



# Benchmark analysis 2021

Danish beef and veal within a European perspective

## Preface

The Benchmark Analysis was first carried out in 2017. Detailed research was conducted into the conditions that exist in countries with which we compare ourselves. This version has been updated and developed, but retains its focus on beef and veal production in Denmark as compared with Germany, Ireland, the Netherlands and Sweden.

Today cattle production covers more than the production of beef for consumption. Traceability is a key element in food safety while high quality stems from the strong commitment on the part of farmers themselves. Breeding cattle involves much more than feeding and watering the animals. It is about optimising production with focus on animal welfare, high veterinary standards, the environment and climate. All these are major factors that are covered in this edition.

## **Executive Summary**

This report identifies the key elements that ensure high quality and high food safety standards in beef and veal production. The key elements that go into optimising cattle production are the use of crossbreeding and sexed semen, the right mix of feed and the substantial amount of data that has been collected. Traceability starts at birth when the cattle are ear tagged and subsequently ensured through data registration throughout the overall supply chain. Veterinary standards and visits are also important in ensuring traceability, as are medicine consumption and disease control. Moreover, the climate, biodiversity and environmental awareness are factors that influence cattle farming either through national legislation or overall targets. Finally, this report also provides statistics on cattle populations, the number of animals slaughtered and trade data.

## **Future Determinants**

By 2023 the European Union will have adopted a new Common Agricultural Policy with strong focus on animal welfare, the environment, biodiversity, climate mitigation and adaptation. It is estimated that these new measures will have a significant impact on cattle production in all EU countries.

## Main Conclusions

- › Denmark is at the forefront in the use of crossbreeding and sexed semen. This, combined with the optimum use of fodder and the large-scale data collection, contributes to the continued development of sustainable production and improved eating quality.
- › Traceability is a central component in the overall supply chain when it comes to food safety and animal disease control. There is full traceability from producer to abattoir.
- › Denmark's strong focus on animal welfare has paid off in a number of respects and over the years has led to a high level of efficiency in cattle production.
- › As high veterinary standards are crucial for the maintenance of healthy cattle herds, Denmark has clearly formulated regulations on veterinary visits to farms.
- › Denmark is a front runner in terms of climate change mitigation efforts among the benchmark countries in terms of both beef and dairy production.
- › Denmark has extended its rules for organic farming and for cattle to be classified as organic.
- › A high level of food safety is ensured through the monitoring of animal diseases, traceability and close collaboration between the authorities and the industry.
- › Most of the beef and veal produced in Denmark derives from dairy cows, which implies better resource utilisation.
- › Denmark's size and infrastructure means limited transport time to the abattoir.
- › In Denmark there is strong focus on utilising all parts of the cow in a sustainable way.

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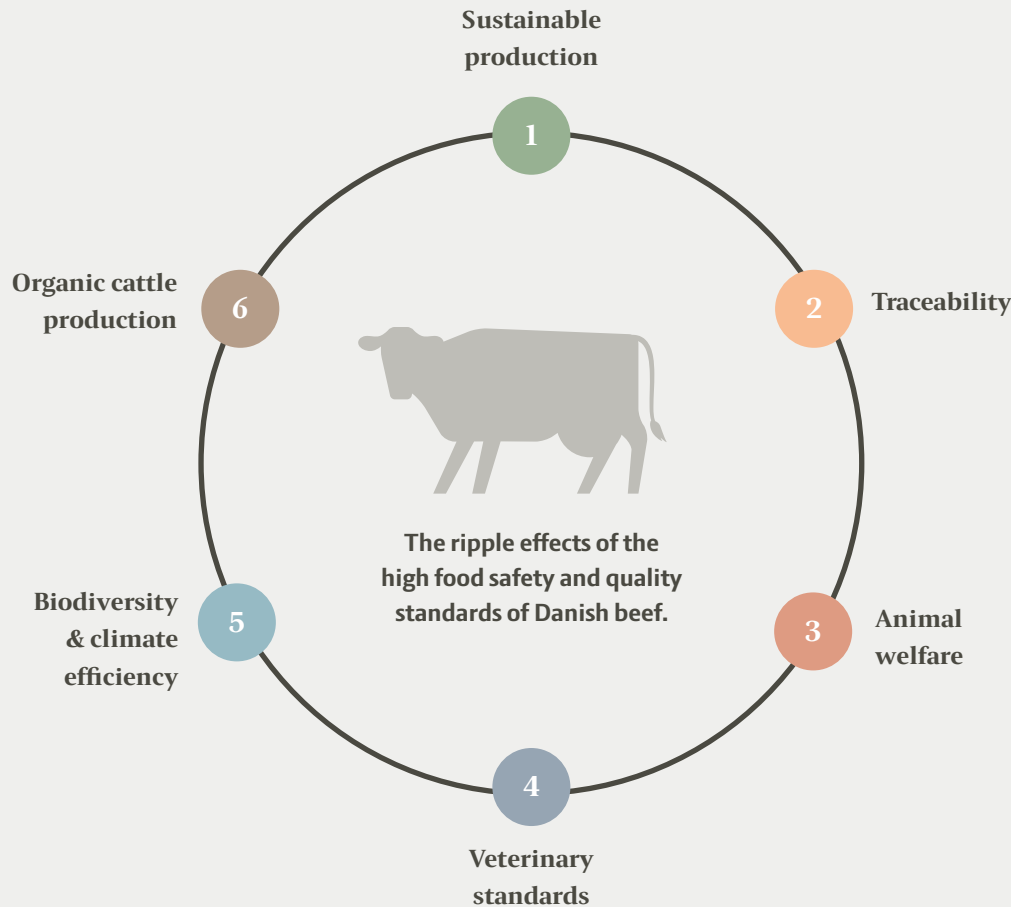
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# Danish cattle production

Beef production in Denmark is strongly focused on continuous efficiency improvements, animal welfare and sustainability. There is also substantial research into breeding, genetics and feed composition to achieve optimum production performance whilst reducing climate impact. Resource utilisation, food safety and traceability are some of the strengths of Danish beef production.

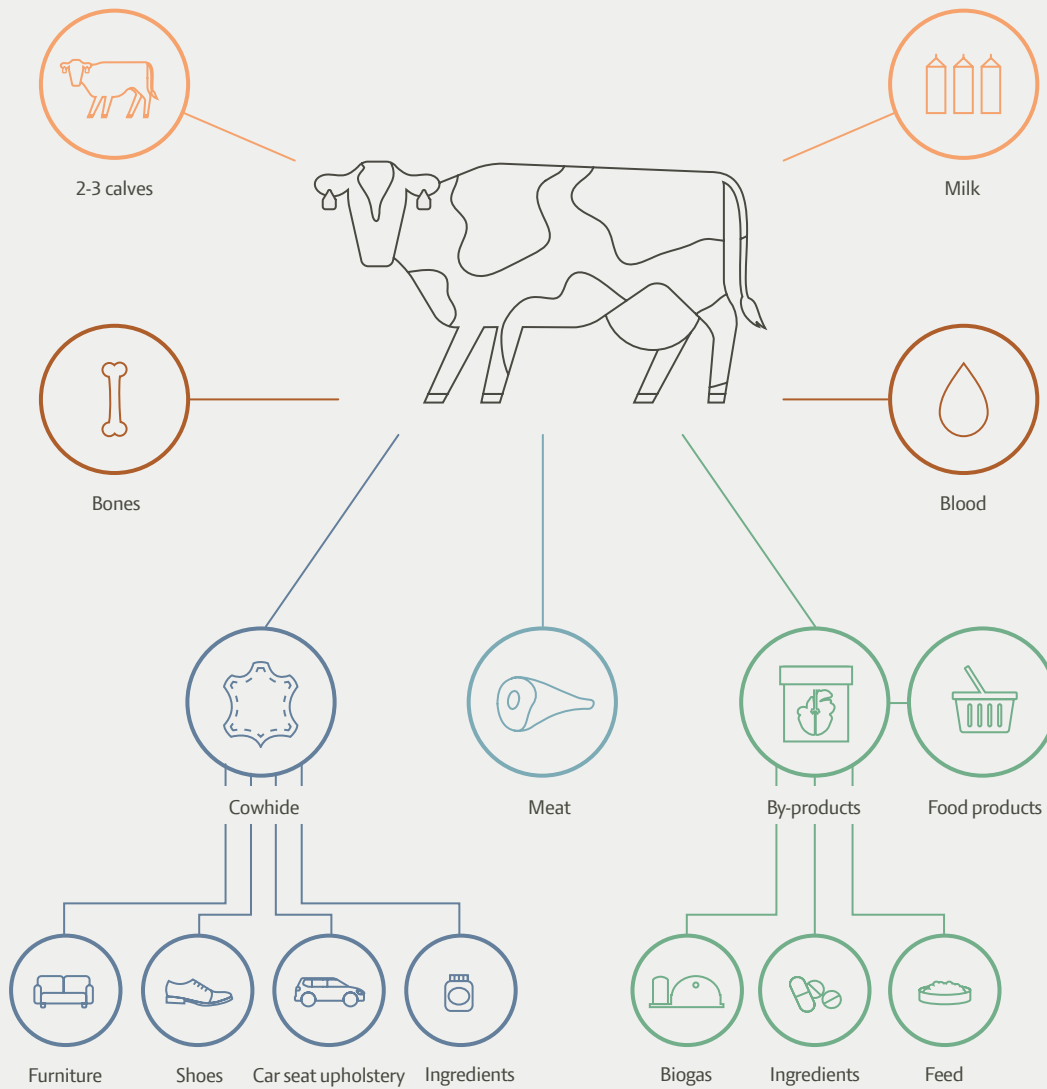
The majority of Danish beef and veal originates from Danish dairy production. Beef and veal production has been declining over the past few years, which is largely due to the constant improvement in the performance of dairy cows. Fewer cows are therefore needed to produce the requisite amount of milk.

High quality and high veterinary standards ensure that Danish beef is of a particularly high standard. Denmark is well known for its Salmonella control programme and for its intricate traceability system. This is where industry codes come into play because they contribute to the comprehensive registration of traceability data and help to ensure strong daily management in terms of control, food safety, animal health, animal welfare and the environment.

