

Supervision of Pork Safety in the Netherlands, North Rhine- Westphalia and Lower Saxony

Report within SAFEGUARD work package 3.1

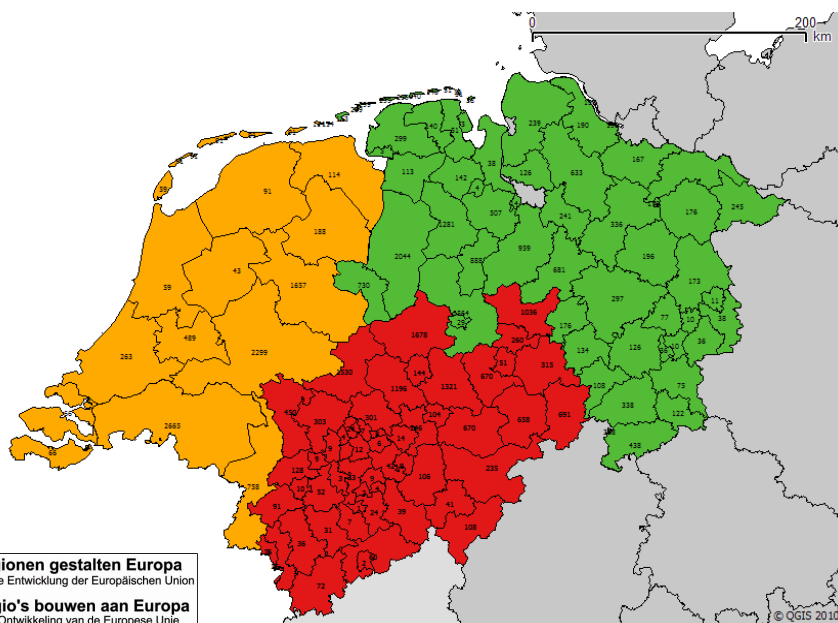
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Abstract

European food safety legislation allows for a new type of meat inspection in swine. This 'risk-based meat inspection without incision' or 'supply chain meat inspection' (SCMI) uses food chain information to derive a veterinary prognosis on the pigs' health prior to delivery and allows for visual inspection of pig carcasses. Slaughter companies who want to implement SCMI must develop their risk-based system and have it approved by the competent authority. Companies implementing SCMI in a border region have to consider the prerequisites of a number of competent authorities. In turn competent authorities have to cope with the special conditions and requirements of a cross border economic region. Within workpackage 3.1 of the INTERREG-IV-A project SAFEGUARD issues were addressed that arise from the conduct of SCMI in a cross-border context. The goal of workpackage 3.1 was the exchange of information and mutual development of governmental control and verification systems in pig meat inspection in the Netherlands and the two neighbouring German federal states North Rhine-Westphalia and Lower Saxony. Within this workpackage, the goal of this study was to assess differences between the control and verification systems in pig meat inspection in these three EU-regions in order to aid the mutual cross-border development of such systems. This report provides a comparative review of the control systems of pork safety in the Netherlands and the two neighbouring German federal states North Rhine-Westphalia and Lower Saxony, with emphasis on issues concerning SCMI.

Project

This report was written within the work package 3.1 "D-NL Forum zur Weiterentwicklung des Ansatzes "amtliche Kontrolle der betrieblichen Eigenkontrollsysteme – toezicht op controle" im Bereich der risikoorientierten Fleischuntersuchung" of the INTERREG-IV-A project SAFEGUARD. The report describes the situation in 2010, unless otherwise indicated. SAFEGUARD work package 3.1 was led by Veterinärämter Landkreis Rotenburg (Wümme), represented by Dr. Joachim Wiedner (Joachim.Wiedner@lk-row.de). Further information concerning the SAFEGUARD project can be obtained from the official project website: <http://safeguard.giqs.org/home/>.

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Information sources and research methods

In order to create this comparison report we collected information and data from scientific literature and legislation, from documents provided by project partners and external partners (universities, public authorities, slaughter companies, product boards, quality assurance systems) as well as personal communication with these experts. As an initial step the project work group elaborated a table of content as a guidance document for further information collection and comparison. This step was lead by University of Bonn and performed within 2 project meetings. After that we used an iterative approach of information gathering and providing feedback to the project group in the course of 4 project meetings. During these project meetings external experts have been invited so comment the results and contributed further information and opinions.

Cover

The cover picture shows a map of the Netherlands, North Rhine-Westphalia and Lower Saxony with the total number of pig holdings at each NUTS-3-Level at the time of 2007. Data sources: Official statistical bureaus of the Netherlands, North Rhine-Westphalia and Lower Saxony.

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List of abbreviations

AID	General Inspection Service
AMvB	Algemene Maatregel van Bestuur
APVO-Vet	Verordnung über die Ausbildung und Prüfung für die Laufbahn des höheren Veterinärdienstes
AV	Approved veterinarians
AVerwGebO	Allgemeine Verwaltungsgebührenordnung
AVV LmH	Allgemeine Verwaltungsvorschrift Lebensmittelhygiene
AVV LmH	General administrative provision for food hygiene
AVV	Algemeen verbindend voorschrift (General Administrative Provision)
BfR	Bundesinstitut für Risikobewertung (Federal Institute for Risk Assessment)
BLE	Bundesanstalt für Landwirtschaft und Ernährung (Federal Institute for Agriculture and Nutrition)
BMELV	Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz (Federal Ministry of Food, Agriculture and Consumer Protection)
BRC	British Retail Consortium
BÜp	Bundesweite Überwachungsplan
BVL	Bundesamt für Verbraucherschutz und Lebensmittelsicherheit
BVL	Bundesamt für Verbraucherschutz und Lebensmittelsicherheit (Federal Office of Consumer Protection and Food Safety)
CBD	Centrum voor Bedrijfsdiensten B.V.
COKZ	Centraal Orgaan voor Kwaliteitsaangelegenheden in de Zuivel (Inspection Authority for Milk and Milk products)
CPE	Controlebureau Pluimvee, Eieren en Eiprodukten (Inspection Authority on Poultry and Eggs)
DVO	District Veterinary Office
EAEVE	Establishments for Veterinary Education
EFSA	European Food Safety Authority
EL&I	Ministry of Economic Affairs, Agriculture and Innovation
FachassVO	Verordnung über die Schulung, Prüfung, Fortbildung und Nachprüfung für amtliche Fachassistentinnen und amtliche Fachassistenten
FBO's	Food Business Operators
FCEC	Food Chain Evaluation Consortium
FIG	Fleischgesetz
FIHS	Fleischhygiene Südostbayern GmbH
FLI	Friedrich-Loeffler-Institut (Federal Research Institute for Animal Health)
FIUStatV	Fleischuntersuchungsstatistik-Verordnung
FSSC	Food Safety System Certification
FTE	Full-time equivalent
GDVG	Gesundheitsdienst- und Verbraucherschutzgesetz
GebG	Gebührengesetz
GFL	General Food Law
GOVet	Gebührenordnung für die Veterinärverwaltung
H&P	Hygiene- und Prüf- GmbH
HACCP	Hazard Analysis and Critical Control Points
HI-Tier	Herkunftssicherungs- und Informationssystem für Tiere
IFS	International Food Standard
IKB	Integrale Ketten Beheersing
IKBNV	Integrale Ketten Beheersing Nederland Varkens
ISI	Information Systeem Inspecties
ISO	International Organization for Standardization
KDS	Kwaliteitskeuring Dierlijke Sectoren (Quality Inspection Animal Sectors)
KvW	Keuringsdienst van Waren (Control Service for Consumer Product products)
LANUV	Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen (State Agency for Nature, the Environment and Consumer Protection North Rhine-Westphalia)
LAVES	Landesamt für Verbraucherschutz und Lebensmittelsicherheit Niedersachsen (State Agency for Consumer Protection and Food Safety Lower Saxony)

