGCAS
Attitudes, practices and state of the art
regarding piglet castration in Europe**

**Deliverable D2.4
Report on the practice of castration**

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PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Objectives

To gather and evaluate the available information about the extent of the practice of castration in male and female pigs and evaluate possible interactions with other painful husbandry practices such as tail docking and teeth resection. To gather and evaluate available information about the conditions under which castration is performed in the various EU member states and associated states

Expected results

- Assessment of the extent of the practice of castration of male and female pigs, and its variation between countries
- Assessment of the conditions under which castration of male and female pigs is performed, and its variation between countries
- For comprehensiveness, all the different kinds of production systems that are active in a country are to be considered, even those that operate on a smaller scale

Guidelines

The WP2 leader was, together with the regional co-ordinators, responsible for developing guidelines and questionnaires for collection of data. All National contacts received a spreadsheet to report the data.

Collecting the data

The data were collected by the National Contact persons in the different countries, supervised by the regional co-ordinators for the four different regions. Each National Contact translated the questionnaire into their own language. Each National Contact also prepared a list of stakeholders to whom they distributed the questionnaire. The stakeholder lists for WP2 were assumed to include pig health services (if existing), farmers (pig farmers) organisations (if existing, special organisations for the different production systems), veterinarians organisations and meat industry /slaughterhouses. In a few countries public/government administration and animal welfare organisations were also included.

A total of 276 unique answers were received. Fifteen of the answers were representing more than one production system, giving a total of 295 observations in the final dataset. The numbers of respondents from each country varied from 1 to 47. When data from a country were already available (Norway), there was no need to distribute the questionnaire. In countries where appropriate organisations could not be found, also individual farmers answered the questionnaire. The numbers of respondents from the different countries can therefore not be directly compared, since some represent single stakeholders and others are collective answers. If several production types were present in a country, we tried to get information from all of them. Questionnaire data were collected from 25 countries. It was unfortunately not possible to collect these data from Malta, Romania and Bulgaria. From Luxembourg the data were received too late to be incorporated in the report, but are attached in Amendment 1. The distribution of respondents by production type, region and stakeholder category is given in Table 1. Because the distribution of stakeholder categories within each country (and region) was very different, it was not possible to analyse possible differences in the answers between the different stakeholder categories.

Table 1. Distribution of answers to the questionnaire on practice in WP2 by production system, stakeholder category and region.

Production system	N	Stakeholder category	Region				Total
			Centre -West	East	North	South	
Conventional	254	Farmers/breeders	29	50	7	108	194
		Slaughter houses/meat industry	4	0	2	0	6
		Veterinarians	13	8	9	0	30
		Pig health services/combinations	6	4	6	0	16
		Other/unknown	8	0	0	0	8
		<i>Total</i>		<i>60</i>	<i>62</i>	<i>24</i>	<i>108</i>
Organic	26	Farmers/breeders	12	2	1	0	15
		Slaughter houses/meat industry	1	0	0	0	1
		Veterinarians	4	0	1	0	5
		Pig health services/combinations	2	0	2	0	4
		Other/unknown	1	0	0	0	1
		<i>Total</i>		<i>20</i>	<i>2</i>	<i>4</i>	<i>0</i>
Other	15	Farmers/breeders	6	2	0	1	9
		Slaughter houses/meat industry	0	0	0	0	0
		Veterinarians	3	0	1	0	4
		Pig health services/combinations	1	0	0	0	1
		Other/unknown	1	0	0	0	1
		<i>Total</i>		<i>11</i>	<i>2</i>	<i>1</i>	<i>1</i>
Total	295	Total	91	66	29	109	295

For the pig industry data, the original data source was Faostat. These data were checked by the National Contacts persons, and if corrections have been made, the additional data sources are given. Data for mean carcass weights for 2006 were given by the National Contact persons and from Eurostat.

Interpretation of the data

The data were checked by the regional co-ordinators and by the WP2 leader. When obvious mistakes/misunderstandings were detected, corrections were made by the WP2 leader in co-operation with the National Contacts and the regional co-ordinator.

Each respondent was asked to give answers that were representative of the type of production he/she represented. In spite of this, for some countries the discrepancy in the data was considerable. Since the evaluation of the reliability of the data in most cases was rather difficult, the results are given in a form that demonstrates the diversity of the answers. All answers were given equal weight when mean numbers were calculated. The interpretation of distributions and average numbers should therefore be done with caution.

Collection and interpretation of data in the different countries

Central/western region

Austria

In Austria, questionnaires (German version) were sent electronically to representatives of breeders/farmers/vets/animal health service (3-5 people in each group, some of them also answering WP1). After one month, a reminder was sent to all of them, with a deadline of another week. Due to summer holiday time, some answers arrived late or not at all, however, in total 11 questionnaires were returned - most of them electronically. All relevant groups of organisations and main pig producing regions were represented and conventional as well as organic production included.

Belgium

In Belgium, the PIGCAS questionnaire concerning piglet castration was completed by the main stakeholders in the pig production process. Most people were approached by mail and/or telephone and, after they agreed to cooperate and had chosen their preference language, a translated Dutch, French (as used in France) or original English version of the questionnaire was sent by post. Seven representative organisations for pig producers, feed companies and breeders, one organic pig producers' organisation, three slaughterhouses and one veterinarian association were involved. Organic pigs are only a small minority within the Belgian pig population (less than 1%), and consequently only one representative of the organic production system filled in the questionnaire. Some of the stakeholders assumed that the practice of castration was not different for conventional versus organic pig herds.

France

A total of thirteen answers were collected in France: six from representatives of pig producers (4 for conventional production, 2 for "niche" production), 2 from "field" veterinarians (1 for conventional production, 1 for organic production), 3 from advisors at the Chamber of Agriculture, 1 from a teaching veterinarian (vet school), 1 from a researcher (the questionnaire was filled using the results of a survey done in 6 conventional farms). The questionnaire was explained either during a meeting or by telephone. Eleven responses were returned by e-mail or by post, 2 were obtained by telephone interview. Most of the respondents, especially pig producers, consulted other people to fill the questionnaire. Responses to most of the questions did not differ very much between respondents, the biggest diversity being for the age at castration.

Germany

Requests to fill out a questionnaire within approximately 4 weeks were sent out electronically to 28 stakeholders. One week before the deadline they received a reminder for doing this. A total of 9 responded. Most responded electronically, but a few filled it out by hand and sent it via regular mail. Some stakeholders received and answered to both WP 1 and WP 2 questionnaires.

Netherlands

In the Netherlands, the original questionnaire (in English) was used because most of the people interviewed can read English very well. Most people were approached by telephone and, after they agreed to cooperate, the questionnaires were sent by e-mail. Unfortunately, because of the holidays in that period it was not always possible to contact the right people and some people didn't deliver the results, despite the fact that they had promised to do so. In most cases, the answers were returned by e-mail, in a few cases by post.

Switzerland

In Switzerland, there is one professional pig producers organisation and one association for swine medicine. One representative of each organisation was asked to fill in the questionnaire electronically. For the association for swine medicine, a further representative submitted a questionnaire. Organic pig production in Switzerland is not very important and the methods used hardly differ from the ones of conventional production. Additionally, the representative of an animal friendly production program (kag) filled in a questionnaire. Therefore the dataset of Switzerland is based of the questionnaires of four respondents. Since castration has been an important topic for some years in Switzerland, the respondents are considered as very well informed. The responses are largely consistent. Therefore, the information given can be considered as reliable.

Northern region

Denmark

In Denmark, the original questionnaire (in English) was used because the people interviewed can read English very well. The Danish data are results from two Danish organisations closely connected to the Danish pig production. Specialist members of both organisations have contributed with collective answers.

Estonia

The stakeholders were contacted by phone at first and thereafter the questionnaires were sent by e-mail. The stakeholders were selected by the National Contact using information available beforehand.

Finland

In Finland, pig production consists of conventional production. The answers about the castration practices were collected from veterinarians working closely in pig practice. The information is considered to be reliable. Very few organic pig herds exist in the country, but these herds also castrate the male piglets the same way as conventional herds.

Ireland

In Ireland, representatives of the main Stakeholder groups (Producers – Irish Farmers Association; Slaughterhouses and Meat Industry- Glanbia and Dawn Pork and Bacon; Veterinarians - Veterinary Ireland) were targeted as participants in the PIGCAS work package 2 survey. The answers are considered to be representative for castration practice in Ireland. In Ireland, pig production is almost exclusively conventional production with male pigs left entire.

Latvia

In Latvia, the National Contact made contact with stakeholder organisations of veterinarians and pig producers, which indicated their representatives. In addition, individual pig producers in organic production were asked to fill in the questionnaire because there are no organisations for organic pig producers in Latvia. The stakeholders were contacted by phone at first and after that the questionnaires were sent and received by e-mail.

Lithuania

The Lithuanian data were results from stakeholders who are closely connected to pig breeders and from professionals who work directly in pig farms. In Lithuania, pig production is mostly conventional. Stakeholders were first contacted by phone and questionnaires were then sent by e-mail.

Sweden

In Sweden, pig production is mostly conventional (less than 1% organic). With regard to piglet castration, the organic herds are usually not different from the conventional ones, but a few organic herds may use entire male pigs and low slaughter weight.

UK

In the UK, the National Contact identified stakeholder organisations representing the veterinary and producer sectors. As the responses were expected to be short (in many cases there is no castration) the survey was conducted by telephone interview with known contacts at the stakeholder organisations. In addition to this, responses were collected from representatives of the Farm Assurance schemes. Membership of the assurance schemes is an important prerequisite for marketing pigs in the UK and the castration of pigs is excluded by the standards they apply. The telephone interviews were also used as an opportunity to secure commitment to complete the WP1 questionnaire.

Norway

In Norway, a survey about piglet castration was performed in 2004. The results of this survey, that was based on answers from 211 veterinarians and 264 pig producers, were the main source for answers to the PIGCAS questionnaire from Norway. The very few questions that could not be answered from the survey (mostly about interaction with other painful procedures), were answered by the National Contact, together with the leader of the National Pig Health Services. The answers are considered to be representative for castration practice in Norway. In Norway, the pig production is almost exclusively conventional production. However, the very few existing organic herds are not assumed to be different from the conventional ones in respect to piglet castration practice.

Eastern region

Czech Republic

In the Czech Republic, no stakeholder responded to the questionnaire before the deadline. Therefore, the National Contact answered in co-operation with a veterinary colleague, trying to describe the "average" situation in pig castration.

Poland

Questionnaires (WP1 and WP2) were sent by mail to 100 persons (breeders, groups and associations of pig breeders, feed companies, slaughterhouses, federation of consumers, animal welfare organizations (NGO), veterinarians, government administration). Many of the stakeholders were visited personally. A total of 14 WP2 questionnaires were returned. Questionnaires were sent to breeders in the whole country, but the highest number of questionnaires were sent to breeders in Wielkopolska and Kujawy, where pigs production is at the highest level and is the best in Poland.

Slovakia

The questionnaires were sent to 31 stakeholders (pig producers and veterinarians representing all regions of Slovakia) by post or e-mails. The answers were received from 7 stakeholders (all producers) and they were delivered by post. Some stakeholders filled out the questionnaires to both WP1 and WP2.

Slovenia

In Slovenia, pig production is concentrated mainly in the north-eastern part, with a noteworthy share also in the south-eastern part of Slovenia. All big pig enterprises are located there and three branch offices of the Chamber of Agriculture and Forestry cover that terrain. Market

oriented pig producers practice “conventional” type of rearing. At present, the organic production is practically non-existent. In conventional pig production, we can distinguish among big scale producers (enterprises) having their own veterinary service and small scale producers (family farms) who use services of commercial veterinary clinics and the advisory service of the Chamber of Agriculture and Forestry for their needs. Castration is performed mainly by producers themselves i.e. big enterprises have their own veterinary dispensary and technicians to perform castration, while on family farms, the farmers themselves perform castration or they call local veterinary clinic (rarely or in case of complications). Questionnaires on WP2 - practice in castration were thus sent to veterinary dispensaries of big pig producers (n=5; all responded), to commercial veterinary clinics (n=2, very few responded) and to local advisors at the Chamber of Agriculture and Forestry who responded for their members-farmers (n=3; all responded).

Southern region

Greece

The data from Greece are all from the producer/breeder category and are mostly from one region. Still, the data are expected to be representative of what is the situation in the other regions of Greece as well.

Italy

In Italy, a seminar was organised with stakeholders in order to introduce and explain the documents (guideline and questionnaires, translated into Italian). The questionnaires were sent twice to the different categories of stakeholders and many telephone calls were made. However, we had good feedback only from breeders. In general, stakeholders did not want to answer the WP2 questionnaire, because they considered operative aspects not in their duties. In Italy 28 questionnaires were collected, all from breeders.

Portugal

The questionnaires in Portugal were sent by mail and the approach was made considering the different breeder associations affiliated in the Portuguese Federation of the Pig Breeders Associations. From the twenty questionnaires distributed, fourteen were completed (70%), by six different pig breeder associations. From these, three questionnaires were answered by an Association of extensive pig production (Alentejano breed).

Spain

In Spain, almost all the questionnaires were sent by e-mail. Two questionnaires were filled by interview, and one arrived by post. From the thirty questionnaires sent to pig producers, only twelve were completed (40%). At first, questionnaires were sent to pig producers' associations, but the most of them didn't answer, alleging lack of information related to the castration practices carried out by their members. In spite of this, a Catalan pig producers association delivered the questionnaire to all his members, but only one of them returned a filled questionnaire to us. Some reminders via telephone were needed to obtain questionnaires from the producers that did not answer. There is no information about whether the questionnaire was answered by the producer or the veterinarian of the farm.