The combination of all these elements creates a ripple effect, which makes Danish beef and veal production attractive in the Danish and global markets.

## Facts 2020

In 2020, around 450,000 cattle were slaughtered. The majority of slaughter animals are cows, young bulls and heifers. With a market share of 60 percent in 2020, Danish Crown accounts for most of Denmark's beef production. The rest takes place at the following abattoirs: Himmerlandskød A/S, Århus Slagtehus A/S, Mogens Nielsen Kreaturslagteri, Harald Hansen Efterfølger I/S and Slagtermester Ole Thøgersen.



**The results from the ripple effect have enabled Danish slaughterhouses to be at the forefront with regard to the utilisation and optimisation of all parts of the animal.**

Figure 1

**How a cow is used**

- › 2 1/2 x calves
- › 250 kg by-products
- › 250 kg meat
- › 40 kg hide (leather)
- › 23,750 kg milk

Source: *Environmental impact of beef, Mogensen et. al 2015*

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# Sustainable production



*Constant improvement to cattle production is important for achieving maximum efficiency both in terms of output and the climate. Optimisation is achieved through multiple parameters, which are examined in this chapter.*

## **The main takeaways from this chapter**

- › Denmark is at the forefront in the use of crossbreeding and sexed semen with more focus on the right combination of genes than on the breed.
- › The right feed composition produces healthy cattle and benefits the climate.
- › Collecting and monitoring production and veterinary data provides an insight into areas for improvement.

## 1.1

# Crossbreeding and sexed semen

Production optimisation is achieved through the use of advanced breeding techniques such as crossbreeding and sexed semen. By selecting the right genes to produce good crossbred calves, the producer also ensures that the cows have easy births, a good survival rate, a high growth rate and the correct shape. The benefits are particularly visible in dairy production.

By mapping genetics in crossbred calves, it is possible to determine how genetics affects a calf's feed utilisation, growth and climate impact as well as the eating quality of the meat. Once the results have been entered in the breeding value index, they can be implemented on the farm.

**Table 1.1** Crossbreeding and sexed semen

**EU:** In all EU countries, there is an increasing focus on using sexed semen. Heifer calves are produced from the best cows/heifers while beef cattle semen is used for the other cows. A calf crossed with beef cattle has a higher value when sold on to a calf breeder.

## Denmark

**Use:** A sharp increase in the use of crossbreeding with beef cattle in recent years. Sexed semen is widely used to produce heifers from the best cows/heifers to promote positive genetics. Currently, about 30% crossing with beef cattle.

**Breed:** Blue cattle, Charolais and Angus are widely used. Crossbreeding has also been initiated between Danish Jersey herds and beef cattle as no more infant calves will be killed in Denmark from 2022.

## Germany

**Use:** Limited use of crossbreeding with beef cattle. New technology with sex-sorted semen has not yet been used in smaller herds.

**Breed:** Tradition for producing large bulls for slaughter at about 2 years of age where many are fed on grass and grass silage.

## Ireland

**Use:** Increasing use of crossings with beef. About 25% crossbred.

**Breed:** Angus and Hereford are the most common crosses as these are the most widespread breeds in the country. Seasonal calving is widely used, with calves born in early spring as there is a significant emphasis on large grazing systems.

## Netherlands

**Use:** Increasing use of crossings with beef cattle. About 20% used in 2020.

**Breed:** Almost only Blue Bull semen.

## Sweden

**Use:** Increasing use of crosses with beef cattle. About 20% crossbreeding with beef cattle.

**Breed:** Charolais and Angus are commonly used. The use of Blue Cattle for insemination in Sweden is not permitted.

## 1.2

## Feed

By focusing on feed loss and improved feed utilisation, less land is required per produced litre of milk/kg meat. This, in turn, means a reduction in greenhouse gas emissions per produced unit. Determining the optimum fodder composition offers several benefits. The addition of fat to ruminant fodder is one way of reducing rumen methane emissions both from dairy cows as well as breeding cattle. Rapeseed as a fat supplement to feed provides the best overall means for reducing methane released from the rumen. Another factor to be considered is the amount of protein content in the feed as this affects the environment and the climate. It is important, therefore, to use only the required amount of protein.

**Table 1.2.1** Feed and premixed feeding of animals prior to slaughter

**EU:** Throughout the EU in general, there is increased focus on locally produced feed to reduce soy imports from outside the EU.

Denmark	Germany	Ireland	Netherlands	Sweden
<p>Dairy cattle are fed on roughly equal amounts of grass and maize. Self-sufficiency in feed is an important factor, particularly with regard to protein where large quantities of soybean meal were previously imported from South America. This is now being replaced by rapeseed protein and broad beans. Energy (starch) mainly consists of rolled grain and corn silage. Efforts are being made to slaughter cattle exclusively fed on Danish-produced feed. Tests are also underway to determine whether grass silage can make up a larger proportion of the feed for slaughter cattle.</p>	<p>Bull calves are fed more extensively on grass silage and grazed grass. They are slaughtered as young bulls at about 500 kg live weight and between 16–24 months.</p>	<p>Focus on extended grazing. Most bull calves remain as bull studs and are let out on grass for 6–8 months a year. In winter, they are fed on grass silage and corn. The studs are slaughtered at 20-28 months old.</p>	<p>Most bull calves are used to produce rosé veal at 8–10 months old. They are fed intensively with milk replacer until they are 10 weeks old then with a concentrate with a high starch level. They weigh about 380 to 420 kg live at slaughter. The Netherlands imports many calves at 2-4 weeks of age from Ireland, Germany, Denmark etc.</p>	<p>Bull calves are fed more extensively with grass silage and grazed grass. They are slaughtered as young bulls at about 500 kg at about 15–20 months.</p>

## 1.2.2

### Table 1.2.2 Organic feed and premixed feeding of animals prior to slaughter

EU: Feed must be 100 per cent organic. Farmers may finish-feed adult animals in housed systems with no outdoor access.

#### Denmark

##### Feed:

Feed must be 100 per cent organic. Most of it must be in the form of roughage and come from the farm's own pastures. Feed consisting of GM crops or produced through the use of GM technology, must not be used in organic production. Feed rations must consist of at least 60% coarse feed; At least 60% of the feed must come from own holdings or be produced in the same region. The proportion will be increased to 70% on 1 January 2022.

##### Premixed-feeding:

If cattle between 9 and 12 months of age are finished fed in housing systems in accordance with relevant EU regulations, and within the period that is regarded in Denmark as being the grazing period, the animal must have access to a pen or a run.

#### Germany

##### Feed:

Follows EU requirements.

##### Premixed-feeding:

Adult animals may be finished-fed in housed systems without outdoor access but for no more than three months and for a period not exceeding a fifth of the animal's life.

#### Ireland

##### Feed:

Follows EU requirements.

##### Premixed-feeding:

Farmers may finish-feed adult animals in housed systems with no outdoor access.

#### Netherlands

##### Feed:

Follows EU requirements.

##### Premixed-feeding:

Farmers may finish-feed adult animals in housed systems with no outdoor access.

#### Sweden

##### Feed:

Follows EU requirements.

##### Premixed-feeding:

Adult animals over 9 months of age can be finished-fed in housed systems with provision for exercise (loose system).

## 1.3 Data and registration of veterinary medicines

# Data and registration of veterinary medicines

This section compares registration systems for veterinary medicines used in cattle production.

However, individual farmers also use advanced data registration systems that compare a wide range of cattle production data with input from veterinarians and consultants. These systems enable farmers to obtain a complete production overview and to identify those areas that need to be improved, i.e. mixing the optimum amount of feed and supplements, the health of the individual cow, milk quantity etc. Based on current data, the forecasting tool provides estimates for the years ahead.

**Table 1.3** Data and registration of veterinary medicines

**EU:** The systems in place for the registration of veterinary medicines used in cattle production at farm level differ from country to country. The EU regulation 2019/6 (EU) comes into force from January 2022 and will harmonise national regulations on the use, registration and monitoring of veterinary medicines. This will level out most of the current differences between countries.

In all countries, except Ireland, the reporting of antimicrobial use is mandatory. In Denmark, Sweden and the Netherlands data is reported to a single central database. There are several databases in Germany. Ireland has none. Of the four countries with reporting systems at farm level, the system used in the Netherlands is apparently the most detailed. Germany's system is the least detailed.

### Denmark

**Registration:** "Vetstat" owned and managed by the Danish Veterinary and Food Administration, part of the Ministry of Food, Agriculture and Fisheries of Denmark. It covers 100% of farm animals.

**Input:**

- Pharmacies and feed-mills obliged to report quantities of medicines sold.
- Vets report the quantities of medicines used for production animals in veterinary practice.
- Livestock owners do not provide data. However, they are obliged to record their specific usage of prescribed medicines and retain this information for five years on farm. To calculate the standardisation of antimicrobial usage at farm level, the requisite number of animals can be obtained from the Central Husbandry Register, which is assumed to be the average capacity numbers.

### Germany

**Registration:** Legal requirement to report antimicrobial use in livestock into a central database.

Several databases available, but no system covers 100% of the sector, as criteria only applies to farms with > 20 beef calves /beef cattle.

**Input:** Veterinarians are required to provide the number of treated animals, number of treatment days and the antimicrobial product used.

### Ireland

**Registration:** National usage of antimicrobials in cattle is not yet collected at farm level, and a system database is under development to comply with new EU legislation (2019/6).

### Netherlands

**Registration:** Sectorial databases (SDa) record antimicrobial usage and set out benchmarking criteria for the sector. Databases are partially financed by governmental and private sources.

They cover 100% of farm animals and include sub-categories of cattle.

SDa receives and reports sales and usage data on veterinary pharmacy products received from FIDIN, the Dutch Federation of the Veterinary Pharmaceutical Industry, on an annual basis. The SDa analyses the combined data on consumption and animal numbers delivered by the sectors to SDa.

**Input:** Vets provide the quantity of antibiotics prescribed. The quality systems provide the average number of animals over a one-year period, collected annually by inspection visits, or by drawing on the compulsory 'Identification & Registration System (I&R)' for the registration of animals.