LFGB	Lebensmittel- und Futtermittel-Gesetzbuch (Federal Food and Feed Code)
LKonV	Lebensmittelkontrollleur-Verordnung
LMEV	Lebensmitteleinfuhr-Verordnung
LMM	Lebensmittelmonitoring
LNv	Ministry of Agriculture, Nature and Food Quality
LS	Lower Saxony
MKULNV	Ministerium für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen (Ministry for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection)
ML	Ministeriums für Ernährung, Landwirtschaft, Verbraucherschutz und Landesentwicklung (Ministry of Food, Agriculture, Consumer Protection and State Development)
MNKP	Mehrjähriger nationaler Kontrollplan
NGO's	Non-Governmental Organizations
NL	Netherlands
NRKP	Nationaler Rückstandskontrollplan
NRW	North Rhine-Westphalia
NUTS	Nomenclature of Units for Territorial Statistics
NVV	Nederlandse Vakbond Varkenshouders
NVWA	Nederlandse Voedsel en Warenautoriteit (Food and Consumer Product Safety Authority)
nVWA	Nieuwe Voedsel en Waren Autoriteit
OA	Official auxiliaries
OV	Official veterinarian
PBO's	Publiek Rechtelijke Bedrijfsorganisaties
PD	Plant protection Service
PDV	Productschap Diervoeder
PVV	Productschap Vee en Vlees
QAL	Society for Quality Assurance in Agricultural and Food Economics GmbH
QS	Qualität und Sicherheit
ROW	Regulier Overleg Warenwet
RSG	Registratie Slachtgegevens
RVV	Rijksdienst voor Keuring van Vee en Vlees (Government Agency for the Inspection of Meat and Cattle)
SCMI	Supply Chain Meat Inspection
SER	Sociaal Economische Raad
TAppV	Verordnung zur Approbation von Tierärztinnen und Tierärzten
Tier-LMHV	Tierische Lebensmittel-Hygieneverordnung
Tier-LMÜV	Tierische Lebensmittel-Überwachungsverordnung
UBN	Uniek Bedrijfsnummer
VAPFaF	Ausbildungs- und Prüfungsordnung amtlicher Fachassistent
VAPVet	Verordnung über die Ausbildung und Prüfung für die Laufbahn des tierärztlichen Dienstes in der Veterinärverwaltung im Land Nordrhein-Westfalen
VERIN	Verificatie Instituut Kwaliteitssystemen
ViehVerkV	Viehverkehrsverordnung
VOS	Verzamelstaat Onderzoek Slachtdieren
VWS	Ministerie van Volksgezondheid, Welzijn en Sport (Ministry of Health, Welfare and Sports)

Summary

European food safety legislation allows for a new type of meat inspection in swine. This ‘risk-based meat inspection without incision’ or ‘supply chain meat inspection’ (SCMI) uses food chain information to derive a veterinary prognosis on the pigs’ health prior to delivery and allows for visual inspection of pig carcasses. Slaughter companies who want to implement SCMI must develop their risk-based system and have it approved by the competent authority. Companies implementing SCMI in a border region have to consider the prerequisites of a number of competent authorities. In turn competent authorities have to cope with the special conditions and requirements of a cross border economic region. Within the INTERREG-IV-A project SAFEGUARD issues were addressed that arise from the conduct of SCMI in a cross-border context. This report provides a comparative view on the system of pork safety in the Netherlands and the two neighbouring German federal states North Rhine-Westphalia and Lower Saxony with emphasis on issues concerning Supply Chain Meat Inspection (SCMI) of swine¹. The goal of the study was the exchange of information and mutual development of governmental control and verification systems in pig meat inspection in Lower Saxony, North Rhine-Westphalia and the Netherlands.

These three regions have large pig populations of respectively six, eight and twelve million pigs, more than 800 slaughter locations and a considerable international trade of over seven million live pigs and piglets per year (see chapter 2).

Although the legal framework of meat inspection is regulated on EU level by the “Hygiene Package”, the administrative systems of the Netherlands and Germany are quite different. The Netherlands have a centralized administration with NVWA as the central Food Safety Authority. In contrast, Germany's federal system spreads administrative power in meat inspection to 16 federal states and further to the district level (see chapter 1 and chapter 3).

A detailed comparison of the traditional meat inspection in Lower Saxony, North Rhine-Westphalia and the Netherlands showed that in general the official control systems are quite comparable. The three private quality control systems at farm level (IKB NV, IKB Varken and QS) are also similar in respect to meat inspection. Major difference between both inspection systems is that in the Netherlands a private approach is used in the official post-mortem inspection (KDS), whereas Lower Saxony and North Rhine-Westphalia follow a fully governmental approach. In the Netherlands official auxiliaries of the private KDS organization execute the post-mortem inspection under supervision of an official veterinarian of the public food safety authority NVWA. Figure 0.1 compares the Lower Saxony, North Rhine-Westphalia and Dutch systems for ante-mortem and post-mortem inspection from a quality management point of view (see chapter 4).

¹ This report uses the term Supply Chain Meat Inspection (SCMI) to refer to the alternative way of performing meat inspection that was introduced by Regulation (EC) No 1244/2007. Synonyms for SCMI are “risk-based meat inspection” or “visual meat inspection”. In Germany the terms “risikoorientierte Fleischuntersuchung” and “risikobasierte Fleischuntersuchung” are most commonly used.