Other countries

From Cyprus, Hungary and Luxembourg, no special information about the collection and interpretation of the data was received, but the data were collected through the PIGCAS project. From Cyprus, 20 questionnaires were received, from pig breeders only. From Hungary, 22 questionnaires were received, mainly from the farmer/breeder category. From Luxembourg, the Administration des Services Vétérinaires answered the questionnaire.

Review of the pig industry

The 27 EU countries produce about 250 million pigs for slaughter per year (Fig. 1). About two thirds of these are produced in in five countries: Germany (20%), Spain (16%), France, Poland and Denmark (about 10% each)(Fig. 2).

Overall, the mean carcass weights have been rather stable at 86-88kg for the last ten years (Fig. 3). However, there are considerable variations between countries (Figs.3-5), and also within countries over time. In a historical view, including the last 40-50 years, carcass weights have increased. Probably, a corresponding increase in boar taint would have been experienced if castration was not routinely performed in most countries.

Table 2. Statistics on number of pigs slaughtered in EU, and selected other countries (Numbers are millions of heads) 2002-2006.

	Total 2002 (Millions)	Total 2003 (Millions)	Total 2004 (Millions)	Total 2005 (Millions)	Total 2006 (Millions)
Austria	5.4	5.4	5.4	5.3	5.4
Belgium	11.1	11.3 ²	11.1 ²	10.9 ²	10.7
Bulgaria	3.2	1.0	1.0	0.9	
Cyprus	0.7	0.7	0.7	0.7	0.6
Czech Republic	4.5	4.4	4.1	3.8	4.0
Denmark	22.4	22.5	22.9	22.9	21.4
Estonia	0.5	0.5	0.5	0.5	0.4
Finland	2.1	2.3	2.4	2.4	2.4
France	26.6	26.5	25.3	24.9	25.5
Germany	44.3	45.4	46.9	48.3	50.1
Greece	2.2	2.2	2.2	2.2	2.0
Hungary	6.6	5.4	5.2	4.9	5.2
Ireland	3.1	2.9	2.7	2.8	2.7
Italy	13.3	13.6	13.6	13.0 ⁴	13.4
Latvia	0.5	0.5	0.5	0.5	0.5
Lithuania	1.1	1.3	1.3	1.4	1.3
Luxemburg	0.1	0.1 ⁵	0.1	0.1	0.1
Malta	0.1	0.1	0.1	0.1	0.1
Netherlands	15.4	13.9	14.3	14.5	14.0
Poland	23.0	25.3	23.1	22.5	24.3
Portugal	5.1	5.2	5.0	5.1	5.4
Romania	5.3	6.3	4.6	4.4	
Slovak Republic	2.1	2.0	1.8	1.5	1.3
Slovenia	0.7	0.8	0.9	0.9	0.4
Spain	37.0	38.2	37.8	38.0	39.3
Sweden	3.3	3.3	3.4	3.2	3.0
UK	10.6	9.4	9.2	9.2	9.1
Norway	1.3	1.3	1.5	1.5	1.4
Switzerland	2.7	2.6	2.6	2.7	2.9 ³

Main source: Faostat

Other sources:

(2) FOD Economie - Algemene Directie Statistiek, Landbouwstatistieken België

(3) Proviande, (http://www.proviande.ch/statist_moza_archiv06.htm)

(4) Istat

(5) Eurostat

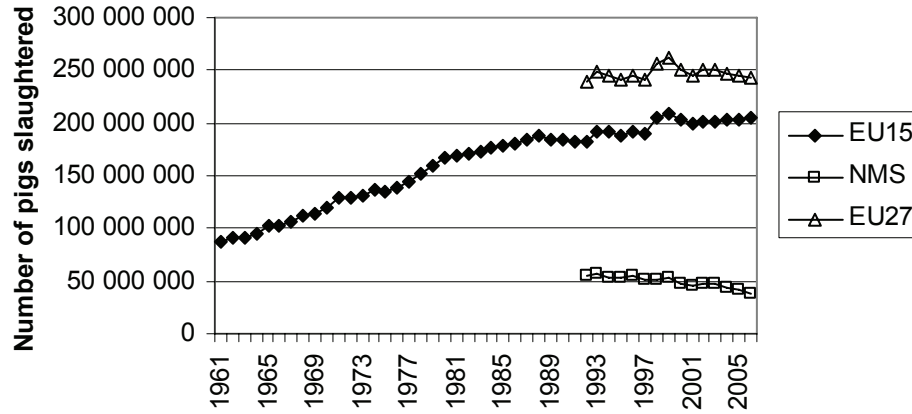


Figure 1. Number of pigs slaughtered per year in the period 1961-2005 in the EU 15, the new member states (NMS) and EU27.

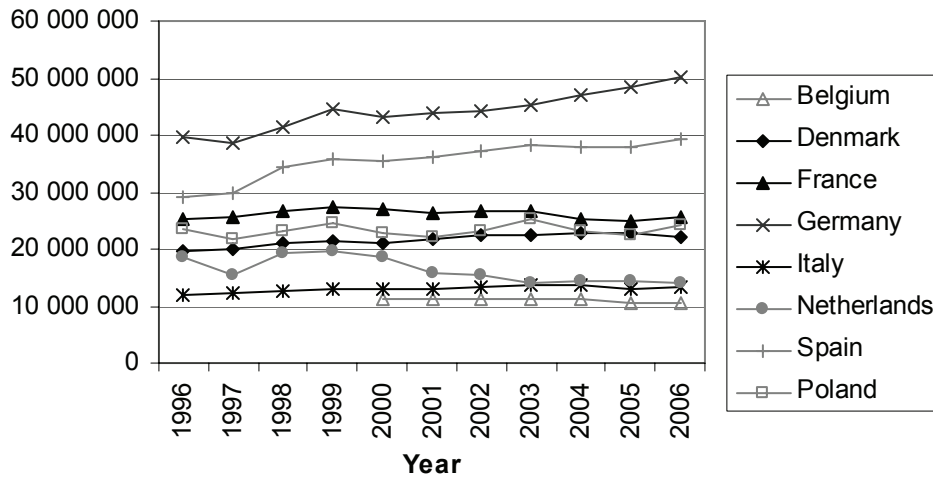


Figure 2. Number of pigs slaughtered in countries with more than 10 million pigs slaughtered per year

Table 3. Mean carcass weight of pigs slaughtered in EU, and selected other countries 1996-2006

Country	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Austria	91.5	94.5	97.5	98.7	92.4	93.9	95.6	95.4	95.4	95.8	94.2
Belgium					93.8	94.2	93.7	91.0 ²	94.8	93.1 ²	93.9 ²
Belgium/Luxemb. Luxembourg	92.2	92.2	93.1	94.4	71.5	91.6 ⁵	94.7 ⁵	95.1 ⁵	94.7 ⁵	94.5 ⁵	94.4 ⁵
Denmark	75.7	76.5	77.7	77.1	77.5	78.5	78.6	78.3	79.0	78.6	81.2
Finland	81.8	82.0	83.8	83.7	84.2	85.1	85.8	84.3	84.3	84.8	83.3
France	85.0	86.2	87.1	86.4	85.9	87.5	88.2	88.1	90.5	90.7	88.8
Germany	91.9	92.4	92.7	92.0	92.1	92.5	92.8	93.4	92.2	93.3	94.0
Greece	59.9	60.6	60.0	63.3	63.6	61.4	49.3	50.7	62.6	62.6	61.7
Ireland	72.1	71.7	71.3	71.6	73.1	74.0	74.3	75.6	75.9	75.5	74.0 ⁶
Italy	118.1	114.8	112.3	113.3	114.4	114.8	115.7	117.0 ⁴	117.0 ⁴	116.4 ⁴	116.6 ⁴
Netherlands	87.9	89.8	89.5	87.5	87.4	91.2	89.4	90.2	89.9	90.1	90.2
Portugal	71.0	65.5	66.5	66.2	64.9	65.7	64.6	62.8	62.6	63.6	63.0
Spain	81.3	80.6	79.8	81.1	81.8	82.4	82.9	83.5	81.3	81.5	81.2
Sweden	83.0	84.1	85.3	85.7	85.2	86.3	86.5	87.0	87.5	87.1	86.1
UK	70.3	70.4	70.6	70.8	70.8	73.1	73.2	76.4	76.9	77.0	76.6
Bulgaria	72.1	73.1	73.2	74.2	73.6	77.0	76.6	69.4	78.6	78.8	
Cyprus	78.6	79.1	80.3	80.7	81.1	78.7	79.6	79.3	79.6	80.3	81.1
Czech Republic	81.6	80.8	81.9	83.7	95.5	96.7	94.3	93.2	95.1	92.5	87.9
Slovakia	105.0	107.5	104.4	94.0	73.1	72.5	73.9	92.1	91.8	92.3	86.4
Estonia	62.9	70.5	71.5	70.2	72.3	73.9	73.2	72.8	75.9	79.0	74.3
Hungary	90.9	94.4	94.8	97.6	96.9	98.7	88.2	94.7	93.7	92.3	93.0
Latvia	82.8	81.8	81.2	72.8	76.9	77.3	78.6	73.6	75.2	76.9	78.0
Lithuania	82.0	78.4	81.3	85.7	87.3	85.9	83.9	72.1	73.4	78.1	78.9
Malta	75.6	80.0	83.9	82.4	74.8	80.6	82.0	80.7	81.1	81.1	79.3
Poland	87.8	87.1	87.3	83.7	84.9	84.2	87.8	86.6	84.7	86.8	85.5
Romania	75.3	80.2	88.2	86.3	87.2	87.9	89.6	84.5	81.6	90.0	
Slovenia	87.4	72.8	84.0	83.6	82.2	82.9	84.8	78.2	83.6	81.6	86.0
Norway	80.8	78.4	80.0	77.7	75.7	76.3 ⁷	78.3	79.4 ⁷	77.8 ⁷	76.7 ⁷	76.5 ⁷
Switzerland	82.7	84.3	84.6	84.3	85.2	84.8	85.9	86.7	87.1	86.7 ³	
EU15	86.5	86.5	86.7	86.8	86.9	88.1	88.2	88.0	88.1	87.7	
NMS	84.8	85.5	87.0	85.3	86.1	86.3	86.8	86.7	85.9	87.6	
EU29	86.1	86.3	86.7	86.5	86.7	87.8	87.9	87.7	87.7	87.7	88.1

Main source: Eurostat

Other sources:

(2) FOD Economie - Algemene Directie Statistiek, Landbouwstatistieken België

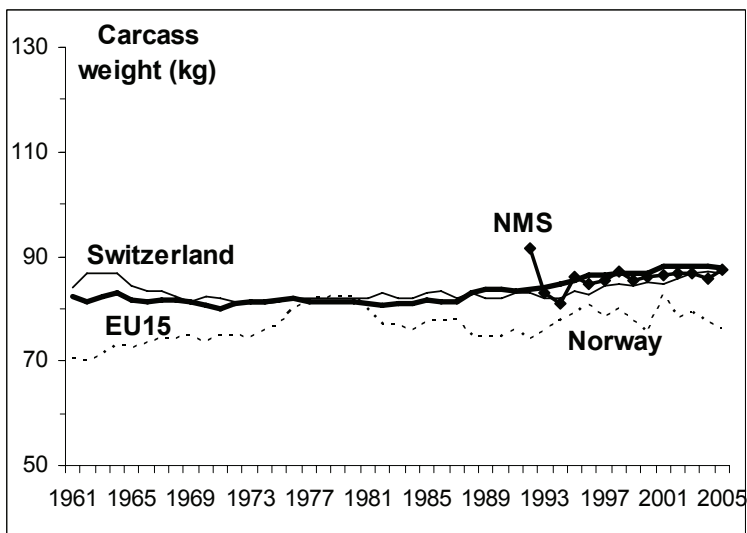
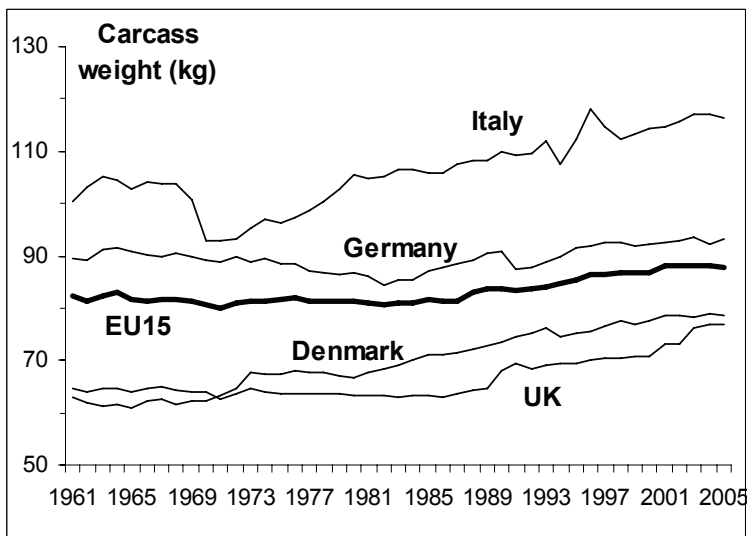
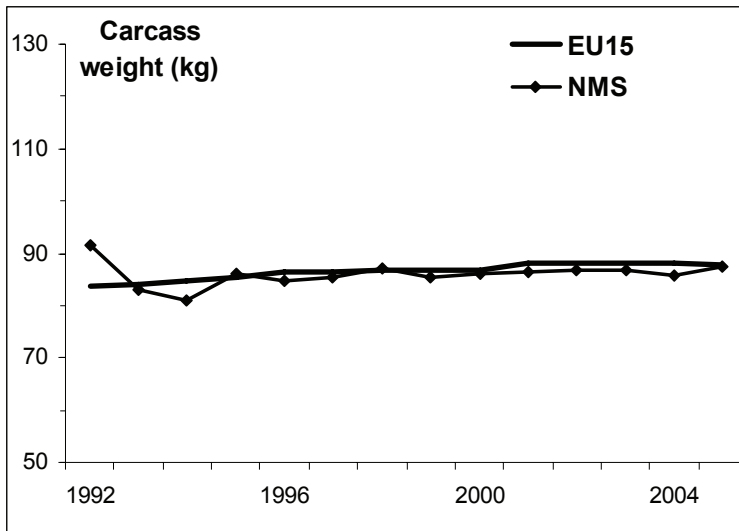
(3) Proviande, (http://www.proviande.ch/statist_moza_archiv06.htm)

(4) Istat

(5) These data differs from the Faostat data in the way that animals slaughtered at very low weights are excluded.