### Sweden

**Registration:** 'Djursjukdata DAWA' is owned by the Swedish Board of Agriculture (SBA). It is the oldest data collection system for antimicrobial use at farm level. The computer-based system was introduced in 1982 through a general agreement between the government and the Federation of Swedish Farmers (LRF).

It covers 100% of farm animals and includes sub-categories of cattle.

**Input:** It is mandatory for vets to provide treatment data. Record keeping on farm is mandatory for farmers.

Photo: Landbrugs Medier





2

# Traceability



*Ensuring good animal welfare and high food safety standards begins at the farm. The first step in the food chain's traceability system is when the calf is ear-tagged.*

## **The main takeaways from this chapter**

- › Ear tagging and registration in a national database is important first step to secure traceability in the complete production chain.
- › Information about cattle movement and treatments by veterinarians is central for traceability in terms of animal diseases and recall procedures.

## 2.1

# Traceability

Pursuant to Regulation (EC) No. 178/2002 of the European Parliament and of the Council laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety, food traceability requires a “one step back” – “one step forward” approach.

With regard to beef, this has been supplemented by special traceability requirements as described in Regulation (EC) No. 1760/2000 establishing a system for the identification and registration of bovine animals and the labelling of beef and beef products and repealing Council Regulation (EC) No 820/97.

- The special rules governing the traceability of beef cover a number of labelling requirements:
  - Reference numbers.
  - "Born in...." – information about Member State or third country where the animal was born.
  - "Raised in...." – information about the Member State or third country where fattening has taken place.
  - "Slaughtered in (name of country) (approval number of slaughterhouse)".
  - "Cut in (name of country) (cutting hall's approval number)".
- The labelling system for beef shall ensure a link between, on the one hand, the identification of the carcass, quarter or

pieces of meat and, on the other hand, the individual animal or group of animals.

- In addition, there are special supplementary rules for the labelling of veal (meat from bovine animals under 12 months of age) as described in Regulation (EU) no. 1308/2013 of the European Parliament and of the Council of 17 December 2013 on establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No. 922/72, (EEC) No. 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 Annex VII, Part I.
- The labelling of veal shall ensure the uniform marketing of veal. There are two categories:
  - Veal - "slaughter age below 8 months".
  - Beef – "slaughter age from 8 to under 12 months".

## Table 2.1 Traceability

**EU:** Article 18 of the EU's Food Regulation no. 178/2002 on traceability in the food chain (covering both the link/segment before and after the segment in question) and EU regulation no. 1760/2000 on the labelling of beef and beef products.

Denmark	Germany	Ireland	Netherlands	Sweden
EU requirement (with traceability back to the producer or group of producers).	EU requirement (no knowledge about traceability back to producer).	EU requirement (no knowledge about traceability back to producer).	EU requirement (no knowledge about traceability back to producer).	EU requirement (no knowledge about traceability back to producer).

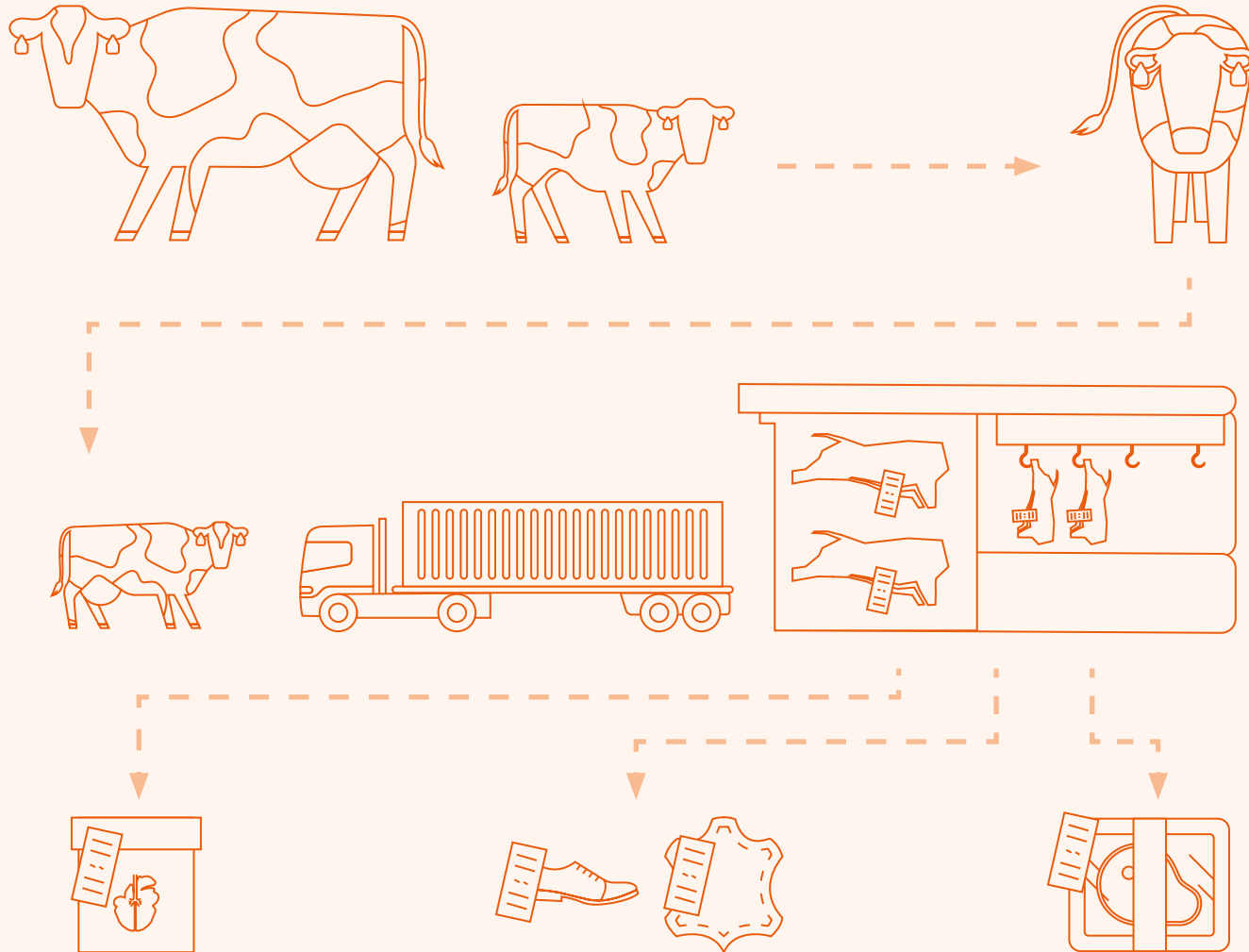
### Ear tagging - a key element in traceability

Shortly after a calf is born, it is ear tagged or no later than 20 days after birth. Exceptions are calves born on extensive grassing areas. They must be ear tagged within 9 months after birth. All calves must be ear tagged before they leave the farm. The ear tag carries a unique identifier code and an electronic device, and which must not be removed or altered.

Each ear tag number is used to obtain information on the animal's date of birth, movements between farms, slaughter or death. The data must be reported by the farmer no later than seven days afterwards and is stored in a national database. The number on the ear tag is also used to extend traceability into the slaughterhouse.

Since the implementation of the Animal Health Act in April 2021, it has become compulsory for all EU Member States to report all registrations into a national database. There are therefore no significant differences between EU Member States in terms of the tagging and registration of cattle for traceability purposes.

## Traceability in the food chain



3

# Animal welfare

*Greater focus on animal welfare is the key to improving production. The better the conditions for cattle, the healthier they will be and the better their performance and value.*

## **The main takeaways from this chapter**

- › Denmark's size and infrastructure mean that the transport time to abattoir is short.
- › The provision of cow brushes in cowsheds is mandatory in Denmark.
- › 92% of Danish dairy cows are housed in loose-housing systems.
- › Denmark has voluntarily agreed to stop the culling of calves.

## 3.1

## Types of housing

**Table 3.1** Types of housing

**EU:** No specific EU legislation.

**Denmark**

More than 92% of dairy cows are housed in loose-housing systems.

Cubicles with straw bedding up to 175 kg weight.

Bed stalls are used for about half of the calves, with the rest on deep bedding.

**Germany**

Approx. 21% of all cattle are kept in tie stalls and approx. 27% of dairy cows. No new tie stalls can be built. This is because many older cowsheds remain in existence. However, these are expected to be phased out over the next 10 years.

Most cattle over 12 months are put out to pasture.

Loose-housing systems consist of both deep bed cowsheds and bed stalls. A number of fully slatted cowsheds are still in existence.

**Ireland**

Animals primarily graze outdoors, and feed is mainly grass-based (fresh grass and grass silage).

In Ireland, cattle usually graze for 6-8 months a year.

In the winter, most are housed in full slats or in bed stalls. As there is a shortage of straw in Ireland, deep litter barns are almost non-existent.

**Netherlands**

Approx. 80% of dairy cows graze outdoors (at least six hours per day for 120 days)

Fattening of calves takes place in cowsheds, where calves are loose in boxes with a soft surface (rubber) and with slats for the production of Rosé calves. There is no requirement for calves up to 12 months old to graze on grass.

**Sweden**

Most Swedish cows are put out to graze in the summer.

Most cows, calves and young animals are loose housed with bed stalls due to the shortage of straw. Tie barns will soon be banned, but no final date has been set yet.

## 3.2

# Castration and dehorning

**Table 3.2** Castration and dehorning

**EU:** No specific EU legislation.

## Denmark

**Castration:** Only by veterinarians. Anaesthetic and long-lasting pain relief are required. Castration using Burdizzo castrator (squeezing) is only allowed if calves are less than four weeks of age and with the use of local anaesthetic.

**Dehorning:** Only by veterinarians. Anaesthetic and long-lasting pain relief are required. Calves less than three months of age can be dehorned by the farmer using heat cauterization (hot iron) and if calves are anaesthetised by a veterinarian just before the procedure.

## Germany

**Castration:** Only by veterinarians. Castration without anaesthesia is allowed on calves less than four weeks of age.

**Dehorning:** May be performed by the farmer without anaesthesia on calves less than six weeks of age. Dehorning of older cattle requires anaesthesia.