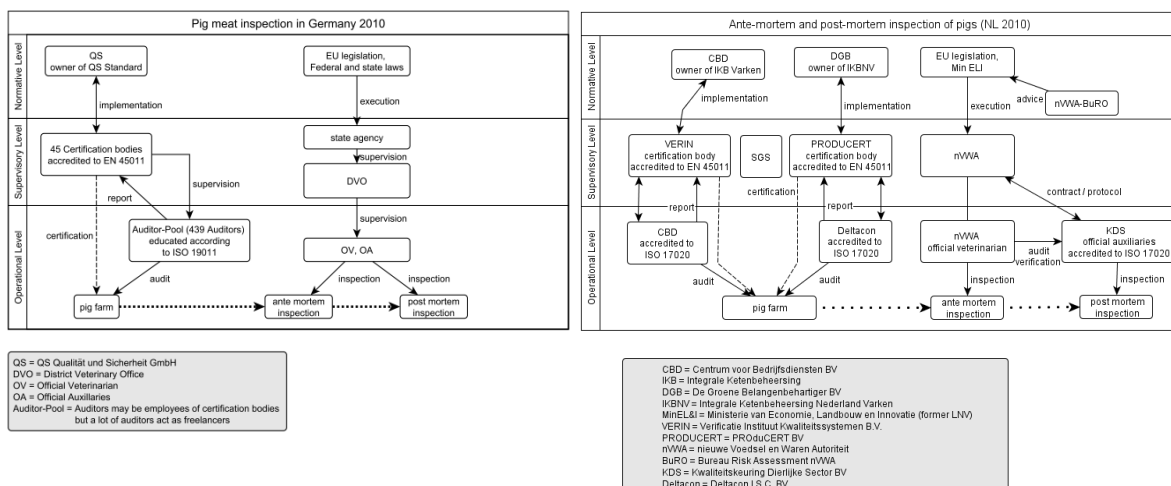


Figure 0.1: The Lower Saxony, North Rhine-Westphalia and Dutch systems for ante-mortem and post-mortem inspection from a quality management point of view.

Further cross-border comparison of the systems revealed differences in the content of the private certification schemes, the way data gathering is organized and managed, and the general risk orientation of the system (see chapter 6).

EU legislation allows for supply chain meat inspection (SCMI) instead of the traditional meat inspection if certain requirements are met. The overall principle of SCMI is to assess the pig deliveries before slaughtering according to the available supply chain information, and to replace examination by incision and palpation with visual examination. Regulation 854/2004 states that “the competent authority may decide, on the basis of epidemiological or other data from the holding, that fattening pigs housed under controlled housing conditions in integrated production systems since weaning need [...] only undergo visual inspection”. In that case information from birth to slaughter must be available. Slaughter companies can develop a SCMI system that must be approved by the competent authority (NVWA in the Netherlands, the state agencies LANUV and LAVES in North Rhine Westphalia and Lower Saxony respectively). Table 0.1 gives the differences between the supply chain meat inspection in Germany and the Netherlands (see chapter 5).

Table 0.1: Differences between the supply chain meat inspection in Germany and the Netherlands.

North Rhine Westphalia	Lower Saxony and The Netherlands
------------------------	----------------------------------

Salmonella monitoring risk categories, derived from serological sampling of farms, are used for serological monitoring.	Mycobacterium avium risk profiles, derived from serological sampling of farms, are used for serological monitoring.
QS, IKB NV, IKB Varken (with plus module on housing) or self-declaration for “controlled housing conditions in integrated production systems”.	QS, IKB NV, IKB Varken (with plus module on housing) used to check for “controlled housing conditions in integrated production systems”.
Food chain information is extended to contain data about occurrence of „non-growing” pigs.	Food chain information is extended to contain data about the farm’s feed supplier.
Pathological findings in 7 categories stored to compare farms: Antibiotics residue test and individual consulting, if farm's prevalence > 2 x slaughter location mean.	Pathological findings of 2 categories stored to compare farms: Antibiotics residue test, if farm's prevalence > 2 x slaughter location mean.

Involvement of private parties is most obvious in the fulfillment of the “controlled housing conditions” requirement, where both systems rely on private quality assurance systems (QS, IKB NV and IKB Varken with a plus module to comply with housing conditions). QS, IKB NV and IKB Varken arranged to mutually adapt and recognize their assessment criteria and audit results, while each system is supervised by the national competent authorities.

SCMI relies to a vast extent on prior information and adequate data flows. An important result of the study is, that the current role allocation in SCMI can have negative impacts on the availability and validity of prior information. Food chain information can be incomplete because of a gap in data on farm-history, due to switching of deliveries and due to farms structurally delivering to more than one slaughterhouse. The study provides approaches to solve this issue. To enable cross-border comparison of inspection results, and to enable any form of future performance assessment, both countries should make efforts to standardize and harmonize meat inspection data. Furthermore, we identified aspects of SCMI that complicate free cross-border trade. It is difficult to switch between slaughterhouses and cross-border when historical performance data concerning *Mycobacterium avium* and *Salmonella* are lacking (see chapter 7).

For the future, it has to be assured that risk-based control systems for meat safety are not misused as a cost-reduction strategy compromising meat safety. Furthermore, meat inspection systems have to be adapted continuously to keep covering all relevant food safety risks.

1 Legal and administrative foundations for food safety control

The first chapter of the report gives an overview of the legal framework and the administrative basics of food safety and meat hygiene. The description covers the European level, the national level of Germany and the Netherlands and federal levels within Germany.

1.1 European food hygiene law

Regulation (EC) No 178/2002 - or the General Food Law (GFL) - lays down the general principles and requirements of food law, procedures in matters of food safety, and establishes the European Food Safety Authority (EFSA). It became effective on 1 January 2005. The GFL states that primary responsibility for the safety of food lays with the food business operators. The GFL requires traceability one stage up and one stage down the production chain and that food business operators have systems in place for this.

In addition, there are four Regulations which are at the base of the legislation for food hygiene (See Box 1.1 for a definition of Regulation): Regulation (EC) No 852/2004, Regulation (EC) No 853/2004, Regulation (EC) No 854/2004 and Regulation (EC) No 882/2004. These four Regulations, also called the “Hygiene Package”, came into force on 1 January 2006. Each regulation in the Hygiene Package has a specific goal:

- Regulation (EC) No 852/2004 on the hygiene of foodstuffs: It is a general regulation that provides principles, rules, requirements and instruments for the processing, storage and distribution of food. It prescribes that all food business operators must use the principles of Hazard Analysis and Critical Control Points (HACCP). Practically, this means that larger food business operators must have HACCP-based quality assurance systems, whereas smaller to medium sized producers and primary producers can apply guides for good practices. This regulation is at the center of the EU’s new food hygiene regulation².
- Regulation (EC) No 853/2004 laying down specific hygiene rules for food of animal origin, registration of farmers and approval of slaughterhouses and meat processors. In addition to this Regulation it was decided to make the chain information obligatory in Regulation (EC) No 1161/2009.
- Regulation (EC) No 854/2004 laying down specific rules for the organization of official controls on products of animal origin intended for human consumption in slaughterhouses. It allows for visual inspection as part of risk based meat inspection.
- Regulation (EC) No 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.