(6) Teagasc PigSys Data, 2007

(7) Annual Report: Classification and weight results, Animalia, Norway



Figures 3-5. Time-related changes in carcass weights related to mean carcass weight in EU15. Figure 3 shows the new member states. Figure 4 shows some of the countries that have the highest and lowest mean carcass weights, and also countries with a considerable change in carcass weight over time. Figure 5 shows countries that are not a part of the EU.

Results of questionnaires

For conventional production, data from 25 countries are available. This represents all countries in the EU, except for Malta, Luxemburg, Bulgaria and Romania, + Norway and Switzerland. For organic production, data from 10 countries, mostly from the central-west and north regions are available. Data for other types of production are reported from France (local breed outdoor/indoor), Germany (Artgerechte Tierhaltung auf Stroh), the Netherlands (Milieukeur), Hungary (continuous hybridization system very similar to rotational crossing), United Kingdom (free range + not specified), Latvia (trainer, practitioner veterinarian), Portugal (extensive production) and Spain (extensive production).

For organic production and other non-conventional production types, there are most often only one or a few respondents per country. Because of this, there is less variability, but possibly also a higher degree of uncertainty, in these data compared to the data from conventional production.

Conventional production

Extent of castration – male pigs (Q1)

In most of the European countries, castration is performed on 80-100% of the male pigs in conventional production (Fig. 6). The exceptions are United Kingdom and Ireland where castration is hardly performed at all. Also, in some of the southern countries (Cyprus, Portugal and Spain), a limited percentage of the male pigs is castrated. In these countries, meat from castrates is mainly used for export and production of high quality cured products. Also, in Greece production of entire males seems to be rather common (24%). For Portugal, castration of adult boars (548 days) that have been used in reproduction was reported by one of the respondents. The data for these animals are not included in the figures.

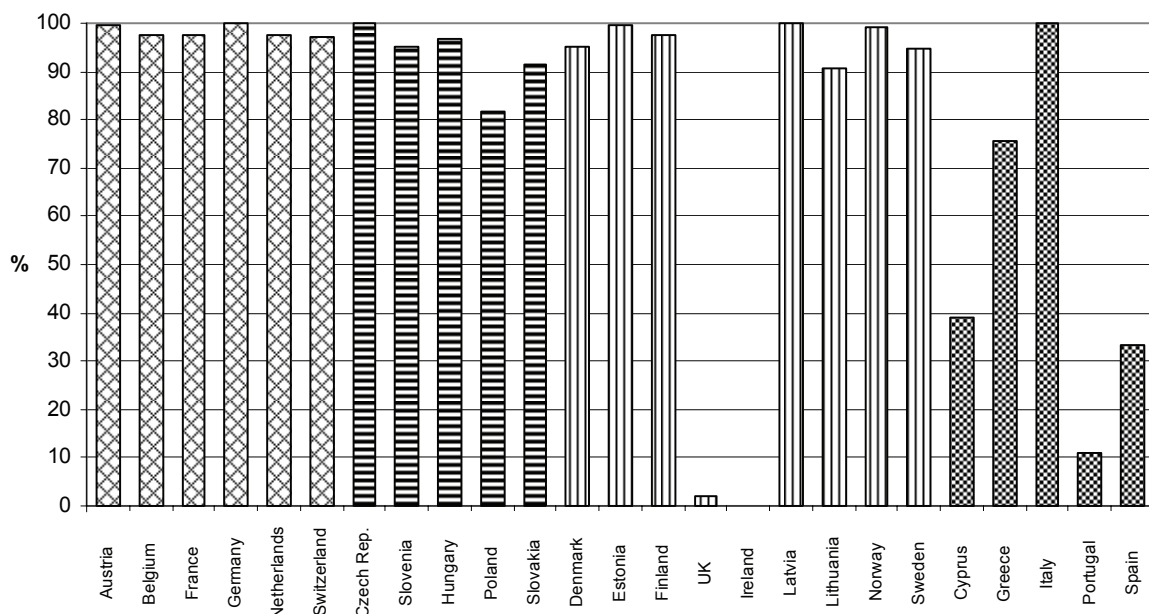


Figure 6. Estimates of the percentage of male pigs (conventional production) castrated per country, given as the average of answers given within each country. The different geographical regions that were used for collecting the data are marked differently.

When, by whom and how it is done (Q2-4 + 10-16)

For most countries, the mean age at castration is estimated to be in the interval 3-7 days after birth (Fig. 7). Nations with a higher estimated mean age are Portugal (17 days), some of the eastern countries (Czech Republic (9 days), Hungary (8.5 days) and Poland (12 days)) as well as Lithuania (9 days) and Norway (10 days). For Portugal, the mean of 17 days, results from the inclusion of a breeder which performs the castration at 30-45 days. In general the age at castration is between 9 and 11 days). In a majority of the countries it seems that castration still is performed more than two weeks after birth in a minor part of production.

In most countries, castration is performed almost exclusively by the farmers (Fig. 8). Exceptions to this are the Czech Republic, Slovakia, Estonia, Lithuania and Norway where the majority of castrations are performed by veterinarians. Also in Slovenia, Hungary, Poland and Cyprus a considerable part (> 20%) of the castrations are performed by veterinarians. Some countries have special trained personnel (medical technicians) to perform castration (Slovenia, Hungary, Latvia, Lithuania, Italy and Cyprus).

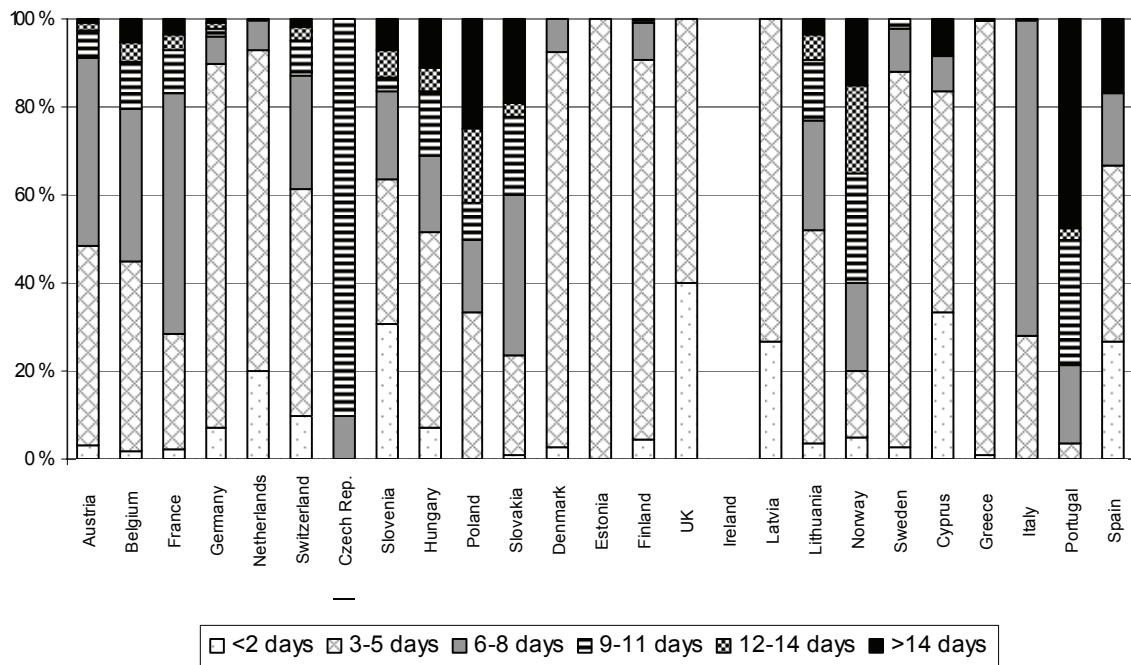


Figure 7. Estimated age distribution at castration per country, given as the average of answers given within each country

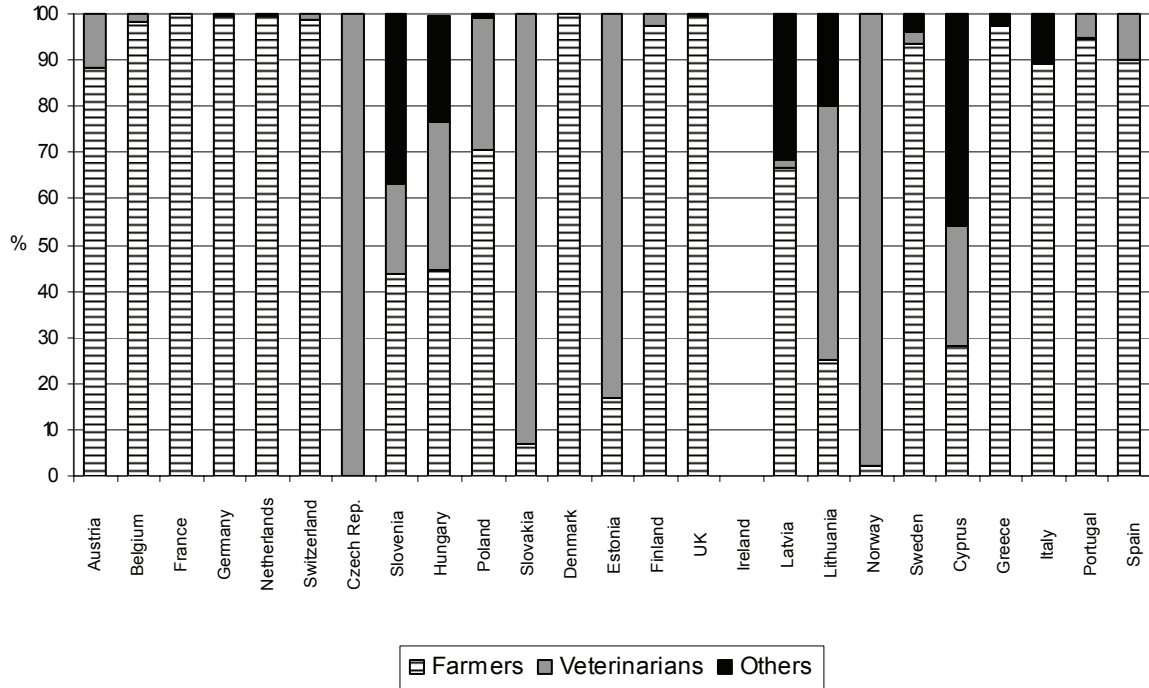


Figure 8. Estimated distribution of castrations performed by farmers, veterinarians and others, given as the average of answers given within each country.

The use of an assistant for catching and handling seems to be common in most countries (Fig. 9). The exceptions seem to be France, Netherlands, Denmark, Latvia, Sweden and Spain where the majority of the respondents answer that this is used in less than 25% of the cases.

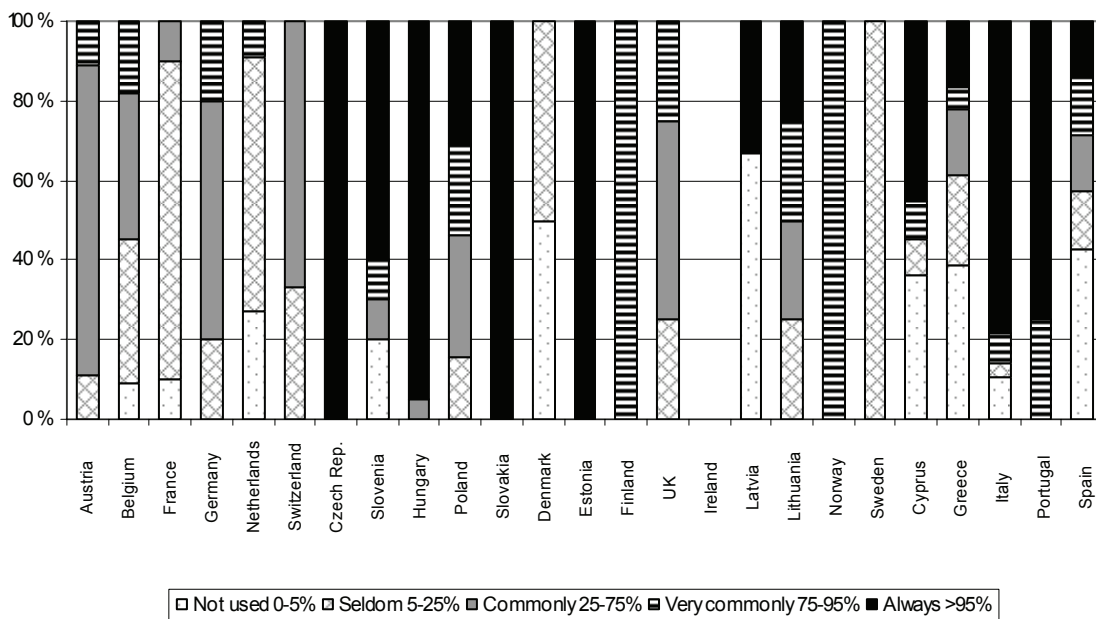


Figure 9. Use of assistant for catching and handling during castration, given as the average of answers given within each country.