## Ireland

**Castration:** Can be performed by farm workers without the use of anaesthesia and analgesia before the calf reaches 6 months of age using a Burdizzo or before it reaches 8 days of age using a rubber ring. Over these age limits, local anaesthesia, using a prescription only medicine must be administered by a veterinarian to animals intended for castration.

**Dehorning:** Disbudding (young calves) and dehorning (older animals) can be performed by farmers or farm workers. Disbudding of calves up to 28 days old is allowed by thermal cauterization. Local anaesthetic is required for disbudding calves after two weeks of age. Producers should seek guidance from veterinarians on analgesia/anaesthesia and procedures for the dehorning of cattle, particularly older animals, where horns are more advanced.

## Netherlands

**Castration:** Only by veterinarians or “castreur” (training is now defunct) under sedation. Requirement for local anaesthetic and pain relief.

**Dehorning:** May be performed by farmers but requires local anaesthetic administered by a veterinarian. Sedating/ anaesthetising the calf is voluntary.

## Sweden

**Castration:** Only by veterinarians. Anaesthetic requirement administered by a veterinarian.

**Dehorning:** May be performed by veterinarians or technicians certified by the Swedish authorities or other authorised persons. Anaesthetic requirement administered by veterinarians or certified technicians.

## 3.3

# Ban on systematic culling of small calves

**Table 3.3** Ban on systematic culling of small calves

**EU:** No specific EU legislation.

### Denmark

Euthanising newborn calves is allowed. However, Danish farmers have agreed on a self-imposed ban on euthanising newborn calves by January 2022. In 2020, approximately 12,000 newborn calves were euthanised.

**Organic:**

Systematic culling of small calves is not allowed. The ban does not apply to farms with eradication of salmonella in progress.

### Germany

Officially not allowed. However, there are some indications that newborn or young male dairy calves are killed illegally.

**Organic:**

No restrictions.

### Ireland

Euthanising newborn, primarily male calves, is still common practice in Irish dairy production. Objective figures do not exist. It has been estimated that around 22,000 newborn dairy calves were killed in 2017, a figure that some animal welfare organisations consider to be underestimated.

**Organic:**

No restrictions.

### Netherlands

Euthanising newborn calves is allowed. No official figures exist.

**Organic:**

No restrictions.

### Sweden

Euthanising newborn calves is allowed. No official figures exist.

**Organic:**

No restrictions.



## 3.4

# Transport to abattoir

The common EU rules for transport are described in Council Regulation (EC) No. 1/2005 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and regulation (EC) No. 1255/97.

- Animals shall be transported under conditions guaranteed not to cause them injury or unnecessary suffering.
- Animals must be fit for transport, which means that they cannot be sick or injured. Highly pregnant animals are not fit for transport.
- The means of transport and the carrier must be approved and authorised for transport.
- The separation of certain types of animals is required in certain situations, i.e. in relation to species, differing size, horns, sexual maturity, etc.
- In general, the journey must be kept under 8 hours otherwise additional requirements are necessary.

**Table 3.4** Transport to abattoir

**EU:** Regulation no. 1/2005 on the protection of animals during transport. If transport exceeds 8 hours, supplementary requirements must be met.

**Organic:** Transport and lairage at the abattoir follow general legislation that covers all farm animals.

Denmark	Germany	Ireland	Netherlands	Sweden
<p>Follows EU requirements.</p> <p>The transport of cattle is based on a maximum of 8 hours within Denmark's borders, but due to the size of the country and infrastructure the transport time is rarely more than four hours.</p> <p><b>Organic:</b> Farmers must comply with a number of stipulations:</p> <ul style="list-style-type: none"> <li>• Design of transport lorry.</li> <li>• Overall transport time may not exceed 8 hours.</li> <li>• Transport in own means of transport of 1 hour maximum.</li> <li>• Organic cattle must be slaughtered within 3 hours after being unloaded at the abattoir.</li> </ul>	<p>Follows EU requirements.</p> <p><b>Organic:</b> Overall transport time and distance may not exceed 4 hours and 200 km. Transport time that exceeds this figure is only allowed after prior permission and assumes adequate water during transport and a period of rest prior to slaughter.</p> <p>Time periods between final feeding and slaughtering must not exceed 16 hours for ruminants.</p>	<p>Follows EU requirements.</p> <p>The basis for the transport of cattle is a maximum of 8 hours within the country's border.</p> <p><b>Organic:</b> Transport and lairage at the abattoir follow general legislation that covers all farm animals.</p>	<p>Follows EU requirements.</p> <p>Apparently, there are no national regulations, but this is uncertain because of language difficulties.</p> <p><b>Organic:</b> Transport and lairage at the abattoir follow general legislation that covers all farm animals.</p>	<p>Follows EU requirements.</p> <p>The basis for the transport of cattle is a maximum of 8 hours within the country's border (dispensation for up to 11 hours can be obtained if required to reach the nearest abattoir).</p> <p><b>Organic:</b> As EU regulations but also:</p> <ul style="list-style-type: none"> <li>• All handling with regard to transport and slaughtering must be performed in a calm and composed manner and with a minimum of physical and psychological strain on the animal.</li> <li>• Keep animals from the same farm together during transport, lairage and stunning.</li> </ul>

## 3.5

## Stunning at slaughter

Pursuant to Article 26 of Regulation 1099/2009 on the protection of animals at the time of killing. Member States may adopt national rules aimed at ensuring more extensive protection of animals at the time of killing in relation to the killing of animals outside a slaughterhouse and in relation to religious slaughter.

- Animals must be spared any unavoidable pain, mental strain or suffering during killing and related activities and senior management must take measures to ensure this.
- Only specific stunning methods may be used, and it must be ensured – via stunning indicators – that the animal remains unconscious and without any perception of pain until death.
- Killing and related activities may only be performed by persons in possession of a certificate of competence.
- There are requirements concerning the slaughterhouse's layout, construction and equipment, including standard procedures.
- A person responsible for animal welfare must be appointed at each slaughterhouse.

It should be noted that certain countries (or federal states) require post-cut stunning in particular situations i.e. where stunning is not performed before slaughter. This, however, is not included in the present overview.

**Table 3.5** Stunning at slaughter

**EU:** Slaughtering without stunning is allowed for slaughtering in accordance with religious rites.

Denmark	Germany	Ireland	Netherlands	Sweden
Slaughtering without stunning is not allowed (national rules).	Slaughtering without stunning is allowed for slaughtering in accordance with religious rites.	Slaughtering without stunning is allowed for slaughtering in accordance with religious rites.	Slaughtering without stunning is allowed for slaughtering in accordance with religious rites.	Slaughtering without stunning is not allowed (national rules).

## 3.6

## Animal welfare labelling

In recent years, it has become more common for meat to carry information about animal welfare. This is to improve the welfare of animals through consumer choice. Labelling meat in this way means that consumers are able to identify which products meet the requirements for better animal welfare.

**Table 3.6** Animal welfare labelling

**EU:** A voluntarily EU-wide label has not yet been decided upon although there is general interest.

<b>Denmark</b>	<b>Germany</b>	<b>Ireland</b>	<b>Netherlands</b>	<b>Sweden</b>
<p>One government-backed animal welfare label, which has been developed in collaboration with farmers, retail chains, slaughterhouses and animal welfare organisations.</p>	<p>5 different labels – all managed by private stakeholders.</p>	<p>No animal welfare label.</p>	<p>6 different labels – all managed by private stakeholders.</p>	<p>2 different labels – all managed by private stakeholders.</p>

## 3.7

## Access to skincare

Providing cattle with access to skincare contributes to a higher standard of animal welfare as brushes help to keep cows clean and free from dung and parasites. This results in higher skin quality post slaughter. Brushing also stimulates the metabolism and blood circulation in the skin.

**Table 3.7** Access to skincare

**EU:** No EU legislation and not covered in the EU's organic regulations.

### Denmark

National special requirement: animals must have access to a cow brush. There must be at least one cow brush per 50 animals.

**Organic:**

There must be access to skin care for housed and grazing animals. Housed animals must have access to a cow brush. There must be at least one cow brush per 50 animals.

### Germany

No national requirements.

**Organic:**

Follows EU regulations, i.e. the only requirement is that animals must be able to exercise their natural behaviour.

### Ireland

No national requirements.

**Organic:**

Follows EU regulations, i.e. the only requirement is that animals must be able to exercise their natural behaviour.

### Netherlands

No national requirements.

**Organic:**

Follows EU regulations, i.e. the only requirement is that animals must be able to exercise their natural behaviour.

### Sweden

No national requirements.

**Organic:**

Follows EU regulations, i.e. the only requirement is that animals must be able to exercise their natural behaviour. In addition, farmers must be able to demonstrate that they work preventively and that their animals are in good health.



4

# Veterinary standards

*Veterinary input is another factor that contributes to healthier animals.*

*This includes on-farm visits, the treatment of sick animals and the monitoring of animal diseases.*

## **The main takeaways from this chapter**

- › Denmark ranks second in terms of medicine consumption.
- › One annual visit by a veterinarian is laid down by Danish legislation.
- › Denmark is at the forefront in terms of controlling major cattle diseases.
- › The industry code is an important tool for ensuring that slaughterhouses comply with HACCP and hygiene requirements.

## 4.1

# Veterinary visits

**Table 4.1** Veterinary visits

**EU:** EU legislation on veterinary visits for animal welfare purposes.

**Denmark**

Two veterinary visits per year. All herds must have at least one annual visit. Herds of more than 100 dairy cows or more than 200 young stock/calves require at least two visits a year.

**Germany**

If the producer wishes to have medicine available for treatment, the veterinarian must visit the herd at least once per month. There are, however, no specific requirements as to the content of such visits.

**Ireland**

Follows EU legislation in the area.

**Netherlands**

If any violation of the regulations is detected during an audit, the herd veterinarian is called in to advise on how conditions can be improved.

**Sweden**

If mortality and disease exceed a certain level, a higher number of veterinary visits may be required.