Table 1.1 gives the structure of the European food safety legislation. The GFL is a framework legislation, whereas the hygiene package consists of specific Regulations targeting the public food safety surveillance of food and control responsibilities of the private sector. For food products of animal origin specific Regulations exist.

² van der Meulen and van der Velde (2008): European Food Law Handbook: Wageningen Academic Publishers.

Table 1.1: Structure of the European food safety legislation

	Food surveillance	Economy
General Food Law	Regulation (EC) No. 178/2002	
Hygiene of food products	Regulation (EC) No. 882/2004	Regulation (EC) No. 852/2004
Hygiene of food of animal origin	Regulation (EC) No. 854/2004	Regulation (EC) No. 853/2004

The Hygiene Package replaced the national food hygiene laws of the member states that had been harmonized on the basis of Council Directive 93/43/EEC and 17 vertical (product specific) Directives for food products of animal origin (meat, fish, eggs, etc.). Repealing of these Directives is laid down in Directive 2004/41/EC³.

Regarding education Regulation (EC) No 854/2004 states that official auxiliaries (OAs; also called Official Assistants) can be used in the official control. Their tasks must be clearly defined, and they must have received training (at least 500 hours of theoretical training and 400 hours of practical training) which must be approved by an aptitude test covering all the subjects for which they are competent. Moreover, member states may authorize staff of slaughterhouses to carry out certain inspection activities normally carried out by official auxiliaries. However, the latter statement only applies to poultry and rabbit slaughterhouses, not to pig slaughtering.

Box 1.1: EU policy instruments: Regulations, Directives and Decisions

According to the EC Treaty “A *Regulation* shall have general application. It shall be binding in its entirety and directly applicable in all member states.” So regulations are legally binding rules. Regulations are based immediately on the relevant EC Treaty articles and issued by the European Parliament and Council, or the Commission. The General Food Law is a framework regulation issued by the EU Parliament and Council. Other Regulations may be based on this law. In those areas where the Commission has delegated power, it can issue Regulations itself.

Directives of the EC contain guidelines. In order to be effective Directives need to be translated into the national legislative system.

Whereas Regulations and Directives are legislative acts of general nature, *Decisions* formulate the law for one specific situation and in that particular case.

Source: van der Meulen and van der Velde (2008). European Food Law Handbook. Wageningen Academic Publishers.

Next to the GFL and the Hygiene Package, the following other Directives and Regulations related to food safety in the pork supply chain are into force:

- Regulation (EC) No 999/2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies

³ van der Meulen and van der Velde (2008). European Food Law Handbook. Wageningen Academic Publishers.

- Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs. It is based on article 4 of Regulation 852/2004 stating that food business operators are to comply with microbiological criteria set by the Commission.
- Regulation (EC) No 2074/2005 laying down implementing measures for certain products and food chain information, the requirement for member states to give the Commission access to a list of approved food establishments.
- Regulation (EC) No 1244/2007 amending Regulation (EC) No 2074/2005 laying down specific rules for official controls for the inspection of meat.
- Regulation (EC) No 2075/2005 laying down specific rules on official controls for Trichinella in meat.
- Regulation (EC) No 2076/2005 laying down transitional arrangements for the implementation of the hygiene regulations.
- Regulation (EEC) No 2377/90 on maximum residue limits of veterinary medical products in foodstuffs of animal origin and its amendments in Council Regulation (EC) No 1308/1999.
- Directive 96/23/EC on monitoring residues in animals and animal products.
- Directive 96/22/EC and amendments in Directive 2003/74/EC.
- Decision 2001/471/EC laying down rules for the regular checks on general hygiene carried out by the operators in establishments according to Directive 64/433/EEC on health conditions for the production and marketing of fresh meat and its amendments (e.g. Commission Decision 2004/379/EC).
- Regulation (EC) No 1774/2002 laying down health rules concerning animal by-products not intended for human consumption (BSE and category I, II, III materials).
- Regulation (EC) No 1161/2009 amending Annex II to Regulation (EC) No 853/2004 as regards food chain information (FCI) to be provided to food business operators operating slaughterhouses.
- Regulation (EC) No 183/2005 laying down requirements for feed hygiene
- Directive 2002/99/EC laying down the animal health rules governing the production, processing, distribution and introduction of products of animal origin for human consumption.

Table 1.2 provides the scope of these Regulations, Directives and Decisions in the pork supply chain.

Table 1.2: Scope of EU legislation concerning food safety in the pork supply chain

Regulation/Directive/Decision	Primary sector	Slaughterhouse	Meat processing
Regulation (EC) No 178/2002 ¹	X	X	X
Regulation (EC) No 852/2004 ^{1, 2}	X	X	X
Regulation (EC) No 853/2004 ^{1, 2, 3}	X	X	X
Regulation (EC) No 854/2004	X	X	X
Regulation (EC) No 882/2004	X	X	X
Regulation (EC) No 999/2001	X		
Regulation (EC) No 1774/2002		X	

Regulation (EC) No 183/2005	X		
Regulation (EC) No 2073/2005		X	X
Regulation (EC) No 2074/2005		X	
Regulation (EC) No 1244/2007	X	X	
Regulation (EC) No 2075/2005		X	
Directive 96/23/EG	X	X	
Directive 96/22/EG	X		
Decision 2001/471/EC		X	X
Directive 2002/99/EC	X	X	X
Regulation (EC) No 1161/2009	X	X	

¹ Except for primary production for private domestic use or for the domestic preparation, handling or storage of food for private domestic consumption.

² Except for the direct supply, by the producer, of small quantities of primary products to the final consumer or to local retail establishments directly supplying the final consumer, and collection centres and tanneries which fall within the definition of food business only because they handle raw material for the production of gelatine or collagen.

³ Except for hunters who supply small quantities of wild game or wild game meat directly to the final consumer or to local retail establishments directly supplying the final consumer.

1.2 National food hygiene law in the Netherlands

The core of the national food law in the Netherlands is the “Warenwet” (Food and Consumer Products Act). It is an enabling legislation (“Kaderwet” or “Raamwet”) which provides a general framework for a broad range of more specific orders and administrative regulations with the purpose to ensure the quality and safety in preparing and processing foods and goods. The Warenwet is based on the General Food Law. The Warenwet itself is a base for “Warenwetbesluiten” (which are “Algemene Maatregelen van Bestuur”/Orders in Council), and of several “Regelingen” (Ministerial Regulations). Next to these types of legislation, Dutch food law consists of “Autonome Verordeningen van Produkt- en Bedrijfsschappen” or autonomous regulations issued by the Commodity Boards. See Box 1.2 for an explanation of these different types of Dutch legislation.