There seems to be a large variety of methods for restraining the piglets during castration (Fig. 10), both between and within countries. Overall, to suspend the piglets by the legs seems to be the most common method, but also to suspend the piglet in a v-trough or in a commercially available device seem to be common methods. In addition, a lot of respondents answered that a common method was that the person that performed the castration fixated the piglet with one hand and performed castration with the other hand.

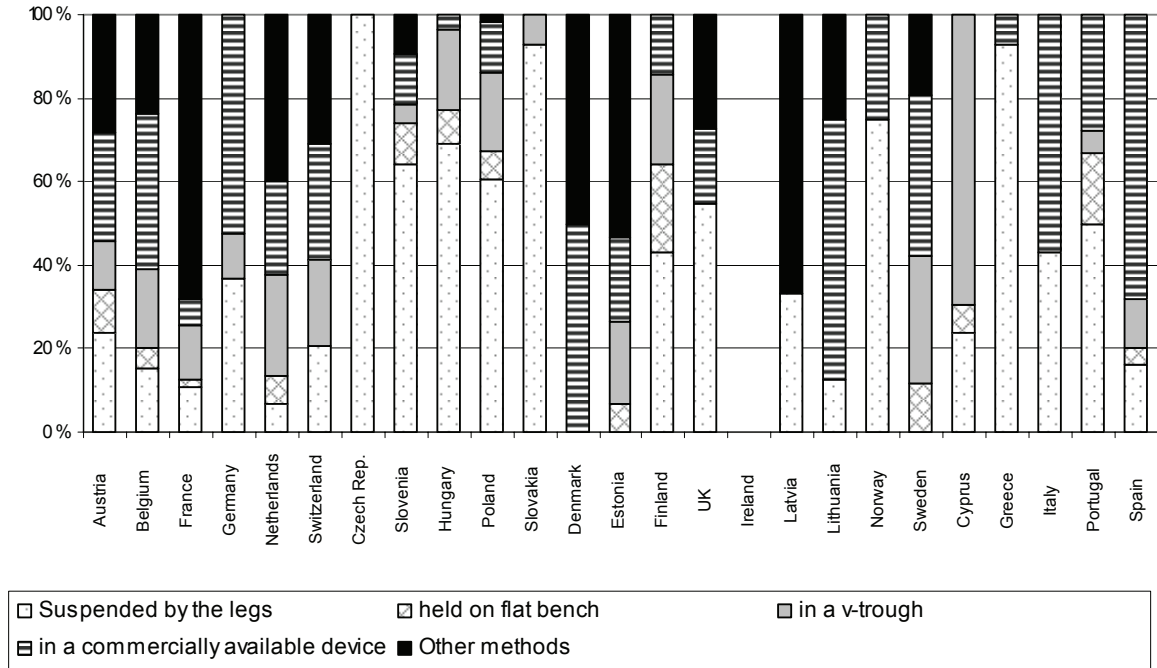


Figure 10. Use of different methods of restraining the piglets during castration. The answers were originally given as not used (<5%), seldom used (5-25%), commonly used (25-75%), very commonly used (75-95%) and always used (>95%) and have been converted into estimates of percentages for each method.

Overall, it is more common to use two incisions than one incision, but in most countries both methods are used (Fig. 11). When two incisions are used, these are normally of longitudinal direction, while a transverse incision is used when a single incision is used for both testicles.

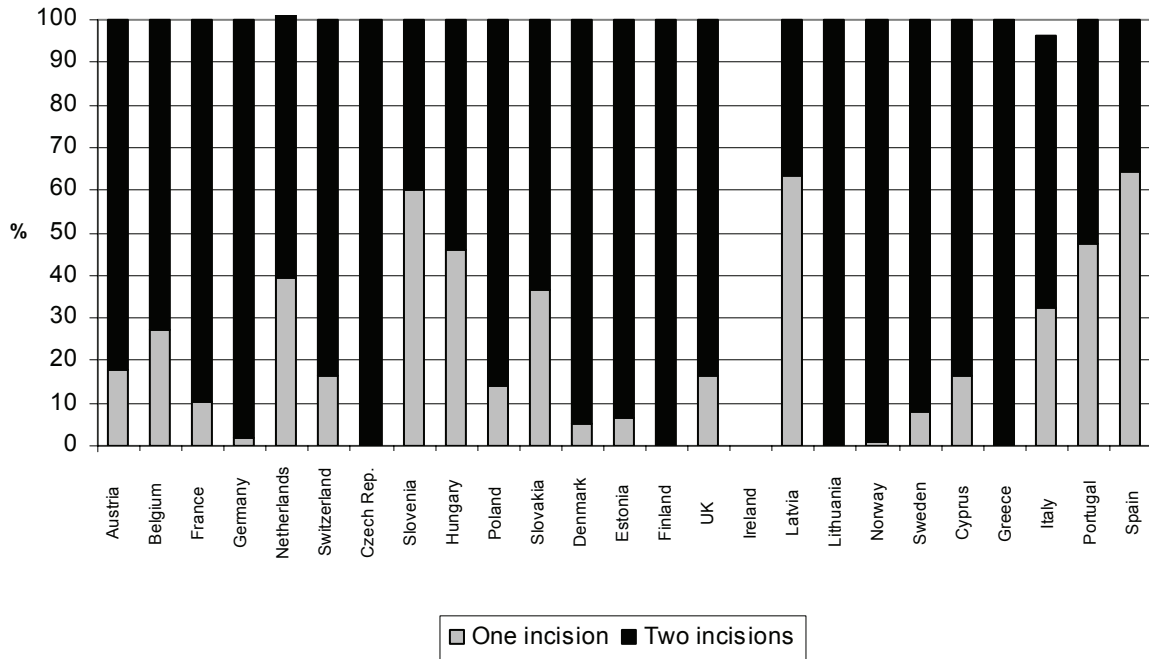


Figure 11. The use of one or two incisions for castration of piglets, given as the average of answers given within each country.

The most common procedure for cutting the spermatic cord is by using a scalpel (Fig. 12). However, there seems to be large variation in procedure, both within and between countries. In some countries, tearing is the predominant procedure. Only two countries reported that tearing is not used at all. Cutting the spermatic cord by scissor or by twisting is less common. In some countries also other methods are used (in most cases reported to be by emasculator).

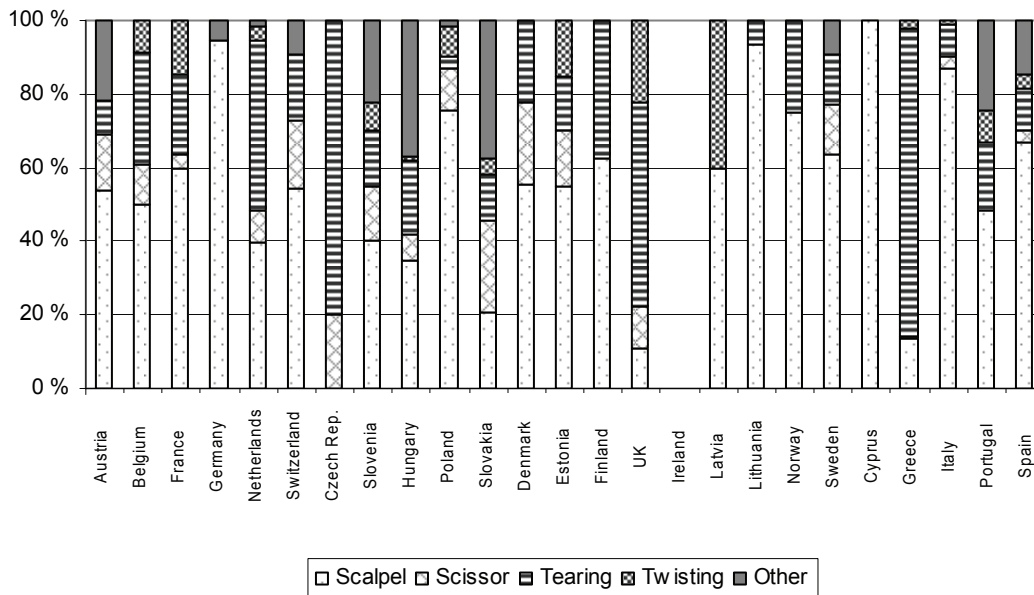


Figure 12. The distribution of different procedures used to cut the spermatic cord. The answers were originally given as not used (<5%), seldom used (5-25%), commonly used (25-75%), very commonly used (75-95%) and always used (>95%) and have been converted into estimates of percentages for each method.

The estimated time consumed per piglet reported by the individual respondents varied from 6-360 seconds. The average per country varied from 21-71 seconds. It was asked for the estimated time consumed for the whole procedure, including catching, but this has probably been overlooked by some of the respondents. If, however, an assistant is used for handling and catching, this does not necessarily take a lot of time. The estimated number of litters one practitioner can castrate during one hour varied in the same way from 3 to 50. The average numbers for each country are given in Figure 13.

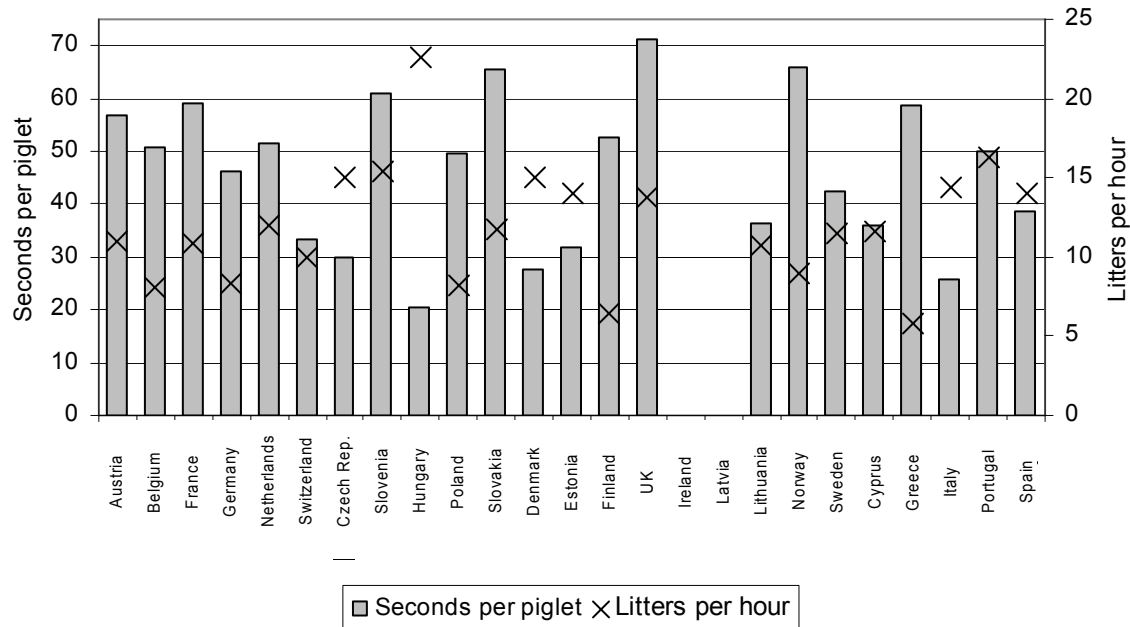


Figure 13. Estimated time consumed as seconds per piglet (including catching and handling and anaesthesia if used) and number of litters castrated per hour by one person. The numbers are given as the average of answers given within each country.

The use of disinfectants to prevent infection from castration seems to be common or very common at castration in most countries (Fig. 14). The exceptions are Denmark and Norway, and partly Germany, Slovenia and Finland. The use of antibiotics at castration is less common than disinfectants, but in about half of the countries some respondents report that it is used very commonly or always (Fig. 15). In Netherlands, Estonia and Italy, more than 50% of the respondents answer that it is used very commonly or always. A large number of different types of antibiotics were reported to be used (Table 4), but the most common one was Amoxicillin.