## 4.2

# Medicine consumption

There are no comparative measurements for the cattle area, but the European Medicines Agency (EMA) initiated the “European Surveillance of Veterinary Antimicrobial Consumption (ESVAC)” project in 2010. ESVAC collects information on how antimicrobial medicines are used in animals across the EU and the data is gathered in the ESVAC database. The most recent ESVAC report was published in 2020 and shows sales for 31 European countries (EU and EEA countries) in 2018. Individual country reports have also been produced. The reports show the total sales of antimicrobials for food-producing animals. The applied unit is mg/kg biomass (total number of animals) within each country. This corresponds to mg/kg population correction unit (PCU), which can be translated as mg of antimicrobial veterinary products sold per kg of estimated weight of livestock and slaughtered animals in each country.

**Table 4.2** Medicine consumption

**EU:** 25 EU and EEA countries:

**2016:** 144.0 mg/PCU **2018:** 105.6 mg/PCU

Denmark	Germany	Ireland	Netherlands	Sweden
<b>2016:</b> 42.2 mg/PCU	<b>2016:</b> 97.9 mg/PCU	<b>2016:</b> 51.0 mg/PCU	<b>2016:</b> 64.4 mg/PCU	<b>2016:</b> 11.8 mg/PCU
<b>2018:</b> 38.2 mg/PCU	<b>2018:</b> 88.4 mg/PCU	<b>2018:</b> 46.0 mg/PCU	<b>2018:</b> 57.5 mg/PCU	<b>2018:</b> 12.5 mg/PCU

## 4.3

# Salmonella programmes

The EU has laid down regulations for process hygiene criteria for salmonella on the carcasses of cattle in Commission Regulation (EC) no. 2073/2005 on microbiological criteria for foodstuffs, which implies: Article 1 allows for further sampling and analyses by the authorities nationally for the purpose of measuring or detecting other micro-organisms, their toxins or metabolites, either within the context of a risk analysis or in the event of food suspected of being unsafe.

There are microbiological criteria for fresh meat and fresh meat products. The microbiological criteria, which include Salmonella, aerobic colony count and enterobacteria, are used to assess when a product is acceptable.

Sampling frequency for fresh meat and fresh meat products is given and frequency may vary depending on the scale of production.

There are requirements for registration of analysis results for fresh meat, so that a trend analysis can be prepared over time.

For fresh meat products, a distinction is made between whether the products are to be eaten raw or heat-treated.

**Table 4.3** Salmonella programmes

**EU:** EU regulation no. 2073/2005 on microbiological criteria for foodstuffs.

## Denmark

EU regulation no. 2073/2005 on microbiological criteria for foodstuffs supplemented by national salmonella programme and government order no. 1055 of 31 May 2021.

## Germany

Follows EU regulation no. 2073/2005. It seems that no national salmonella programme exists in Germany, but it cannot be excluded that certain federal states have introduced one.

## Ireland

Follows EU regulation no. 2073/2005.

## Netherlands

Follows EU regulation no. 2073/2005 and national salmonella programme.

## Sweden

Special agreement regarding testing for the absence of salmonella on imports of fresh meat from other EU countries – regulation 1688/2005. National salmonella programme.

## 4.4

# Industry code for cattle slaughtering

Pursuant to Regulation 852/2004 of the European Parliament and Council regulation (EC) No. 852/2004 on the hygiene of foodstuffs, Articles 1 and 8, provision is given for the establishment of national guidelines for good practice, which helps food business operators to comply with hygiene rules and apply the HACCP principles.

- An industry code is a set of structured descriptions as to how legislation can be complied with in a given area. An industry code can, for example, be prepared by industrial associations.
- An industry code is deemed by the national authorities as being suitable for complying with relevant legislation.
- The industry code is continuously updated in line with new legislation.
- The use of an industry code is time-saving for the individual company as the preparation of self-monitoring programmes is based on descriptions that the authorities have already deemed suitable for complying with the legislation. This saves the individual company from discussions with the authorities about how legislation should be interpreted. At the same time, it also provides for a more uniform compliance with the legislation across an industry.

**Table 4.4** Industry code for cattle slaughtering

**EU:** Regulation no. 852/2004 on food hygiene.

## Denmark

Industry code for cattle abattoirs that are members of the Danish Agriculture & Food Council.

Industry code for slaughtering and primal cutting companies that are members of Danish Master Butchers.

## Germany

None with specific relevance for abattoirs or primal cutting companies.

However, an industry code has also been drawn up in Germany with partial relevance for the beef industry, i.e. "Guide to good food hygiene practice for adjusting the sampling frequency in companies that produce small quantities of minced meat and meat products."

## Ireland

Food Safety Management System (FSMS) Guide for low throughput cattle, sheep, goat and pig slaughterhouses.

## Netherlands

Cattle farm and beef production (cattle, beef, primary production, food and feed).

Calves (calves, primary production, private quality systems, food products and feed).

## Sweden

Industry guidelines for small-scale slaughtering of cattle, pigs and lamb.

## 4.5

## Disease status

Monitoring animal diseases is part of ensuring a high level of food safety. Disease status is monitored at national level. A status update is presented below. One of the more serious bovine diseases is Bovine Spongiform Encephalopathy (BSE) as it can be transmitted to humans.

### BSE Status

OIE (the World Organisation for Animal Health) determines the BSE status of EU countries, which the EU Commission subsequently implements into EU legislation. The OIE's classification of the countries' current BSE status is published on the following website: <https://www.oie.int/en/disease/bovine-spongiform-encephalopathy/>

Denmark, Germany, Ireland, The Netherlands and Sweden all belong to the group of countries with negligible BSE risk.

**Table 4.5** Disease status

EU: Disease status at country level

Major cattle diseases	Denmark	Germany	Ireland	Netherlands	Sweden
<b>BSE</b>	Negligible Risk **	Negligible Risk **	Negligible Risk **	Negligible Risk **	Negligible Risk **
<b>Bluetongue (BTV)</b>	Officially free*	Most areas are free. Certain areas are "not free" *	Officially free*	Officially free*	Officially free*
<b>Bovine tuberculosis (MTBC)</b>	Officially free*	Officially free*	Not free Control programme	Officially free*	Officially free*
<b>Bovine Brucellosis</b>	Officially free*	Officially free*	Officially free*	Officially free*	Officially free*
<b>Infectious Bovine Rhinotracheitis (IBR)</b>	Officially free*	Officially free*	Not free * Control programme	Not free * Control programme	Officially free*
<b>Enzootic Bovine Leukosis</b>	Officially free*	Officially free*	Officially free*	Officially free*	Officially free*
<b>Bovine Viral Diarrhoea (BVD)</b>	Applying for officially free status	Not free * Control programme	Not free * Control programme	Not free * Control programme	Applying for officially free status
<b>Salmonella Dublin</b>	Control programme	Not free	Not free	Control programme	Almost free

\* Commission Implementing Regulation (EU) 2021/620 of 15 April 2021 \*\* OIE, Resolution No. 17 (88th General Session, May 2021)

Photo: Landbrugs Medier



5

# Biodiversity & climate efficiency

*Climate awareness has become a critical factor in the global agenda and a new competitive parameter that requires special attention as the climate continues to change. Preserving the environment is at the forefront of beef production. The most relevant measures for benchmarking have been carefully selected.*

## **The main takeaways from this chapter**

- › The majority of cattle slaughtered in Denmark come directly or indirectly from the dairy sector where Denmark has a high climate efficiency due to the low quantity of feed needed to produce one kg of dairy.
- › Denmark is a front runner in terms of climate efficient production.
- › Denmark's policy on the use of imported soy implies stronger focus on locally produced fodder with high protein.
- › Biodiversity is ensured by grazing cattle.

## 5.1

## Responsible use of soy

Soy has a protein composition that meets the needs of animals, which is why soy is included in a large proportion of compound feed. Soy is an intensively grown crop. If soy was to be replaced by other protein crops, a larger area for cultivation would be required. In some parts of South America, soy cultivation has led to deforestation and ensuing environmental and social consequences.

### Table 5.1 Responsible use of Soy

**EU:** FEFAC (The European Compound Feed Manufacturers' Federation) Soy Sourcing Guidelines. Several European countries have signed the Amsterdam Declaration Partnership, which strives to 'eliminate' deforestation from European supply chains through public and private sector initiatives by 2025. This means that from 2025, all soy purchased for feed must meet the criteria in FEFAC responsible soy sourcing guidelines, be responsibly produced, third party verified and deforestation-free.

#### Denmark

**Policy:**

Danish Alliance for Responsible Soy under the Danish Ethical Trading. Initiative formed by environmental organisations, government agencies, businesses and business associations. Also, individual companies can purchase RTRS certificates to further support the responsible and deforestation-free production of soy.

Purpose: To ensure that all importers of soy into Denmark and all committed stakeholders publish a plan of action to ensure sustainable soy use and submit yearly reports on their progress.

FEFACs 2025 goal: Yes.

**Use of soy:**

Danish agriculture is simultaneously working to reduce the need for soy imports by developing new Danish-produced proteins to replace some of the imported soy protein in feed.

Subsidiary goals have been set for the years leading up to 2025. This means that the minimum quota for verified responsible and deforestation free soy will be increased incrementally (2021: 20%, 2022: 40%, 2023: 60%, 2024: 80%, 2025: 100%).

#### Germany

**Policy:**

The Federal Office for Agriculture and Food coordinates the Forum Nachhaltigere Eiweissfuttermittel (Forum on More Sustainable Protein Feeds).

Purpose: To achieve 100% certified soy use in animal feed.

FEFACs 2025 goal: Yes.

**Use of soy:**

Limited use of soy in cattle production as feed is highly grass based and thus also protein rich.



## Ireland

### Policy:

IGFA (Irish Feed and Grain Association).

Purpose: To gather information on the sustainability status of the soy used in Ireland.

FEFACs 2025 goal: N/A.

### Use of soy:

Limited use of soy in cattle production as feed is highly grass based and thus also protein rich.

## Netherlands

### Policy:

The Dutch Soy Platform was established by IUCN NL in 2018.

Purpose: To further strengthen responsible deforestation-free soy used by Dutch producers and international supply chains in which Dutch producers are represented.

FEFACs 2025 goal: Yes.

### Use of soy:

A significant amount of soy protein is still used in concentrates for calf fattening. There is little focus on reducing soy consumption and finding alternative sources, such as rapeseed and by-products from industry.