Box 1.2: Types of Dutch legislation

There are four types of Dutch legislation relevant for food safety in the pork chain:

- 1) A “**Wet**” (Act) must pass the Parliament and the relevant Commissions of the Parliament (Senate and House of Representatives). Acts are signed by the Queen and the responsible Ministers. They become effective after publication by the Minister of Justice in the “Staatsblad”.
- 2) An “**Algemene Maatregel van Bestuur**” (AMvB, Order in Council) is more specific legislation based on an Act. Orders in Council based on the Warenwet are called “**Warenwetbesluiten**”. Texts of Warenwetbesluiten are submitted to the “Regulier Overleg Warenwet” (ROW), an advisory body that discusses all orders and regulations related to the Warenwet. The ROW is facilitated by the Ministry of Health, Welfare and Sports (VWS) and its members are representatives of food operators, consumer organizations, the Ministries of EL&I and VWS, the NVWA and the Commodity Boards. After their advice the AMvB is presented in the Council of Ministers to be discussed and to the Council of State for legal advice. After signing by the Queen and the responsible Ministers the legislation is published

by the Minister of Justice in the “Staatsblad”.

3) A “**Ministeriële Regeling**” (Ministerial regulation) will refer to an Act as legal base and has an even more simple procedure than an AMvB. The Minister involved writes a concept that, in case of food issues, is discussed in the “Regulier overleg Warenwet”. After comments have been made, the Ministeriële Regeling is signed by the Minister and published in the “Staatscourant”. A Ministeriële Regeling based on the Warenwet is called “Warenwetregeling”.

4) “**Autonome Verordeningen Product- en Bedrijfsschappen**” (Autonomous regulations of the Commodity Boards). Commodity Boards are “**Publiek Rechtelijke Bedrijfsorganisaties**” (PBO’s) meaning that they are representative organizations of the private sector with public tasks. Their regulations are therefore part of the public legislative system. The regulations have to be approved by the SER (“Sociaal Economische Raad”).

Source: Lugt M (2003): Hoofdpijnen levensmiddelenrecht. Den Haag: Sdu Uitgevers.

Note: “Algemeen verbindend voorschrift”, abbreviated as “AVV”, is an administrative measurement taken by the central, provincial or local government concerning use of public space, parking lots, opening hours of shops etc. There are no AVV’s regulating food safety.

Table 1.3 gives an overview of Dutch legislation relevant for food safety control in the pork sector. In the past also the “Deconstructiewet” (Rendering Act) existed, but this act was withdrawn and the belonging orders were fit in the “Gezondheids- en welzijnswet voor dieren” (Act on Animal Health and Welfare). Guides to good practice, like the “Hygiëncode varkensslachterij” (hygiene code for pig slaughterhouses as drafted by “Productschap voor Vee en Vlees”, the Commodity Board for Cattle and Meat) and protocols (like the branch protocol export certification of pigs) are not part of the legislative system as participation is voluntary.

Table 1.3: The Dutch laws for food safety control in the pork sector and their scope

Dutch law	Scope
Warenwet (Food and Consumer Products Act)	constitutes a framework law to ensure quality and safety in preparing and processing foods and goods
Landbouwwet (Agricultural Act)	provides rules for the production, trade and export of agricultural products
Diergeneesmiddelenwet (Act on Animal Medicine)	forbids use of unregistered medicines and lays down the exceptions
Gezondheids- en welzijnswet voor dieren (Act on Animal Health and Welfare)	focuses on animal health (prevention of infectious diseases) and welfare conditions (housing, physical treatment, killing, transportation etc.)
Landbouwkwaliteitswet (Act on Private Control Institutions)	is the legal base for many of the private control institutions on specific products.

Kaderwet Diervoeders (Act on Animal Feed)	focuses on the hygiene and safety of animal feed.
Autonome verordeningen van Produkt- en Bedrijfschappen (Autonomous regulations of the Commodity Boards)	contains regulations:
<ul style="list-style-type: none"> - Verordening Monitoring Kritische Stoffen bij varkens (Productschap voor vee en vlees, PVV) in 2008; - Verordening Salmonellamonitoring Varkenssector 2009 (Productschap voor vee en vlees, PVV); - Diervoederhygiëneverordening, (Productschap Diervoeder, PDV). 	<ul style="list-style-type: none"> - on the monitoring of critical substances in pigs issued by the Commodity board for cattle and meat (issued by PVV in 2008) - on the monitoring of Salmonella (issued by PVV in 2009) - on animal feed hygiene (issued by PDV)

1.2.1 Connection of EU legislation to Dutch legislation

In the Netherlands most Regulations are integrated into the Dutch legislation and not taken over directly. The reason for this is to arrange penalization, to indicate which bodies are involved in execution of the Regulations, or to provide additional rules on the quality and safety of specific kinds of foods and goods. Regulations, Directives and Decisions on food hygiene issues are integrated as orders of the Warenwet (Food and Consumer Products Act), the Diergeneesmiddelenwet (Act on Animal Medicines), and the Landbouwwet (Agriculture Act). The Warenwet was adapted in 2004 to be based on the General Food Law. There are many ways EU legislation is incorporated in national law. It is beyond the scope of this research to explain all ways of incorporation, but we will provide some relevant examples.

A first example of incorporation of EU legislation in Dutch legislation is the “Regeling Vleeskeuring”. It arranges the compliance with the EU Hygiene Package for slaughterhouses, food processors and other operators in the meat sector (Regulations (EC) No 178/2002, 852/2004, 853/2004, 854/2004, 882/2004) and with Regulations 2075/2005 and 999/2001. Its national legal base is the Landbouwwet. The Regeling Vleeskeuring states that the Ministry of Agriculture, Nature and Food Quality is the responsible Ministry. Article 9 of the Regeling Vleeskeuring describes that direct deliveries of meat from farmers and hunters to consumers do not fall under the EC regulation. So the Regeling Vleeskeuring also arranges an exception to Regulation (EC) No 853/2004.

A second example is the allowance of national guides to good practice for small slaughterhouses provided in Regulation (EC) No 852/2004. The Regulation requires that food processors apply food safety procedures that are based on the principles of HACCP. Larger food processors will be able to put their own HACCP-based food quality assurance system into practice. “Regeling Vleeskeuring” states that guides to good practice should be applied for at the Dutch Food and Consumer Product Safety Authority and that they become active after approval by the Ministry of Health, Welfare and Sports (VWS). All guides to good practice are discussed in the regular consultations Warenwet (“Regulier Overleg Warenwet”). The Dutch order “Warenwetsbesluit hygiëne van levensmiddelen” is the legal base for these national guides to good practice (“hygiënecodes”).

The “Verordening Monitoring Kritische Stoffen bij varkens” (Regulation on the monitoring of critical substances in pigs) issued by the Commodity Board for cattle and meat

(Productschap Vee en Vlees PVV) in 2008 is based on Directive 96/23/EG advising the EU-members to implement a national plan for the controls on prohibited substances. The list of substances which are not allowed is divided into three groups:

1. Substances with anabolic functioning (like steroids) and substances from the Annex IV to Regulation (EC) 2377/90.
2. Animal medicines and environmental contaminants.
3. Antimicrobial growth promoters (Regulation (EC) 1831/2003).