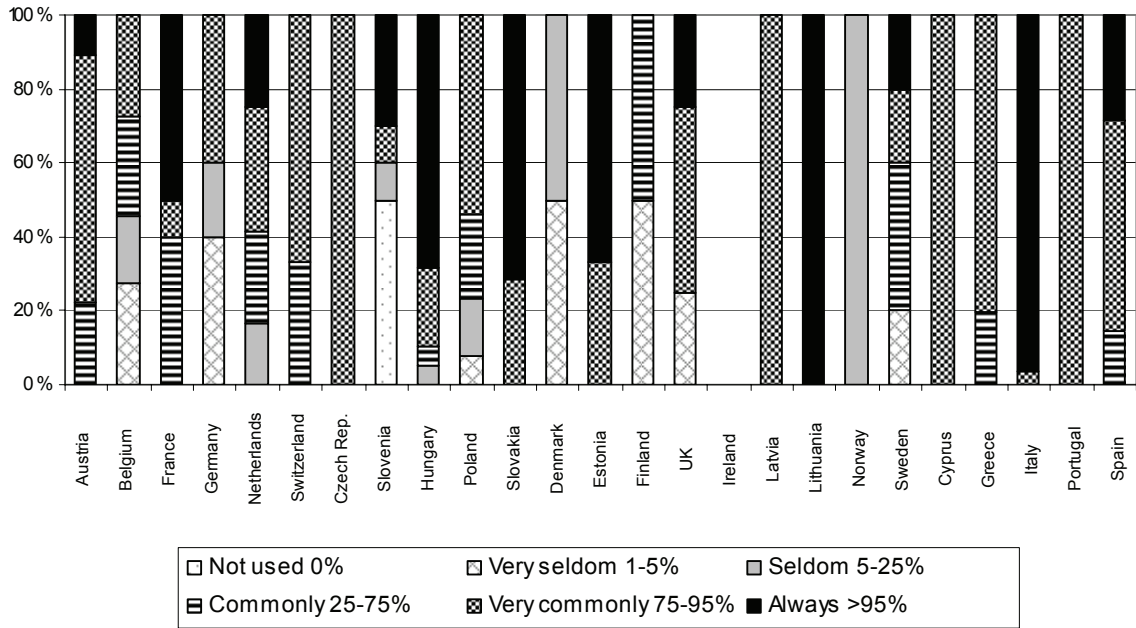


Figure 14. The use of disinfectants to prevent infection from castration. The results are given as the average of answers given within each country.

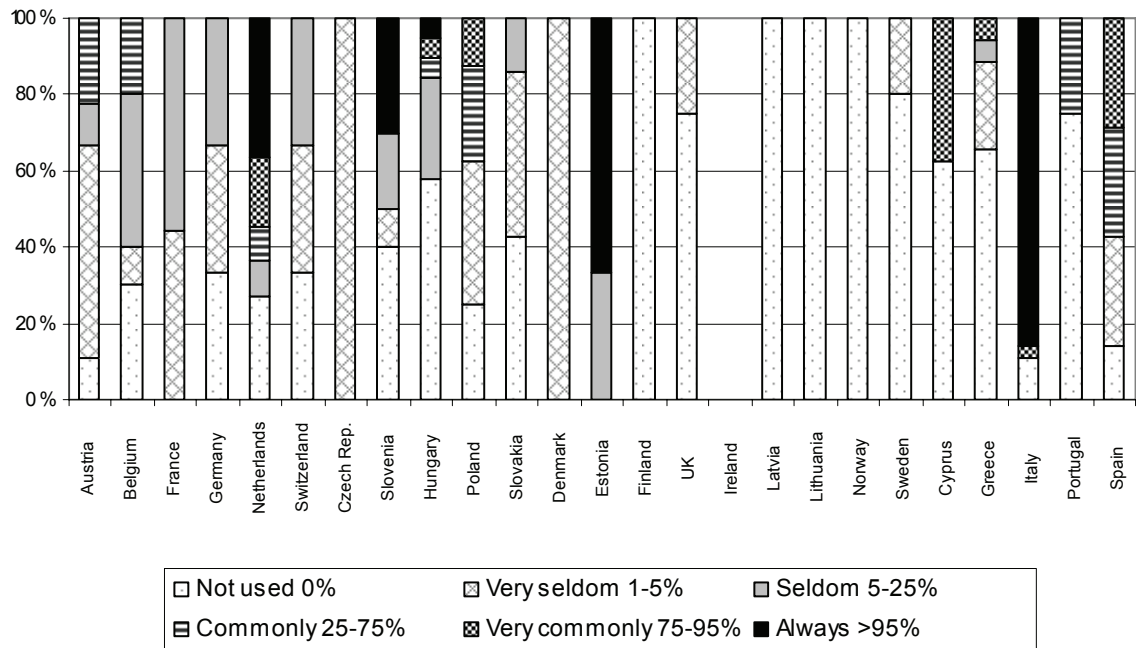


Figure 15. The use of antibiotics to prevent infection from castration. The results are given as the average of answers given within each country.

Table 4. Antibiotics reported used at castration in European countries.

	Penicillins	Cefalosporines	Tetracyclines	Quinolones	Macroloids	Aminoglycosides
Belgium	X	x			x	
France	x			x		
Netherlands	X	X				
Switzerland	x					
Czech Republic			x			
Poland	x					
Estonia	X	X				
UK			x			
Latvia	x					
Italy	X	X				X
Portugal	X		X (spray)			
Spain	X	X				

X=reported used commonly, very commonly or always by at least one responder per country.
 x=reported used very seldom or seldom by at least one responder per country.

Most respondents reported that they had the impression that the practitioners followed sufficient hygienic procedures to reduce possible contamination during surgery (Fig. 16). The respondents from Switzerland and Finland seemed to be less confident about the hygienic procedures, and in some countries a minority of the respondents reported that sufficient hygienic procedures were seldom or never followed.

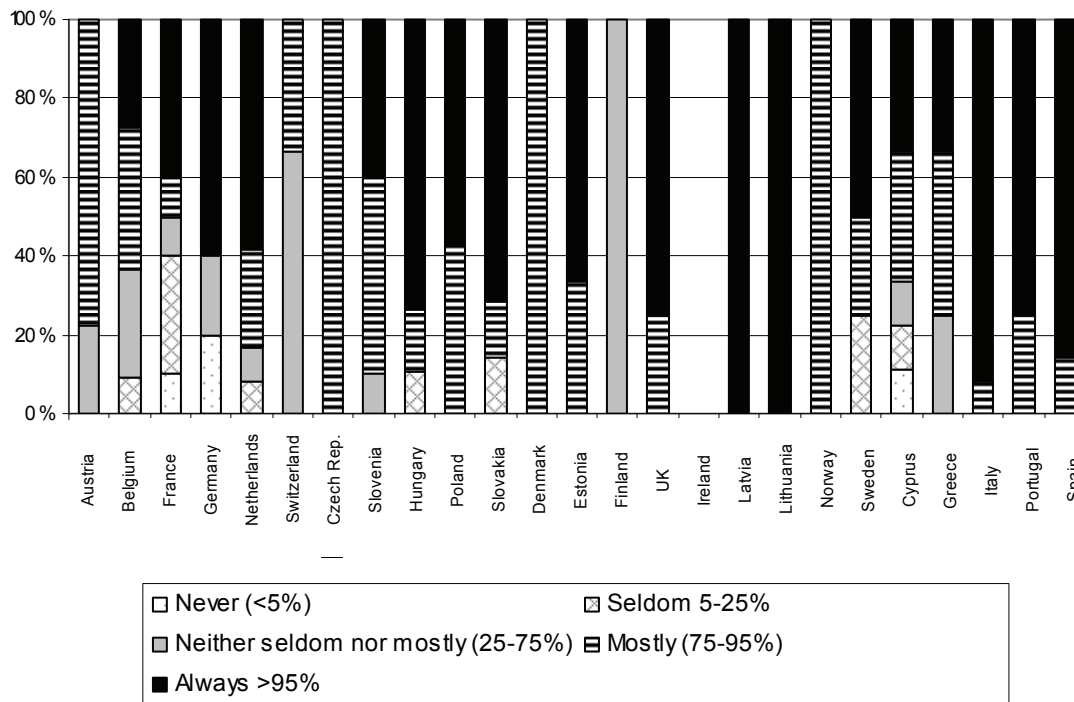


Figure 16. Is it your impression that the practitioners follow sufficient hygienic procedures to reduce possible contamination during surgery? The results are given as the average of answers given within each country.

Anaesthesia and analgesia (Q5-9)

In most countries anaesthesia is not used or used very seldom (Fig. 17). In the few cases where anaesthesia is used in these countries, it is probably most often in connection with castration of cryptorchidism, inguinal hernias or other special cases. The exceptions are Norway, Lithuania, Hungary, Poland and Slovakia. In Norway anaesthesia is used for practically all castrations. The reason for this is that anaesthesia at castration of piglets is mandatory by law since 2002. In Lithuania two of four respondents answered that anaesthesia was used commonly or very commonly. In Hungary, Poland and Slovakia most of the respondents answered that anaesthesia was used seldom or not at all, while a few respondents answered that it was used very commonly or always. The explanation is probably that anaesthesia is used as a routine at castration in a very low percentage of the herds. Different variants of local anaesthesia with lidocain seemed to be most common. The combination of subcutaneous and intratesticular injection was most common, followed by testicular injection alone and a combination of injection subcutaneously and in the spermatic cord. In some countries (Poland, Slovenia, Slovakia, Switzerland, Austria and Sweden) general anaesthesia by injection (ketamin, azaperone, methomidata, mopenhium natricum or pentobarbital) was also reported. From Hungary general anaesthesia by inhalation was also reported, but the active substance was not specified. In most cases where anaesthesia was reported to be used very commonly or always, the percentage of veterinarians performing the castration was reported to be high. But in Hungary and Poland also, the combination of a high percentage of farmers performing the castration and very common use of anaesthesia was reported.

In the cases where general injection was reported to be most common, the time interval 6-10 minutes from anaesthesia to castration was most common (42%). In the cases where local anaesthesia was most common, the time interval 3-6 minutes was reported to be most common (51%). The mean time interval, however, did not seem to differ between the groups (on average 8 minutes).

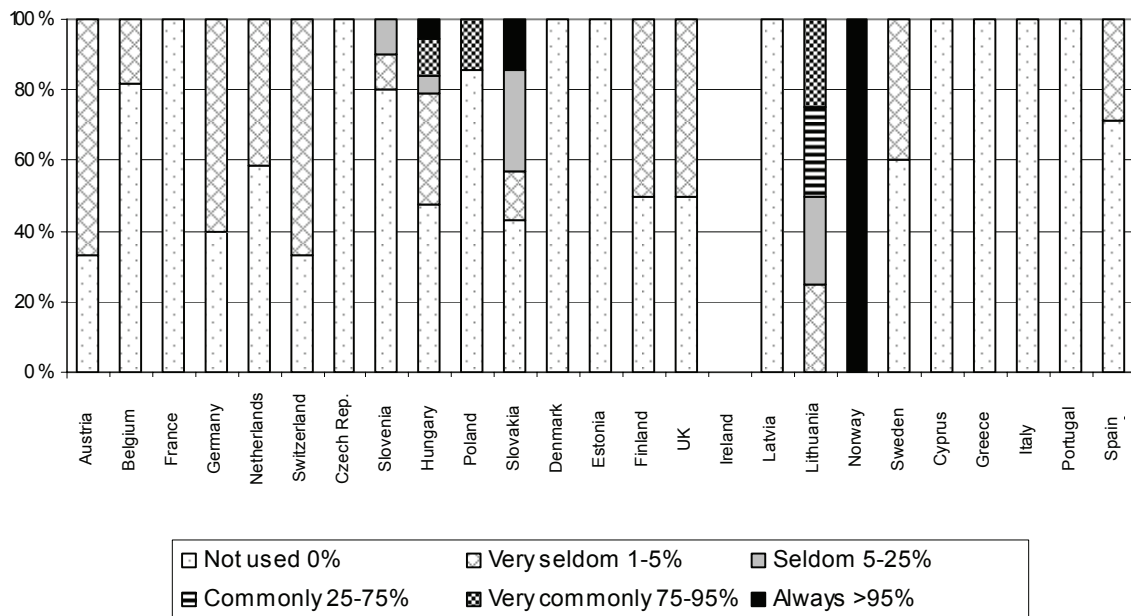


Figure 17. How common is the use of anaesthesia (any kind) for castration? The results are given as the average of answers given within each country.

Analgesia is used even more seldom than anaesthesia (Fig. 18). Only in Netherlands, Slovenia and Hungary a minority of the respondents answered that it was used commonly or always. The active substances reported for analgesia were metamizol-natrium, tolenamid, ketoprofen, carprofen, meloxicam, flunixinmeglumin, stresnil, petafen, ketamin, algopirin and lidocain.

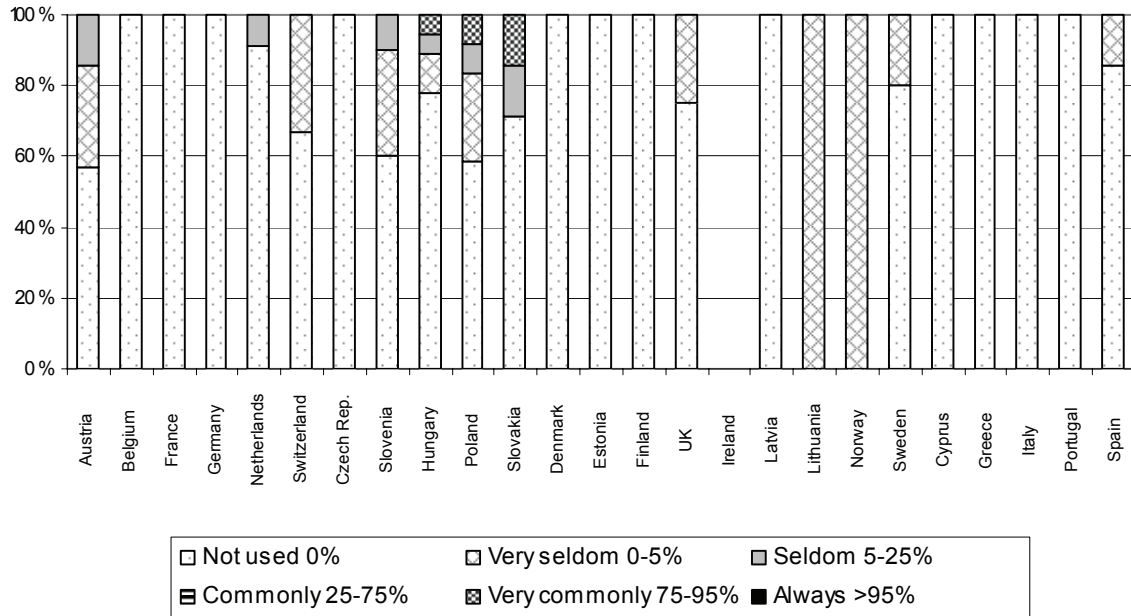


Figure 18. To what extent are analgesia (pain killers) used in relation to castration? (in percentage of all male pigs castrated.) The results are given as the average of answers given within each country.