The Netherlands is not self-sufficient in feed as the country has a large livestock production relative to the agricultural area.

## Sweden

### Policy:

In 2014, the Swedish Soy Dialogue established a cross-industry collaboration between Swedish feed companies, food companies, food retailers, associations, and NGOs.

Purpose: To contribute to the development of the responsible production of soy and, via the network's members, to ensure that by 2025, all soy reaching Swedish consumers is responsibly produced.

FEFACs 2025 goal: Yes.

### Use of soy:

More and more people are replacing soy with self-produced protein to further reduce emissions. Today, three times more feed protein is produced in Sweden than in 2001 – about 165,000 tonnes compared to 53,400.

*Source: Calculations based on statistics from the Swedish Board of Agriculture and Lantmännen Figures on climate, food and forests - LRF.*

## 5.2

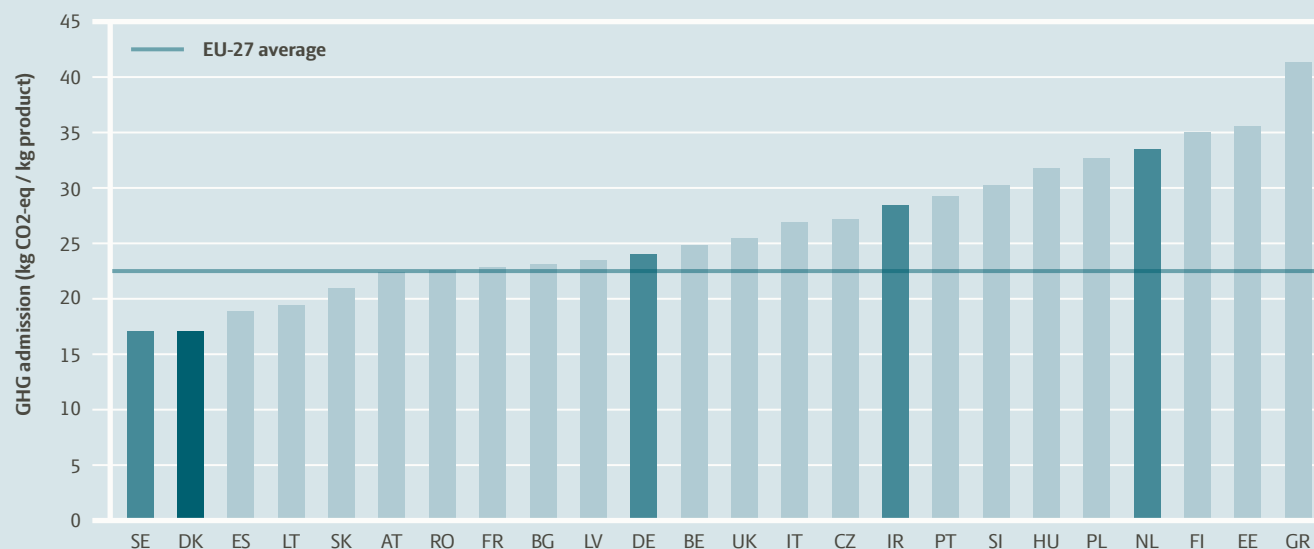
# Biodiversity and climate emissions

Climate emissions are measured on several levels and reduction targets are being set. However, one of the greatest challenges is to compare climate emissions equally across countries (even within the European Union). For example, the calculation methods fluctuate according to the available data and its quality. Also, there are different analytical ways to calculate climate impact, especially if emissions from changed land use are included.

Here, the overall climate change is based on a widely recognised analysis from a Dutch scientific research team, Lesschen et al, which has also been published in the scientific journal, Greenhouse Gas Emission Profiles of European Livestock Sector.

The stated method is generally recognised since both Aarhus University in Denmark and the Ministry of Environment and Food have referred to the analysis in response to the Danish Parliament.

**Graph 5.2** Beef sector's greenhouse gas emissions, expressed in kg CO<sub>2</sub> equivalent per kg of produced beef



Source: Greenhouse gas emission profiles of European livestock sectors, Lesschen et. al. 2011

## Biodiversity

Grazing cattle in nature is important in the promotion of biodiversity. Grazing on natural areas is particularly valuable because animal activity means that the vegetation does not become overgrown. At the same time, it provides a varied structure, with patchier land, varied grazing pressure and cow pats. All of which creates good habitats for plants and animals. Cattle can contribute some of the dynamism that benefits many species of plants, animals and fungi. An important aspect of the function of cattle in natural areas concerns disturbance. Animal impact helps to maintain and create open areas for the benefit of insects and plants.

One of the threats to biodiversity in open habitats such as heaths, grassland and meadows is overgrowth with woody plants and tall herbs. Therefore, nature conservation through cattle grazing is an important part of the effort to maintain and create more biodiversity in the open landscape. This is one of the areas where agriculture plays a key role in giving biodiversity a helping hand.

Natural areas are usually best suited to the extensive cattle breeds. Beef cattle breeds generally have a better ability to utilise various feed components with a low nutrient content than dairy breeds. Therefore, beef cattle are usually used for nature conservation. Dairy heifers can also be included in nature conservation.

## 5.3 Carbon footprint in the dairy production

As the majority of animals slaughtered in Denmark originate from dairy production, it is appropriate to focus on this sector. The carbon footprint of a cow largely relates to feed consumption compared to contribution, i.e. input versus output. About 85% of a dairy cow's climate impact comes from feed production and methane from feed turnover. As dairy cattle consume much more than beef cattle, the carbon footprint of a dairy cow is higher. However, within the perspective of a lifetime, the dairy cow, unlike the suckling calf, produces both milk and meat, which makes the overall carbon footprint of dairy cows lower compared to the suckling calf. 47 per cent (Hermansen et al; Table on food climate impact (2016)) of Danish beef comes from dairy cattle, which means that the animals' characteristics are used to the best possible advantage.

In 2021, the World Resources Institute published a report on milk and pork production. This concluded that Danish agriculture is among the most climate efficient in the world thereby adding to the overall picture of Denmark's high standard in terms of climate efficient production. The World Resources Institute uses a life cycle GHG model that estimates the emissions attributable to dairy production from all stages of the production process. First and foremost, Denmark has high climate efficiency for dairy due to the low quantity of feed needed to produce one kg of dairy. Second, the country's cooler temperatures control manure management emissions.

**Graph 5.3** Dairy Production and Land Use Emissions by Country by Tier

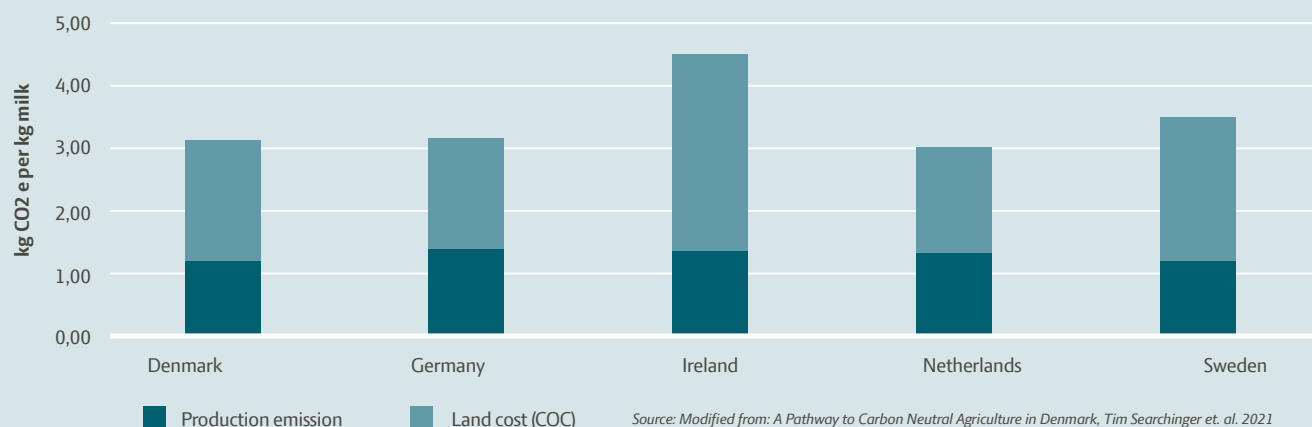


Table 5.3	KG DM/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK	KG CO2E/ KG MILK
	Feed conversion efficiency	Enteric	Forage N (Except manure)	Feed concentrate production emissions	Manure on pasture	Managed manure applied to cropland	On farm energy use	Manure management	Total production emissions (PEM)	Land cost - carbon opportunity cost (COC)	Total emissions (PEM+COC)
<b>Denmark</b>	1.00	0.56	0.07	0.14	0.00	0.03	0.10	0.32	1.22	1.89	3.11
<b>Germany</b>	1.10	0.63	0.07	0.12	0.01	0.02	0.14	0.30	1.30	1.88	3.17
<b>Ireland</b>	1.37	0.77	0.12	0.09	0.04	0.01	0.12	0.29	1.44	3.14	4.58
<b>Netherlands</b>	0.99	0.56	0.08	0.12	0.01	0.02	0.12	0.46	1.37	1.65	3.02
<b>Sweden</b>	1.06	0.60	0.09	0.14	0.01	0.02	0.07	0.30	1.21	2.39	3.61

Source: Modified from: A Pathway to Carbon Neutral Agriculture in Denmark, Tim Searchinger et. al. 2021

## 5.4

## Environmental approval

Cattle farming is not covered by the Industrial Emissions Directive (IED). There is therefore no EU requirement covering the environmental approval of cattle farms. In Denmark, there is an approval requirement for cattle farms with more than 75 animal units where the limit is 3.5 tonnes NH<sub>3</sub>-N as from 1 August 2017.

## 5.5

## Supply of nitrate

The Nitrates Directive allows up to 170 kg N in livestock manure per hectare per year, which (also going forward) forms the basis for the regulation on the use of cattle manure in Denmark.

## 5.6

## Use of livestock manure

It is forbidden to spread liquid livestock manure in Denmark which – according to available information – also applies to the Netherlands and Sweden (but not in Germany). In both Denmark and Sweden, the land must be completely thawed prior to spreading. In Germany the land must be thawed to a depth of 5 cm.