With respect to EU Regulations on food safety and hygiene at slaughterhouses and meat processors, it is common use in the Netherlands to refer directly to the EU Regulations instead of the Dutch legislation.

1.3 National food hygiene law in Germany

This section describes the German laws and regulations about food hygiene and the connections to European food law. It should help to understand the federal system of legislation and administration in Germany and its implications for food hygiene surveillance.

1.3.1 German legislation and administration

For a general understanding of German food safety law it is inevitable to explain some characteristics of German administration and legislation. Due to federalism in Germany the German Basic Law (“Grundgesetz”) defines policy areas for which it grants the states concurrent powers and for which the states must administer federal regulations – this concept is called “konkurrierende Gesetzgebung” (concurrent powers). Food safety is one of these policy areas, where legislation has to find compromises between the competences of the states and the federal government.

Table 1.4 gives an overview about the structure of German administration. Germany as a federal state (“Bund”) consists of 16 states (“Bundesländer” or “Länder”). Some of them are subdivided into governmental districts (“Regierungsbezirke”) as an intermediate level of administration. Every state consists of administrative districts (“Kreise”). At the moment 429 administrative districts exist in Germany. Larger cities do not belong to a rural district (“Landkreis”) but are urban districts on their own right (“Kreisfreie Städte”). The smallest unit of administration is the municipality (“Gemeinde”), about 12100 at the moment. The state North Rhine-Westphalia consists of five governmental districts, divided into 53 administrative districts. The state Lower Saxony has no intermediate administrative regions but consists of 46 administrative districts.

Table 1.4: Structure of German administration and NUTS levels

NUTS-Level ⁴	Administrative level
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⁴ The NUTS classification (Nomenclature of Units for Territorial Statistics) describes spatial scale levels used for statistical purposes of the European Union (e.g. Eurostat)

NUTS0 member states	Bund	
NUTS1 states	Bundesländer (13 Flächenländer)	3 Stadtstaaten: Berlin, Hamburg, Bremen
NUTS2 governmental districts	Regierungsbezirke	
NUTS3 administrative districts	Landkreise / Kreise	Kreisfreie Städte
LAU municipality	Gemeinden	

1.3.2 Federal food law

German national food legislation has undergone substantial changes in the last decade. The traditional German food law consisted of a long list of product specific regulations, most often ordinances (Hackfleisch-Verordnung, Geflügelfleischhygiene-Verordnung, Fleischhygiene-Verordnung, Lebensmitteltransportbehälter-Verordnung, etc.). See Box 1.3 for an explanation of different types of German legislation. Since the introduction of the European General Food Law and the Hygiene Package a lot of these product specific acts and regulations have been repealed. Nowadays, German food law mostly resembles the structure of the European food law (Figure 1.1).

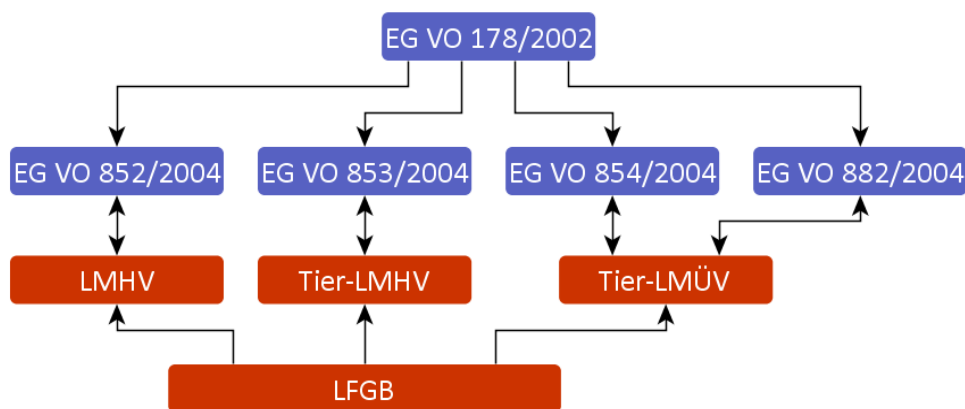


Figure 1.1: Structure of German and European food law

Box 1.3: Types of German legislation

Basically there are three types of legal acts in Germany: “Gesetz” (Act), “Verordnung” (Ordinance) and “Allgemeine Verwaltungsvorschrift” (General Administrative Provision). German legal acts consist of paragraphs (“Paragraphen”) and larger legal acts might be structured into sections (“Abschnitte”).

1. “**Gesetze**” (Acts) are the basis for subsequent and more specific legal acts. Acts in with the framework character dominates might be named as “Gesetzbuch” (Code of law, statute book). Acts are developed by one or more contributing ministries and the

appropriate parliament's committee ("Bundestagsausschuss"). Acts have to pass the Parliament ("Bundestag") and, depending on the topic, the Federal Council ("Bundesrat"; similar to the Dutch Senate) and are signed by the "Bundespräsident" (President).

2. A "**Verordnung**" (Ordinance) is a more specific legal act. It is based on the authorizing paragraph of one or more acts. These paragraphs also define who (what legal body) is authorized to issue an ordinance. Typically it is the responsible federal ministry ("Bundesministerium"), the federal government ("Bundesregierung") or the state government ("Landesregierung"). Usually an ordinance does not need the approval of Bundestag or Bundesrat (exceptions are possible).
3. An "**Allgemeine Verwaltungsvorschrift (AVV)**" (General Administrative Provision) addresses public authorities of all federal states to ensure that Gesetze and Verordnungen are carried out consistently. This is important, because food safety supervision is basically a matter of the states.

Within the federal states the types of legislation are similar but not always identically named and terms are not consistent between federal states. In North Rhine-Westphalia and Lower Saxony specific regulations are called "**Erlass**" (decree).

The "LFGB – Lebensmittel- und Futtermittel-Gesetzbuch" (Food and Feed Code) forms the basis of legislation to ensure safety and consumer protection not only in the field of food and feed but also in consumer goods and cosmetics. The LFGB provides legitimization for several specific legal acts. Based on the LFGB German food law consists of several "Verordnungen" and "Allgemeine Verwaltungsvorschriften" (AVV). Three of these laws (LMHV, Tier-LMHV and Tier-LMÜV) resemble the structure of the EU Hygiene package: LMHV can be regarded as an adoption of Regulation (EC) No 852/2004, Tier-LMHV focuses on food of animal origin just like Regulation (EC) No 853/2004 does and Tier-LMÜV deals with official supervision according to Regulation (EC) No 854/2004 and 882/2004. But this should not be regarded as a translation of EU regulations to national law. Instead, these ordinances mainly refer to the EU hygiene package and only regulate issues which are not covered by EU law, especially those mentioned in Article 1 paragraph 3 and 4 (e.g. primary production for private domestic use, direct supply of small quantities by the producer or the hunter), or which have to be adjusted to national circumstances (e.g. approval procedures for establishments). To ensure a consistent execution of the EU regulations in all federal states, a general administrative provision (Allgemeine Verwaltungsvorschrift Lebensmittelhygiene, AVV LmH) was elaborated by a working group with representatives of the Länder. AVV LmH provides detailed and fine-tuned descriptions of legal terms, test methods and procedures of approval and documentation. For example it specifies what is meant with "sufficient number of rooms" in Regulation (EC) No 853/2004 Annex III Section I Chapter II 2 (a). Table 1.5 gives an overview about German legislation concerning aspects of pig production and pork safety.