Complications (Q17)

Overall, complications due to castration do not seem to be a common problem in any country. However, variations were reported within countries, and it seems to be a problem in some individual farms. Death was reported to occur very seldom or never as a complication to castration by a majority of the respondents in all countries (Fig. 19). Protrusion was a little more common, but still reported as a problem by very few respondents (Fig. 20). Abscesses and reduced general condition were about equally common, but the frequencies varied between countries (Figs. 21-22).

Other complications were reported by very few respondents. Complications mentioned were arthritis (France and Finland), irritation/inflammation (France), streptococcus infection/sepsis (Belgium), hernia (Slovenia) and stress (Poland).

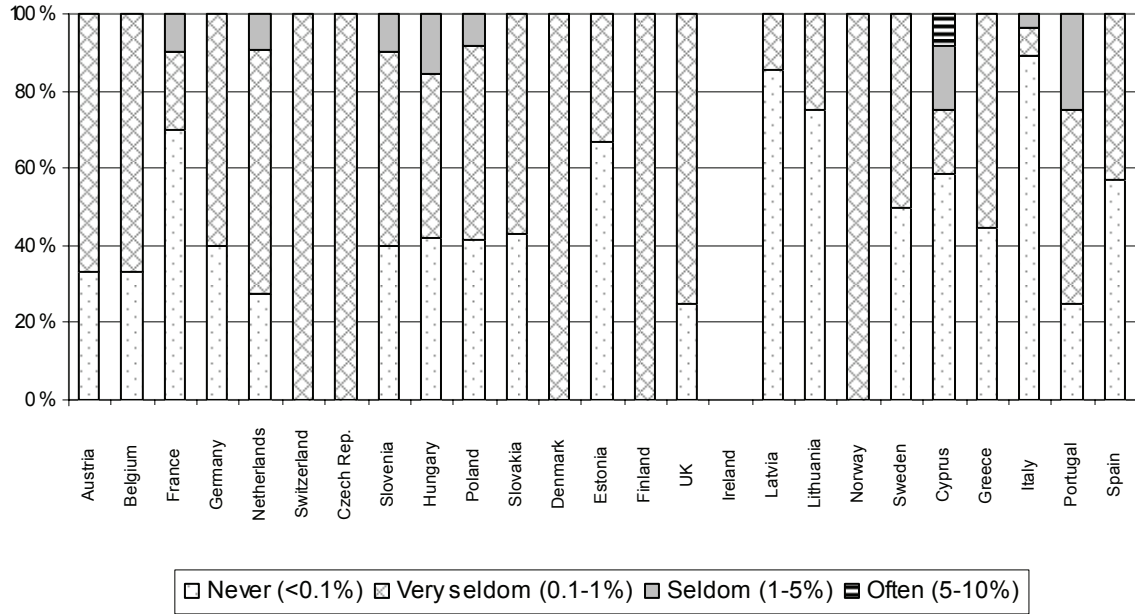


Figure 19. How common is death as a complication to castration? The results are given as the average of answers given within each country.

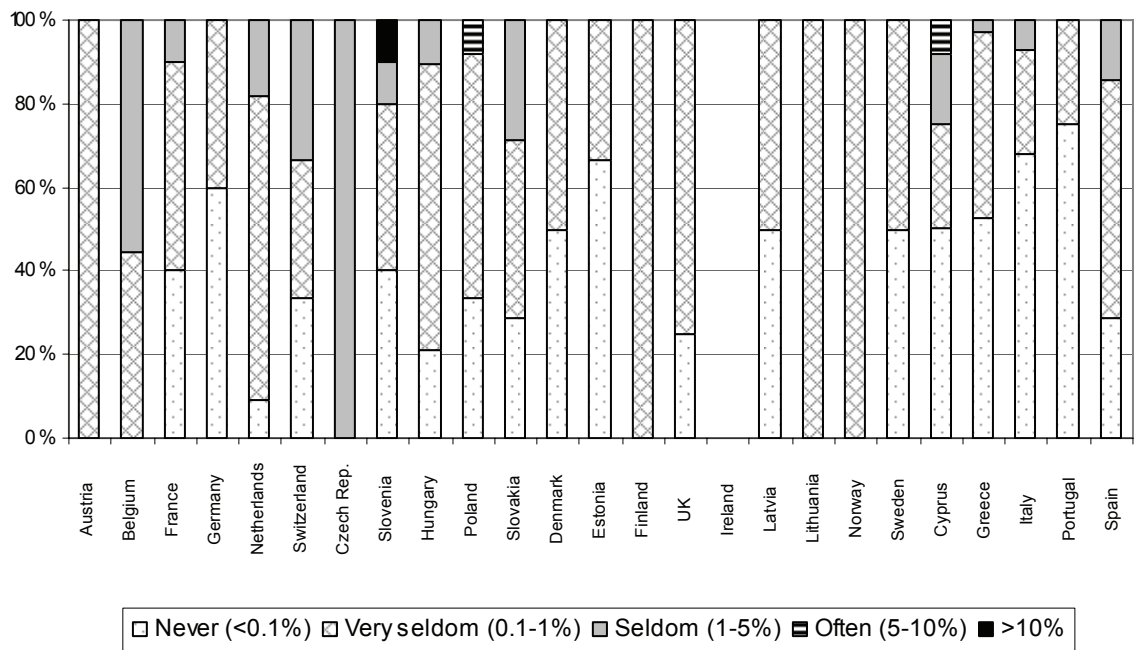


Figure 20. How common is protrusion as a complication to castration? The results are given as the average of answers given within each country.

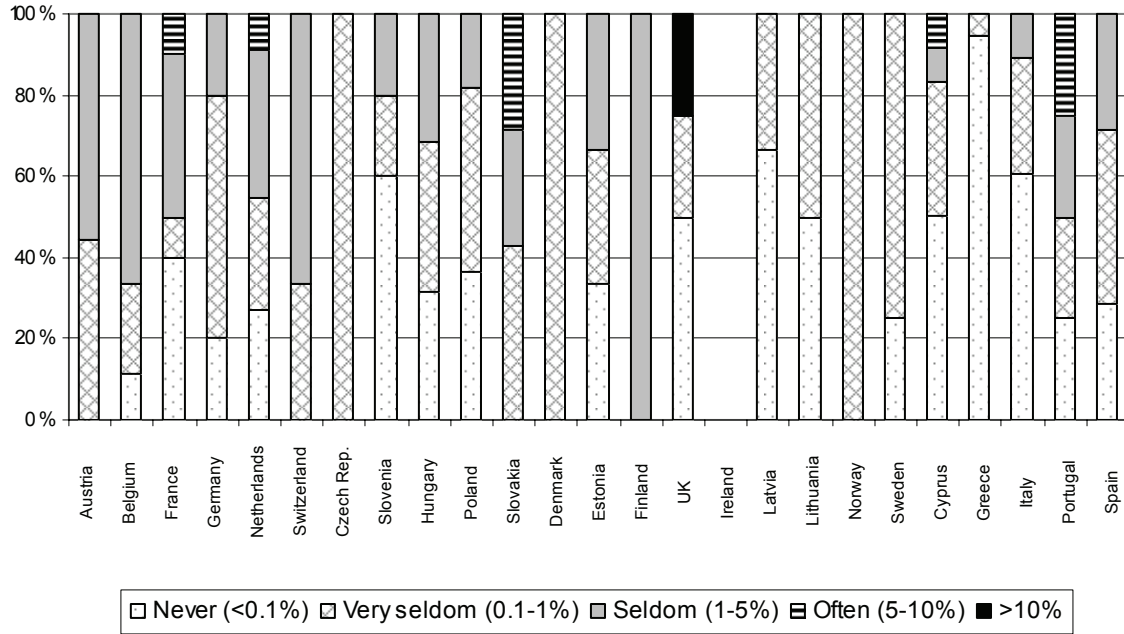


Figure 21. How common is reduced condition (loss of appetite) as a complication to castration? The results are given as the average of answers given within each country.

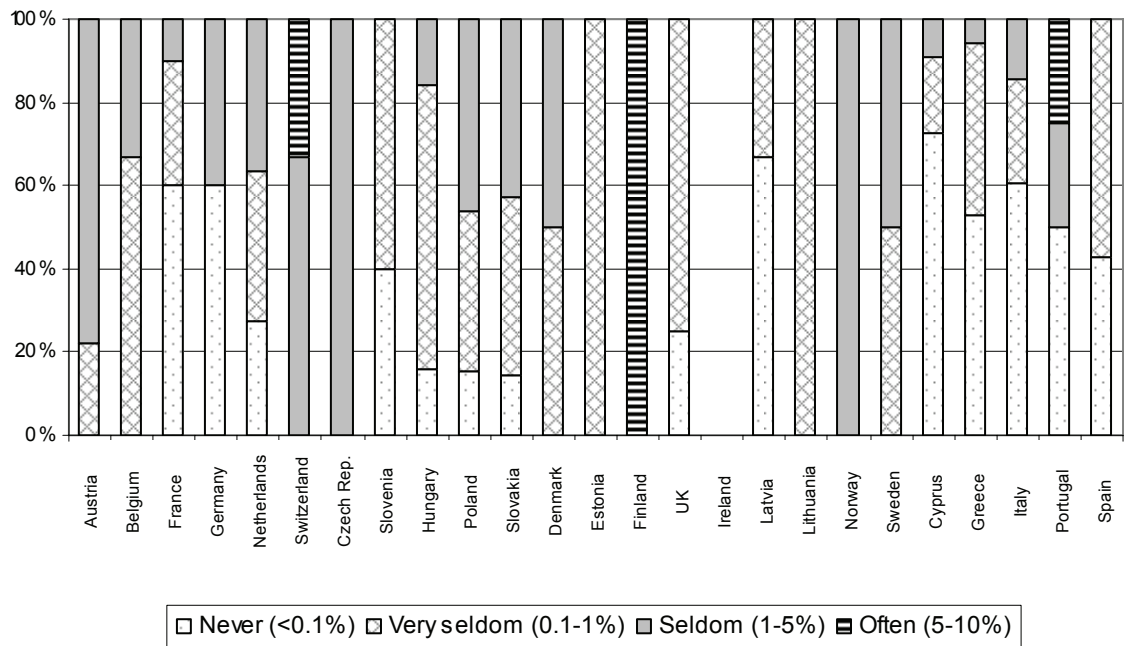


Figure 22. How common are abscesses as a complication to castration? The results are given as the average of answers given within each country.

Interactions with other painful husbandry practice (Q18)

Within the PIGCAS project, the extent of other possibly painful practices such as tail docking, teeth resection, ear tagging, tattooing, vaccination and iron injection, has been assessed. It was asked whether these procedures were commonly performed, and at what time they were performed compared to castration. It is, however, beyond the scope of the project to evaluate the consequences of the different combinations in relation to welfare for the animals.

In Switzerland, Finland, Norway and Sweden, tail docking is not performed at all. In addition, a minor percentage of the respondents in Slovenia, Hungary, Poland and Estonia reported that tail docking is not performed (Fig. 23).

In the remaining countries, tail docking seems to be performed on most farms, either before castration or at the same time as castration. It is very seldom performed after castration. In the EU, the routine tail docking of piglets is prohibited, but they can be docked on the advice of a vet where tail biting is likely to occur.