### Table 5.4 Environmental approval

**EU:** An EU wide label has not been decided although there is a general interest.

Denmark	Germany	Ireland	Netherlands	Sweden
Limit of 3.5 tonnes NH <sub>3</sub> -N.	No data.	No data.	No data.	No data.

### Table 5.5 Supply of nitrate

**EU:** 170 kg N/ha/year. Some countries can apply a higher limit.

Denmark	Germany	Ireland	Netherlands	Sweden
Farmers can apply a higher limit than 170 kg N/ha/year.	170 kg N/ha/year.	Farmers can apply a higher limit than 170 kg N/ha/year.	Farmers can apply a higher limit than 170 kg N/ha/year.	170 kg N/ha/year.

In addition, the Nitrates Derogation allows farmers in individual Member States to apply for a cattle derogation, which allows them to exceed the limit of 170 kg N per hectare if supplemented by specific measures to neutralise the environmental impact of the additional kg N. Cattle farmers in Denmark can apply up to 230 kg N livestock manure under certain conditions. The Netherlands has also taken advantage of the cattle derogation.

### Table 5.6 Use of livestock manure

**EU:** No common rules.

Denmark	Germany	Ireland	Netherlands	Sweden
Ban on spreading liquid manure.	Spreading of liquid manure allowed.	No data.	Ban on spreading liquid manure.	Ban on spreading liquid manure.

Photo: Niels Hougaard



6

# Organic cattle production

*In Denmark most organic beef comes from dairy cows, which are finished fed as the milk yield decreases to a level where it is no longer profitable for the farmer. Overall, Danish organic beef production complies with the same regulations and procedures that apply to non-organic production.*

## **The main takeaways from this chapter**

- › Danish cattle must be born and raised as organic to be sold as organic.
- › In Denmark, all cattle feed must be organically grown.
- › Strict use of medicine in the post-treatment of cattle.

## 6.1

# Cattle must be fed organically for the meat to be sold as organic

With regard organic farming, the traceability system is also important in order for cattle to be sold as organic beef.

**Table 6.1** Cattle must be fed organically for the meat to be sold as organic

**EU:** Cattle can be slaughtered and sold as organic meat if they were born after the farm began its organic conversion or if the animal has lived for at least 12 months and at least three-quarters of its life as organic.

Denmark	Germany	Ireland	Netherlands	Sweden
Cattle slaughtered and sold as organic meat must be born on a farm after the farm began its organic conversion and cattle must have lived their entire lives on an organic holding.	Follows EU requirements.	Follows EU requirements.	Follows EU requirements.	Follows EU requirements.

The differences between the regulations for Danish organic beef and dairy production and non-organic production, apart from the requirements for fodder mentioned in chapter 1, are:

- Calves must be with their mothers for at least 24 hours prior to separation, and they must have milk in their first three live months. Nursing cows, however, must be with their calves for a longer period.
- With regard to meat and milk from animals that have been treated with antibiotics, the withdrawal period is twice as long as for non-organic animals.
- No artificial fertiliser or pesticides may be used on the organic fields from where the feed originates.

Individual EU countries determine specific production regulations in several areas. Moreover, a large number of private organic labels in the EU have special and stricter regulations for their own private label. Finally, individual EU countries have more extensive legislation than EU legislation in the organic area. This assumes, however, that national legislation also applies to a country's non-organic production.

## Industry Code for organic production in Denmark

An industry code for organic milk and meat from cattle that imposes additional demands on organic production has been adopted by dairies with organic milk intake and by slaughterhouses in Denmark. Farmers must therefore comply with the industry code if they wish to supply milk and cattle to dairies and slaughterhouses.

The most important regulations in the industry code relate to:

- Treatment of sick animals.
- Ban on systematic culling of small calves.
- Access to skin care for housed and grazing animals.
- Finished feeding of animals prior to slaughter.
- Grazing and outdoor conditions.
- Cattle must be fed organically for the meat to be sold as organic.
- Exports of calves.
- Transport requirements and lairage.



## 6.2

# Grazing and outdoor conditions

**Table 6.2** Grazing and outdoor conditions

**EU:** Cattle must have permanent access to grazing areas when weather conditions permit. An exemption from the requirement for access to outdoor areas in winter months can be made when housing systems enable the animals to have free movement.

Denmark	Germany	Ireland	Netherlands	Sweden
<p>In the grazing season, 15 April-1 November, cattle must have access to grazing areas when weather conditions and the animals' physical condition permit.</p> <p>The animals must be able to graze for a minimum of 6 daylight hours during this period.</p> <p>Outside this period, animals must be able to move freely.</p> <p>Special consideration can be given to calves and small calves under six months etc. Young animals over 6 months can be turned out later than dairy cows if the young animals cannot tolerate grazing uptake for 24 hours per day.</p>	<p>Access to outdoor areas or grass when the animals' physical condition, weather and soil conditions permit.</p> <p>Access to grazing areas must be available during the summer grazing period. Outside this period, animals must be able to move freely.</p>	<p>Must have permanent access to grazing areas when weather conditions permit.</p> <p>Exemption: in winter months when housing systems enable the animals to have free movement.</p> <p>Indoor space requirements: the rule of thumb is that 1.0 m<sup>2</sup> is required for every 100 kg live weight. All stock must have access to a dry bedded lying area.</p> <p>Up to 50% of this area can be slatted but the rest must be solid floor and not slatted. Conventional straw may be used for bedding.</p>	<p>Must have permanent access to grazing areas when weather conditions permit.</p> <p>Exemption: in winter months when housing systems enable the animals to have free movement.</p>	<p>During the grazing period, all animals must have access to grazing areas for most of the day. However, this does not apply to:</p> <ul style="list-style-type: none"> <li>• Calves under 4 months.</li> <li>• Animals to be slaughtered within one month after the start of the grazing period.</li> <li>• With insemination, calving, sickness, etc.</li> </ul> <p>During the grazing period, dairy cows must be out for at least 12 hours per day.</p>

## 6.3

# Post-treatment of animals

**Table 6.3** Post-treatment of animals

**EU:** A farmer may post-treat animals with certain products that have an effective impact on the animals and on the condition for which the treatment is intended.

### Denmark

- 1) A farmer may not administer, handle or post-treat with medicinal products containing antibiotics for animals over 6 months of age.
- 2) The use of 3rd and 4th generation cephalosporins is banned.
- 3) Broad spectrum antibiotics should generally not be used unless there is a specific veterinary justification for doing so.

### Germany

Medicinal products containing antibiotics must be prescribed by the veterinarian. The farmer may post-treat his animals.

### Ireland

*Follow the regulations:* this advice is given to farmers when converting to organic farming. Early detection of animal health problems is essential. Good animal husbandry is paramount. If an animal is suffering it must be treated and the necessary permission must be sought from the vet. The animal health plan, produced as part of the conversion plan, deals with mineral deficiencies and vaccination issues.

### Netherlands

A farmer may post-treat animals with certain products that have an effective impact on the animals and on the condition for which the treatment is intended.

### Sweden

Medicinal products containing antibiotics must be prescribed by the veterinarian. The farmer may post-treat the animal. Farms must prove that they have a strategy plan for disease prevention.

Chapter 1 contains the organic benchmark for fodder. Culling, transport to abattoir and access to skincare are covered in Chapter 3.

Photo: Niels Hougaard



# Statistics



**Cattle population – Table 7.1** (Source: EU Commission – Meat Market Observatory July 2021– December survey)

1000 head		2017	2018	2019	2020
<b>European Union</b> (27 countries from 2020)	Total livestock	79,010	77,840	77,161	76,425
	Dairy cows	21,409	21,029	20,766	20,545
	Share	27%	27%	27%	27%
<b>Denmark</b>	Total livestock	1,558	1,530	1,500	1,500
	Dairy cows	575	570	563	565
	Share	37%	37%	38%	38%
<b>Germany</b>	Total livestock	12,281	11,949	11,640	11,302
	Dairy cows	4,199	4,101	4,012	3,921
	Share	34%	34%	34%	35%
<b>Ireland</b>	Total livestock	6,674	6,593	6,560	6,529
	Dairy cows	1,343	1,369	1,426	1,456
	Share	20%	21%	22%	22%
<b>Netherlands</b>	Total livestock	4,030	3,690	3,721	3,691
	Dairy cows	1,665	1,552	1,590	1,569
	Share	41%	42%	43%	43%
<b>Sweden</b>	Total livestock	1,449	1,435	1,405	1,391
	Dairy cows	323	313	301	304
	Share	22%	22%	21%	22%

# Slaughtered animals

Table 7.2 presents the total number of slaughtered animals in individual Member States along with the total number of slaughtered animals in the EU.

The graphics, 7.1.–7.5, present the categories in percentage of the various categories for the animals slaughtered in 2020.