Table 1.5: German legislation concerning pork safety

German law	Scope
Lebensmittel- und Futtermittelgesetzbuch (LFGB)	Frame work law to ensure quality and safety of feed, food and consumer goods. Adopts definitions of EC Reg. 178/2002.
Lebensmittelhygiene-Verordnung	Sets hygiene requirements during production,

(LMHV)	processing and placing on the market of food. Food has to be produced, processed and placed on the market in a way that ensures safety and consumer health.
Tierische Lebensmittel-Hygieneverordnung (Tier-LMHV)	Sets hygiene requirements during production, processing and placing on the market of food of animal origin. Describes the procedure of approval of establishments. Contains model application documents and a template for transmission of food chain information.
Tierische Lebensmittel-Überwachungsverordnung (Tier-LMÜV)	Regulates official supervision of food of animal origin. Enables monitoring of residues in live animals and animal products according to EC Directive 96/23. Describes requirements for official auxiliaries and slaughterhouse staff.
Lebensmitteleinfuhr-Verordnung (LMEV)	Contains rules about third country import of food of animal origin and other food.
Lebensmittelkontrolleur-Verordnung (LKonV)	Describes requirements, proofs of competence and curriculum of food inspectors and authorizes the Länder to enact own regulations therefore. <i>Note! Does not apply to official auxiliaries (according to Annex I Section III Chapter IV letter B of Regulation (EC) No 854/2004).</i>
Fleischuntersuchungsstatistik-Verordnung (FIUStatV)	Explains the compilation of federal statistics about the findings during ante- and post-mortem meat inspection according to Regulation (EC) No 854/2004.
Schweine-Salmonellen-Verordnung (SchwSalmoV)	Monitoring of salmonella in slaughter pigs.
Tierschutzgesetz (TierSchG)	Animal welfare act.
Tierschutz-Nutztierhaltungsverordnung (TierSchNutztV)	Requirements on husbandry of livestock (calves, laying hens, pigs and fur animals).
Tierschutz-Schlachtverordnung (TierSchIV)	Animal welfare at the time of slaughter, requirements for buildings and staff.
Fleischgesetz (FIG)	Law about transparency on the meat market.
Fleisch-Verordnung (FIV)	An old law, with only few paragraphs left valid, with special requirements about ingredients and composition of meat products.

Allgemeine Verwaltungsvorschrift Lebensmittelhygiene (AVV LmH)	Conduct of official supervision of hygiene of food of animal origin and examination of guidelines of good manufacturing practice. Describes recording and categorization of pathological finding during slaughter and their feedback to the farmer. Determines examination times for pig carcasses during slaughter.
Allgemeine Verwaltungsvorschrift Rahmenüberwachung (AVV Rüb)	Describes control methods and techniques for official controls. Contains a model for risk evaluation of establishments and provides guidance.
Allgemeine Verwaltungsvorschrift Schnellwarnsystem (AVV SWS)	Description of the early warning system according to Art. 50 of EC Reg 178/2002 and Art. 19 of EC Reg. 882/2004.
Allgemeine Verwaltungsvorschrift Monitoring 2010	Contains the sampling plan for a national monitoring system called “Lebensmittelmonitoring (LMM)”.
Allgemeine Verwaltungsvorschrift Zoonosen Lebensmittelkette (ZLmkAVV)	According to EU Dir. 99/2003 all member states have to publish representative data about the occurrence of zoonotic pathogens in the food chain.
Allgemeine Verwaltungsvorschrift Datenübermittlung (AVV Düb)	Expired. AVV Düb was valid until end of 2010. It was superseded by AVV DatA.
Allgemeine Verwaltungsvorschrift Datenaustausch (AVV DatA)	In force since 2011. Replaces the former AVV Düb. AVV DatA shall enable and enforce new techniques of data exchange between public authorities in the field of food, feed, animal health and animal welfare.

1.3.3 Food law on federal state level

Because supervision of the safety of food, feed and consumer products is primarily a competence of the Bundesländer some state-specific legal acts are in force. This is particularly the case for regulations dealing with responsibilities of public authorities, requirements and education for official personnel and financial aspects. North Rhine-Westphalia has a special law (LFBRVG NRW) about the execution of the federal Food and Feed Code (LFGB). It mainly describes the allocation of responsibilities on the three administrative levels (“Land”, “Regierungsbezirk” und “Kreis”). Both Länder have ordinances in force to regulate requirements and education of personnel involved in food and meat safety supervision (“Ausbildungs- und Prüfungs-Verordnungen”) and both had to issue legal acts about fees and tariffs (“Gebühren-Verordnungen”) for official actions. Table 1.6 and table 1.7 give an overview of special laws from North Rhine-Westphalia and from Lower Saxony concerning meat safety.

Table 1.6: Legislation of North Rhine-Westphalia concerning meat safety

North Rhine-Westphalian law	Scope
Gesetz über den Vollzug des Lebensmittel-, Futtermittel- und Bedarfsgegenständerechts	Explains details regarding the execution of the federal Food and Feed Code (LFGB), i.e.

(LFBRVG NRW)	definition of competent authorities, personnel, costs, fines, data exchange, etc.
Verordnung über die Ausbildung und Prüfung für die Laufbahn des tierärztlichen Dienstes in der Veterinärverwaltung im Land Nordrhein-Westfalen (VAPVet)	Explains education and examination of Official Veterinarians (according to Regulation (EC) No 854/2004).
Ausbildungs- und Prüfungsordnung amtlicher Fachassistent (VAPFaF NRW)	Explains education and examination of official auxiliaries in meat inspection in (according to Regulation (EC) No 854/2004) North Rhine-Westphalia.
Lebensmittelkontrolleure-Ausbildungsverordnung (APVOLKon NRW)	Derives from the federal LKonV and explains requirements, proofs of competence and curriculum of food inspectors in North Rhine-Westphalia. <i>Note! Does not apply to official auxiliaries (according to Regulation (EC) No 854/2004).</i>
Verordnung über die Ausbildung und Prüfung zur amtlichen Kontrollassistentin und zum amtlichen Kontrollassistenten (APVOKontrAss NRW)	Explains education and examination of food inspection assistants in North Rhine-Westphalia.
Allgemeine Verwaltungsgebührenordnung (AVerwGebO NRW)	Contains a directory with scales of charges for official actions.