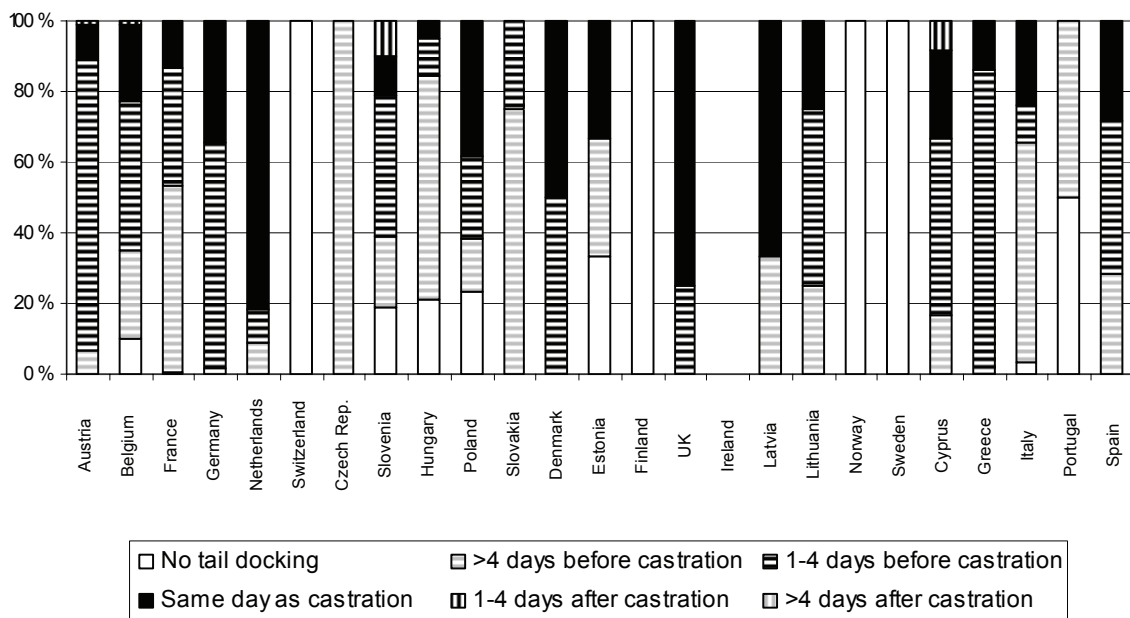


Figure 23. If tail docking is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Teeth resection is reported to be performed on the majority of animals in most countries except Norway, Sweden, Finland, Denmark and Italy (Fig. 24). But there might be some confusion about the term “teeth resection”, whether this only includes cases where the tooth pulp is uncovered or whether it also includes grinding. When it is performed, it is most commonly done before castration (probably most commonly just after birth), but it is also quite commonly performed at the same day as castration.

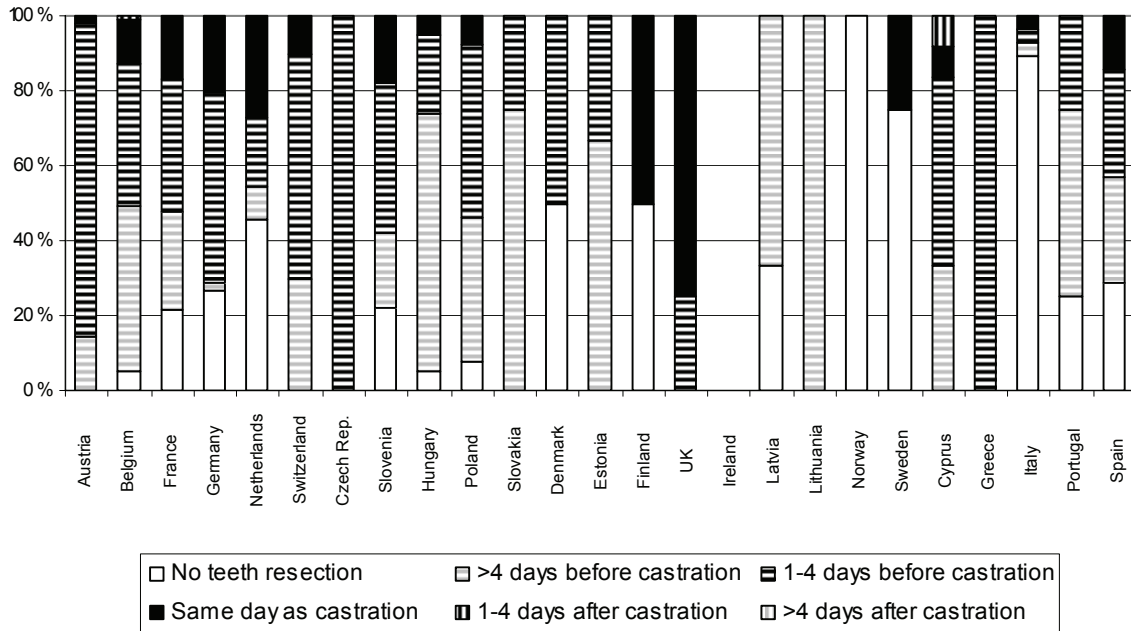


Figure 24. If teeth resection is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Ear tagging is commonly performed in all countries except Estonia, United Kingdom, France, Latvia, Portugal and Cyprus (Fig. 25). It is most commonly performed more than 4 days after castration, but it is also common to do it at the same day as castration in several countries.

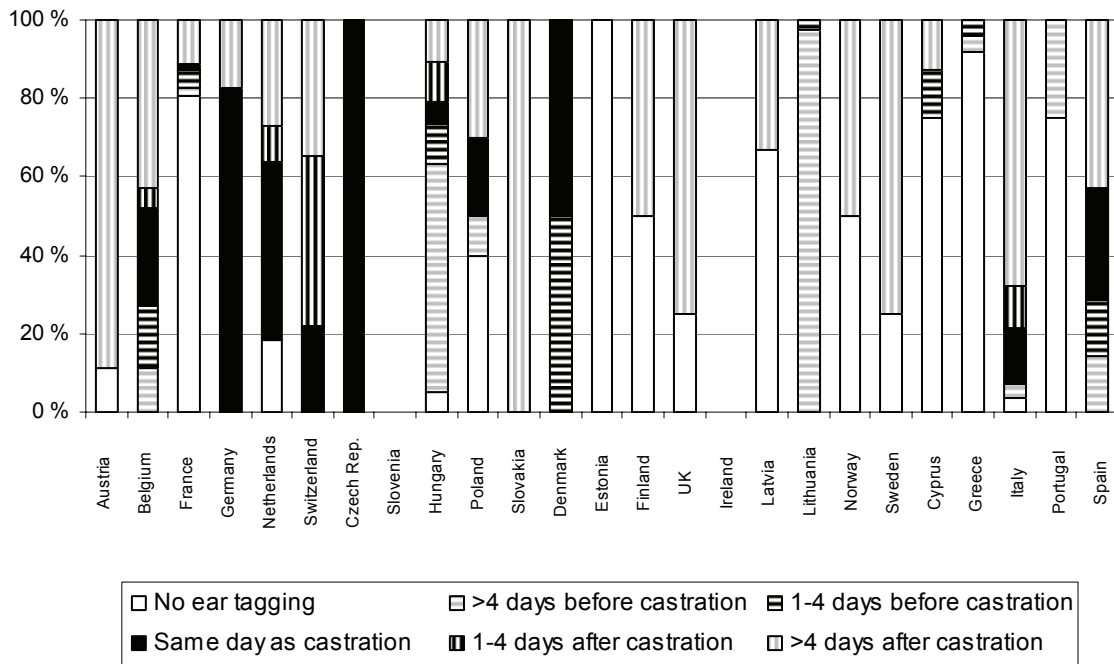


Figure 25. If ear tagging is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Tattooing seems to be less common (Fig. 26). For a lot of countries no information is given, which probably means that it is not usually performed. The time of the procedure seems to vary, but more than four days after castration seems to be most common.

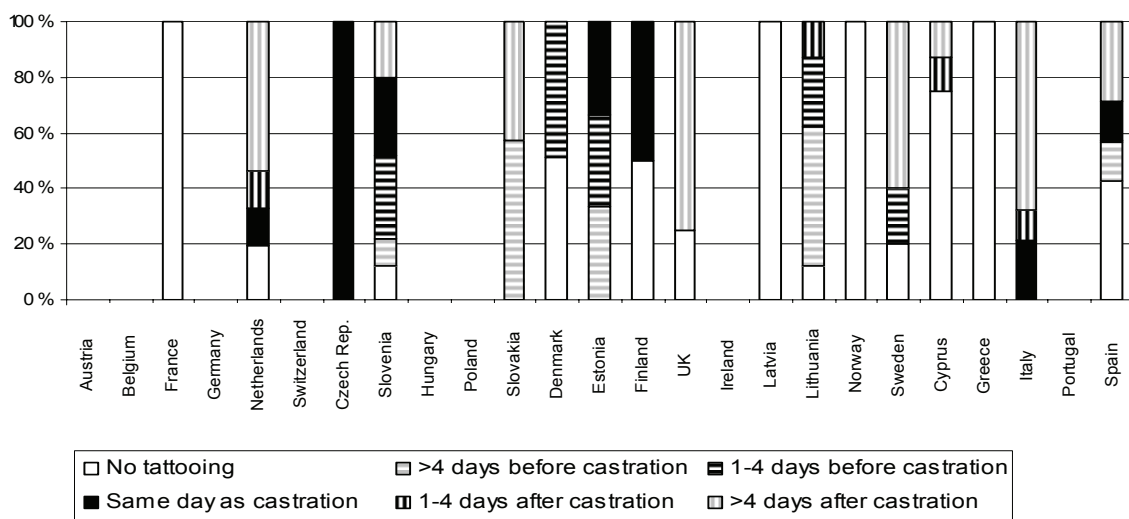


Figure 26. If tattooing is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Vaccination of piglets is performed in most countries (except Finland, Latvia, Norway and Switzerland), (Fig. 27). The time of the procedure seems to vary, but more than four days after castration seems to be most common.

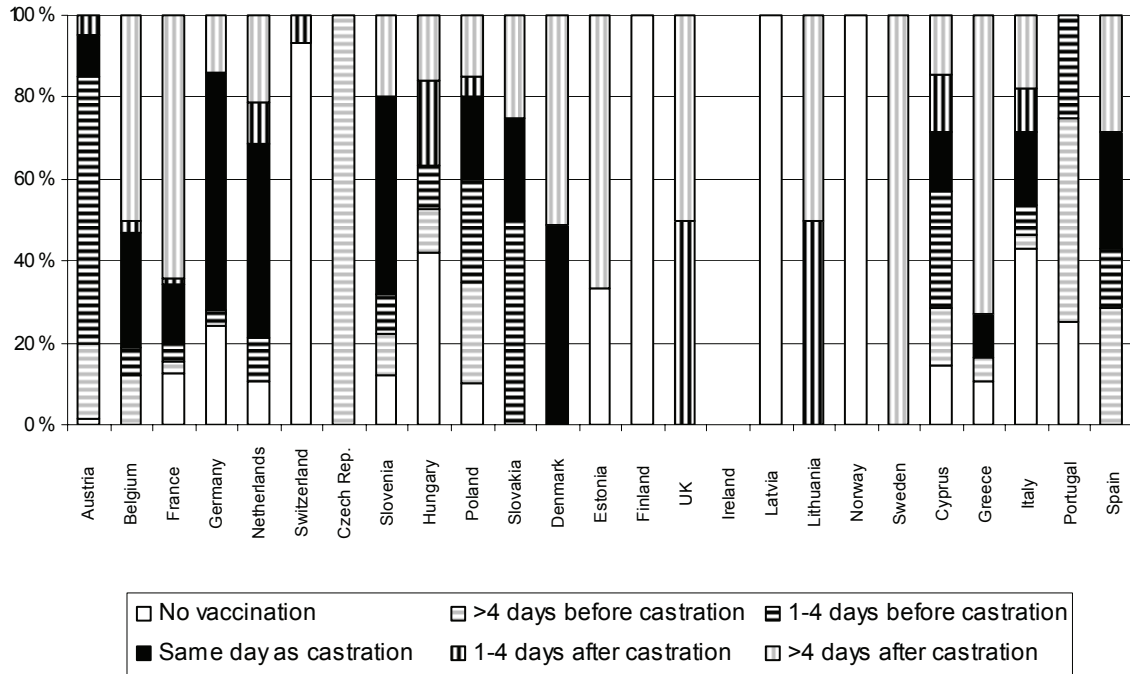


Figure 27. If vaccination is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Iron injection is a common procedure and is performed on 80-100% of the animals in all countries but Norway (30%) (Fig. 28). It is most commonly done at the same day as castration, but it is also very common to do it more than four days before castration or 1-4 days before castration.

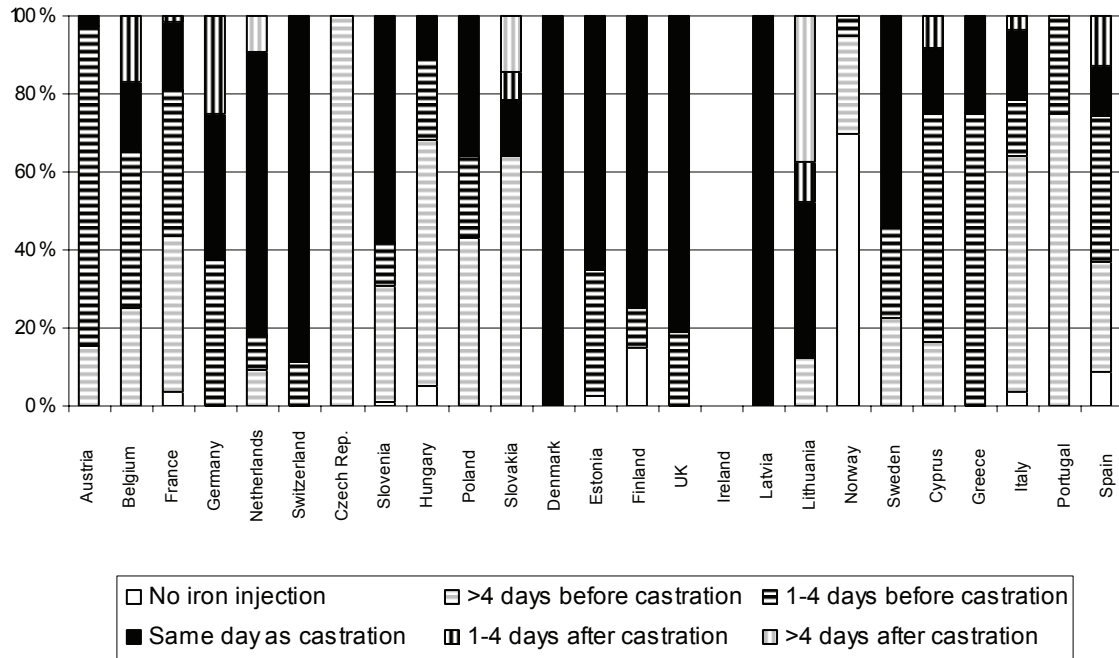


Figure 28. If iron injection is commonly performed in piglets, when is it usually performed compared to castration? The results are given as the average of answers given within each country.