## Slaughtered bovine animals – Table 7.2

Slaughtered bovine animals – 1000 head	2016	2017	2018	2019	2020
European Union - 27 countries (from 2020)	23,786	23,711	23,933	23,413	22,934
Denmark	496	467	491	464	448
Germany	3,607	3,505	3,416	3,387	3,263
Ireland	1,744	1,852	1,896	1,853	1,882
Netherlands	2,096	2,158	2,243	2,123	2,089
Sweden	411	406	426	433	434

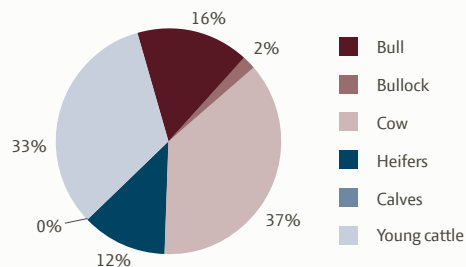
### About the categories:

Bull: male cattle above 2 years

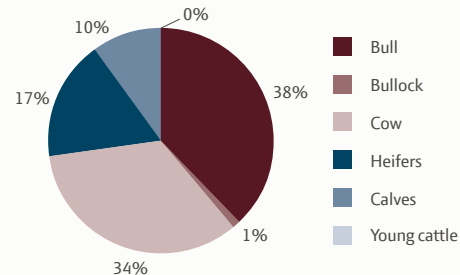
Calf: 1-12 months

Young cattle: from 12 months

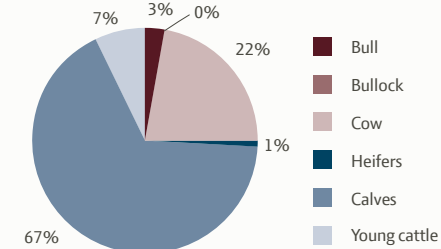
### Graphics 7.1 Denmark 2020



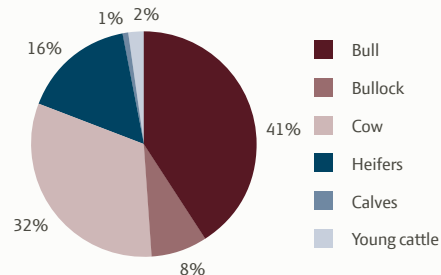
### Graphics 7.2 Germany 2020



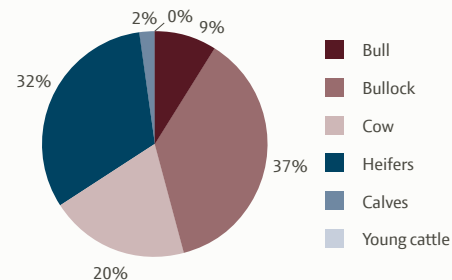
### Graphics 7.3 Netherlands 2020



### Graphics 7.4 Sweden 2020



### Graphics 7.5 Ireland 2020

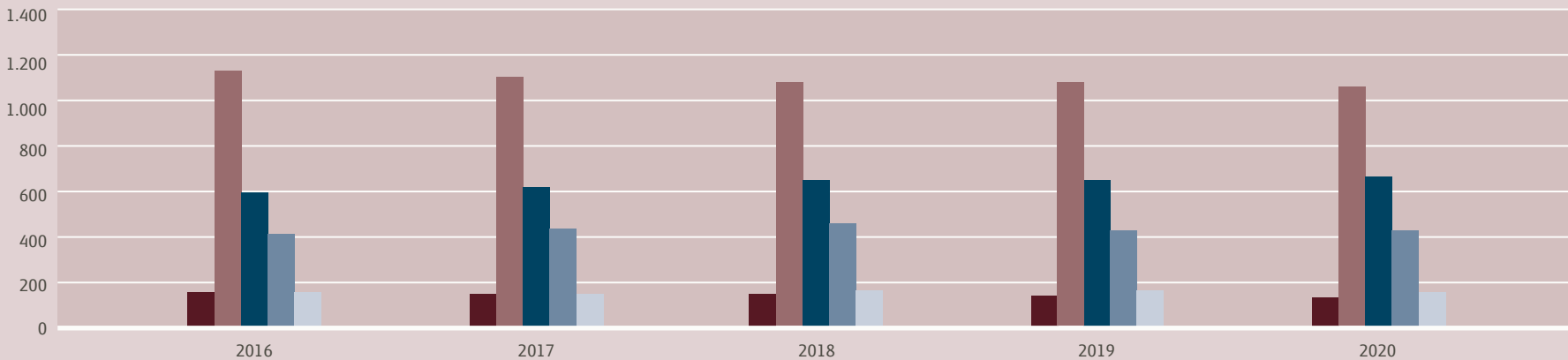


Source: EU Commission – Meat Market Observatory July 2021

### Production – Graph 7.1

Production in 1.000 tonnes

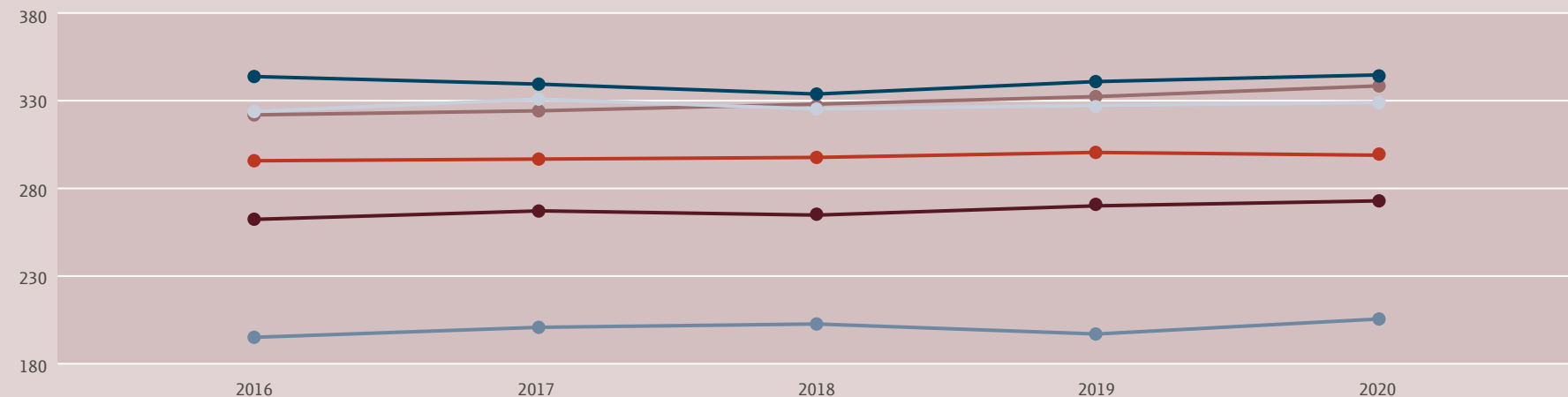
Denmark Germany Ireland Netherlands Sweden



### Average slaughter weight in kilograms – Graph 7.2

Average kg

Denmark Germany (until 1990 former territory of the FRG) Ireland Netherlands Sweden European Union - 28 countries (2013–2020)





### Production, Imports and Exports – Table 7.3

Tonnes		2018	2019	2020
European Union 27 countries (from 2020)	Total production	7,932,000	7,822,000	6,822,000
	Imports	2,518,298	2,511,168	2,054,369
	Exports	2,591,873	2,616,190	2,353,800
Denmark	Total production	129,000	125,000	121,000
	Imports	84,329	80,778	80,810
	Exports	77,378	66,810	63,713
Germany	Total production	1,102,000	1,106,000	1,091,000
	Imports	361,619	358,625	339,029
	Exports	270,365	271,168	235,552
Ireland	Total production	623,000	620,000	633,000
	Imports	29,352	24,895	23,922
	Exports	372,717	386,566	380,168
Netherlands	Total production	459,000	424,000	432,000
	Imports	410,233	421,484	375,643
	Exports	478,366	488,093	448,208
Sweden	Total production	137,000	140,000	141,000
	Imports	76,594	76,209	66,221
	Exports	6,699	6,968	8,429

1 UK withdrew from EU-28 in Jan. 2020. The total for EU-27 is therefore used for 2020.

Source: Annual Statistics for Beef and Veal 2020.

### Data sources

This report is based on information and data obtained from relevant organisations abroad, electronic searches into legislation in other countries and other accessible material assembled by the Danish Agriculture and Food Council. In some areas it has not been possible to obtain or verify data and this has been stated accordingly. The statistical information gives an overview of the beef sector in the various countries in question along with a status on the EU level in general. As the United Kingdom (UK) left the European Union at the end of 2020 some of the information is presented for EU 27 and EU 28 (which includes the UK).

## 前言

基准化分析于2017年首次进行，详细研究了与我们与之比较的国家所存在的条件。该版本已经更新和发展，但相比于德国，爱尔兰，荷兰和瑞典，它仍然专注于丹麦的牛肉和小牛肉生产。

今天，牛的生产涵盖的不仅仅是用于消费的牛肉的生产。可追溯性是食品安全的关键要素，而食品的高质量源于农民自身的坚定承诺。饲养牛不仅仅是喂食和喂水，它是重点关注动物福利，高兽医标准，环境和气候的优化生产。所有这些都是本版涵盖的主要因素。

## 执行摘要

该报告确定了保证牛肉和小牛肉生产高质量和食品安全高标准的关键要素。优化牛的生产的关键要素是使用杂交和牛性控精液，正确的饲料组合以及已收集的大量数据。可追溯性始于牛出生时的耳朵标记，随后通过整个供应链中的数据登记来确保。兽医标准和访问对于确保可追溯性也很重要，药品消费和疾病控制也是如此。此外，气候，生物多样性和环境意识是通过国家立法或总体目标影响养牛业的因素。最后，这份报告还提供了关于牛群，动物屠宰数量和贸易数据的统计数据。

## 未来的决定因素

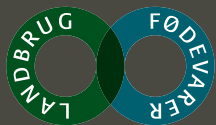
到2023年，欧盟将通过一项新的共同农业政策，重点关注动物福利，环境，生物多样性，气候减缓与适应。这些新措施预计将对所有欧盟国家的牛生产产生重大影响。

## 主要结论

- 丹麦在使用杂交和牛性控精液方面处于领先地位。这与饲料的优化使用和大规模数据收集的利用相结合，有助于可持续生产的继续发展。
- 在食品安全和动物疾病控制方面，可追溯性是整个供应链的核心组成部分。从生产商到屠宰场存在完全可追溯性。
- 丹麦对动物福利的高度关注在许多方面取得了成效，促成了多年来牛生产的高效率。
- 由于兽医的高标准对于保持健康的牛群至关重要，丹麦已经明确制定了兽医访问农场的规定。
- 就牛肉和乳制品生产而言，丹麦的气候影响在基准国家中是第二低的。
- 丹麦扩大了有机农业和牛被归类为有机农业的规定。
- 通过对动物疾病的监测，可追溯性以及当局与行业之间的密切合作，确保了高水平的食品安全。
- 丹麦生产的大部分牛肉和小牛肉来自奶牛。
- 丹麦的规模和基础设施意味着到屠宰场的有限运输时间。

丹麦非常注重以可持续的方式利用奶牛的所有部分。





**Danish Agriculture & Food Council**

Axelborg, Axeltorv 3  
1609 København V

T +45 3339 4000

E [info@lf.dk](mailto:info@lf.dk)  
W [www.lf.dk](http://www.lf.dk)