Organic production and other non-conventional production systems

In most countries, there seems to be little difference between the percentages of piglets castrated in conventional and non-conventional production systems (Fig. 29). The exceptions to this are the Netherlands, where there exists a non-conventional production system called “Milieukeur” where no castration is performed at all, and Spain and Portugal, where an extensive production system exists where all piglets are castrated.

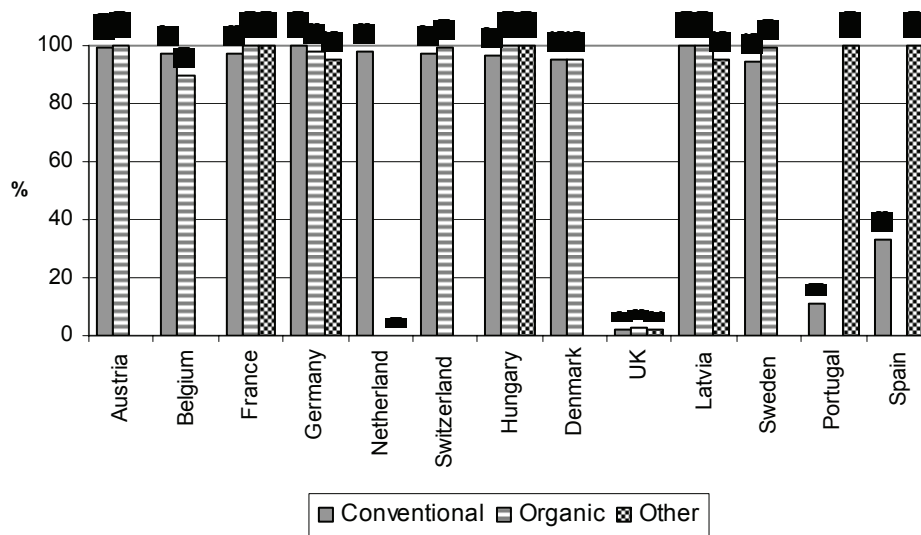


Figure 29. Percentage of male pigs castrated per country in conventional, organic and other production systems, given as the average of answers given within each country.

In most cases there are also only small differences between conventional and non-conventional production in respect to age at castration (Fig. 30). But there are non-conventional production systems in France, Portugal and Spain, where castration is performed at a considerable higher age than in conventional production systems (11- 90 days respectively). In Hungary and Latvia a much higher percentage of the castrations are performed by veterinarians in organic production and veterinary practitioner training respectively (both 75%) than in conventional production. In Portugal the castration in extensive production was reported to be performed by “gelders”.

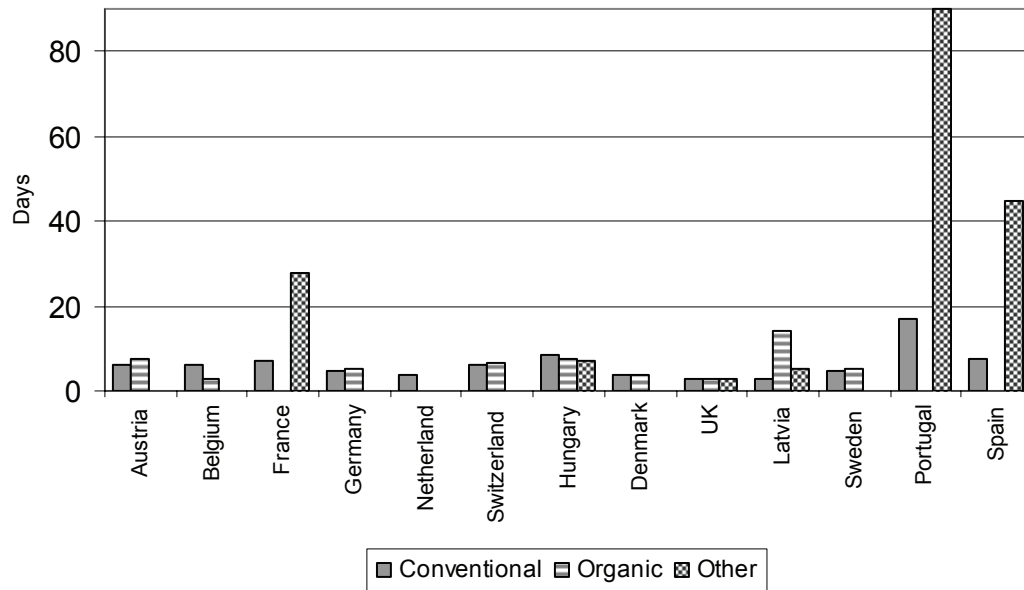


Figure 30. Age distribution at castration per country in conventional, organic and other production systems, given as the average of answers given within each country

Anaesthesia and analgesia

There were very small differences in the use of anaesthesia between the different production systems within the different countries (Fig. 31). Only in Germany and Switzerland could tendencies of more common use of anaesthesia in non-conventional production systems be detected. But, even here, none of the interviewees answered that it was used more often than seldom (5-25%).

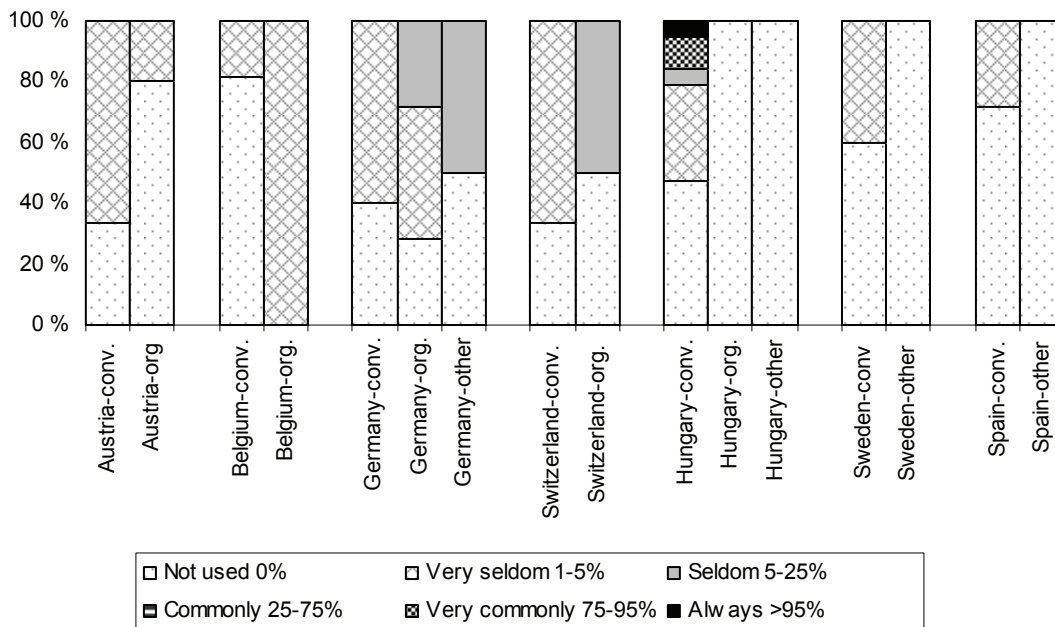


Figure 31. How common is the use of anaesthesia (any kind) for castration in conventional, organic and other production systems? Only countries where the numbers for non-organic production are different from conventional production are included in the figure.

Also, for analgesia there were very small differences between the different production systems within the different countries (Fig. 32). Only in Germany and Belgium some respondents reported the use as seldom or very seldom in non-conventional production, while it was reported not used at all in conventional production.

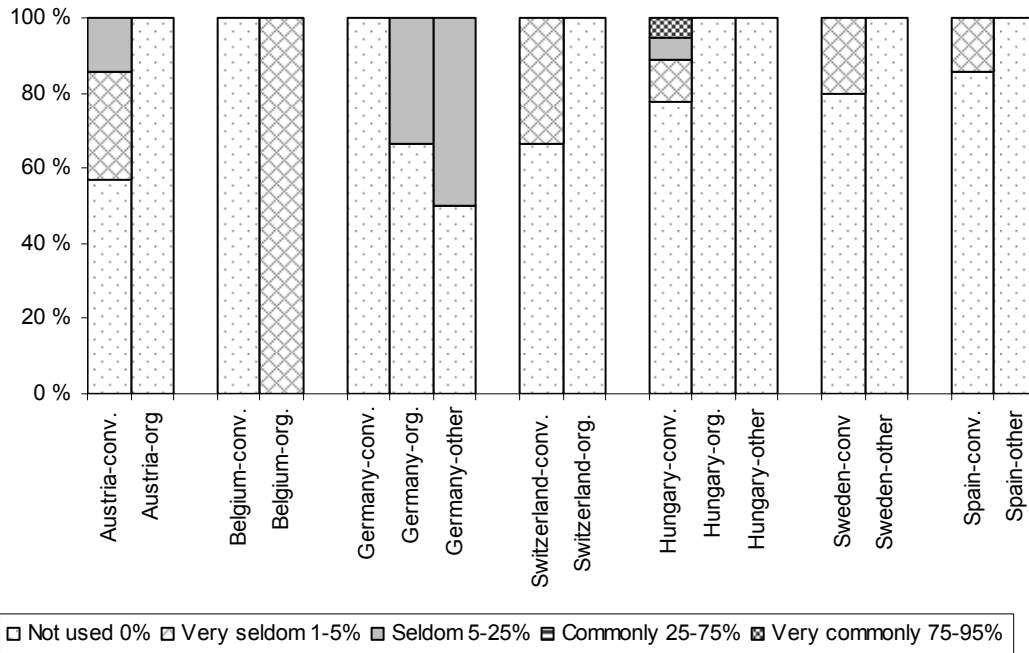


Figure 32. How common is the use of analgesia (any kind) for castration in conventional, organic and other production systems? Only countries where the numbers for non-organic production are different from conventional production are included in the figure.

Female castration (Q19)

Only two of the respondents, from Spain and Portugal respectively, answered that castration of females was performed. The Spanish answer was from a single conventional farm, and they reported that 75% of the female pigs were castrated because of meat quality. Castration was performed by a 2-3 cm incision in the inguinal zone in the age interval 30-50 days (average 35) by a veterinarian, but without anaesthesia or analgesia. A specially designed table was used to restrain the animals. The procedure was estimated to take 45 seconds per animal, and 60 animals could be castrated per hour by one veterinarian. The hygienic procedure was evaluated to be sufficient in most cases. Both disinfectants and antibiotic (Estreptomycina + Penicilina G Procaina + Dexametasona) were very commonly used. Complications like deaths and protrusions were reported to occur very seldom, while abscesses were reported to be seldom. No other complications were reported. Both tail docking, ear tagging, tattooing, vaccination and iron injection took place more than four days before castration. Teeth resection was not performed.

The answer from Portugal represented extensive production with pigs of the Alentejana breed. This breeding population comprises about 12 000 females and 1 200-1 500 males. The number of piglets born and registered in the Association in 2006 was about 65 000. The reported reason for castration was that this is a slow growing breed, with a slaughter age of about 20 months old and if not castrated (males and females), it will compromise negatively meat flavour. One hundred percent of the females were reported to be castrated. The average age at castration was 90 days (50-120). The castrations were performed by “gelders”, without any anaesthesia or analgesia. The procedure was performed by longitudinal incisions of about 8 cm in the left side of the sow. Restraint was performed in an appropriate device. The procedure was estimated to take 90 seconds per animal. The hygienic procedure was evaluated to be sufficient in most cases. Both disinfectants and antibiotics (Penicillin) were very commonly used. Complications like deaths, protrusions and abscesses were reported to occur very seldom, while reduced general condition was reported to be seldom. No other complications were reported. Ear tagging and vaccination took place more than four days before castration. The other procedures asked for were not performed.

Final conclusions

- Castration occurs in most countries
- Some countries find it possible not to castrate
- Use of anaesthesia and analgesia is rare but probably increasing
- Timing and operator differ widely both within and between countries
- Adverse consequences are rare
- Practices are similar in conventional and organic systems, but differ markedly for some extensive systems (mostly Mediterranean).

Amendment 1

Luxembourg

From Luxembourg one answer from a veterinary organisation was received. The answer represented conventional production. One hundred percent of the male piglets were reported to be castrated. The average age at castration was 7-10 days. All castration was performed by the farmers and an assistant for handling and catching was reported to be seldom used. No anaesthesia or analgesia was reported to be used. The use of two incisions was more common than one (80%) and cutting by scalpel and by tearing were about equally common. The estimated time consumed per piglet was 60 seconds, and the number of litters per hour was 5. The use of disinfectants to prevent infection from castration was very common, but antibiotics were not used. Complications were reported to be non-existent. No information about interactions with other painful husbandry practice was given. Castration of females was reported not to be performed.