Table 1.7: Legislation of Lower Saxony concerning meat safety

Lower Saxonian law	Scope
Verordnung über die Ausbildung und Prüfung für die Laufbahn des höheren Veterinärdienstes (APVO-Vet)	Explains education and examination of Official Veterinarians (according to Regulation (EC) No 854/2004).
Verordnung über die Schulung, Prüfung, Fortbildung und Nachprüfung für amtliche Fachassistentinnen und amtliche Fachassistenten (FachassVO)	Explains the education and examination of official auxiliaries in meat inspection in (according Regulation (EC) No 854/2004) Lower Saxony.
Verordnung über die Ausbildung und Prüfung für den Lebensmittelkontrolldienst (APVO-LKD)	Derives from the federal LKonV and explains requirements, proofs of competence and curriculum of food inspectors in North Rhine-Westphalia. <i>Note! Does not apply to official auxiliaries, according to Regulation (EC) No 854/2004.</i>
Gebührenordnung für die Veterinärverwaltung	Contains a directory with scales of charges

(GOVet)

for official actions.

2 Statistics on pig production and slaughterhouses

Agribusiness and livestock production are an important economic sector in the Dutch-German border region. The Euroregion North Rhine-Westphalia, Lower Saxony and the Netherlands (NRW-LS-NL), is one of the regions in Europe with the highest livestock densities and the frontier between Germany and the Netherlands is very open with a network of economic activities and dependencies spanning that border. Parts of one food production chain are located on both sides of the border, with large flows of live animal, organic material and personnel at any time. Hence, the Euroregion NRW-LS-NL can be regarded as a single economic region with frontiers tending to disappear. Piglet production, pig fattening, slaughtering and meat processing are very important parts of that agricultural zone. This chapter draws a picture of the dimensions of pig production, slaughtering and meat inspection in the Euroregion NRW-LS-NL.

2.1 The Netherlands

This section provides some graphs and statistics about piglet production, pig fattening, slaughter capacities and meat inspections results in the Netherlands.

2.1.1 Primary pig production

The total number of pigs (finishing pigs, sows and piglets) in the Netherlands has grown slightly since 2005 to 12 million in 2010 after a steady drop since 1995 (Figure 2.1). Of these pigs, roughly 50% are finishing pigs, 40% piglets and 10% sows. The number of pig farms has been declining steadily over the last decade (Figure 2.2).

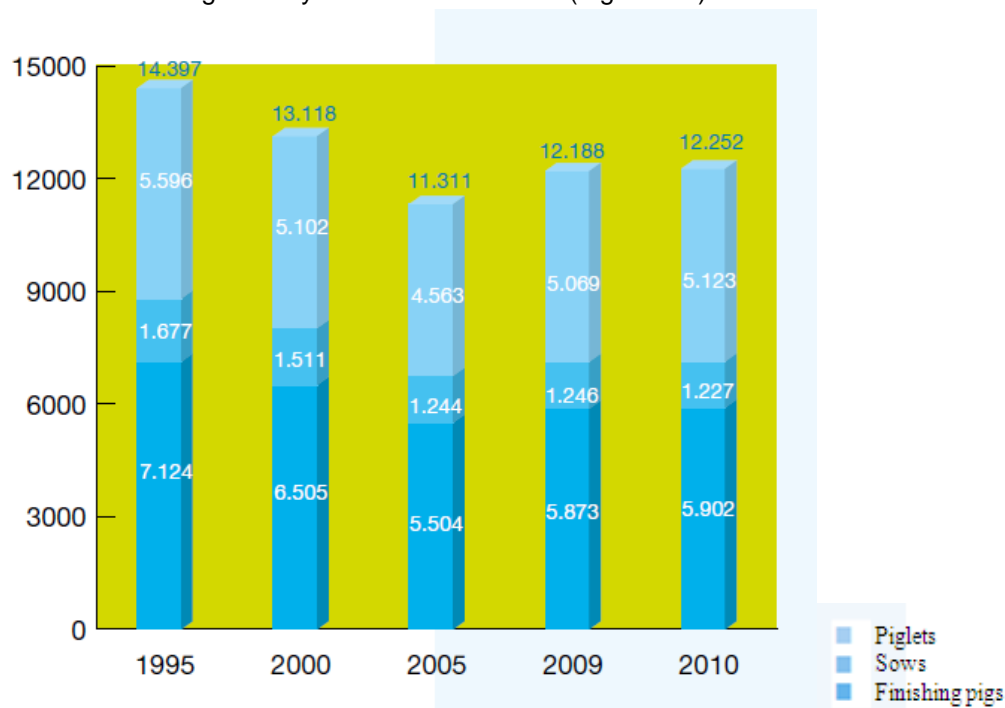


Figure 2.1: Number of pigs in the Netherlands from 1995 to 2010 (x 1.000) (Source: PVE, 2011).

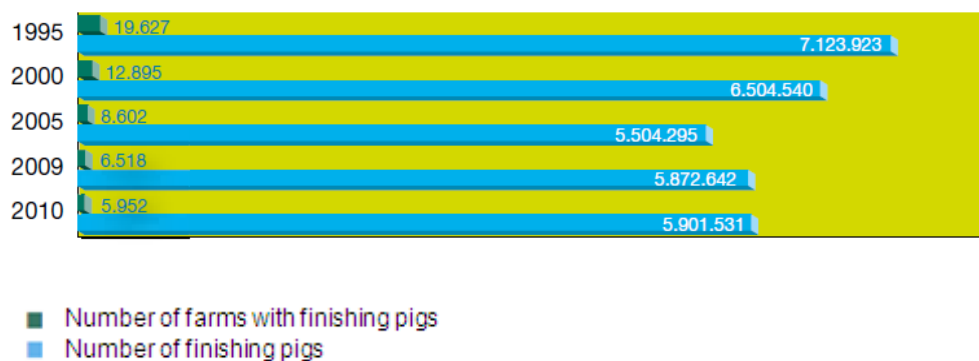


Figure 2.2: Number of finishing pigs and pigs farms in the Netherlands from 1995 to 2010 (Source: PVE, 2011; CBS Landbouwtelling, 2011).

In 2010 nearly 6,000 farms with finishing pigs remained in the Netherlands. Of these, nearly 1,000 were so-called closed pig farms, that provide own piglets. The decline in number of farms is mainly caused by closing of small size farms with up to 100 finishing pigs, resulting in an increased farm size. In 2010, the 52% farms with over 500 finishing pigs were housing 90% of the pigs (Figure 2.3).

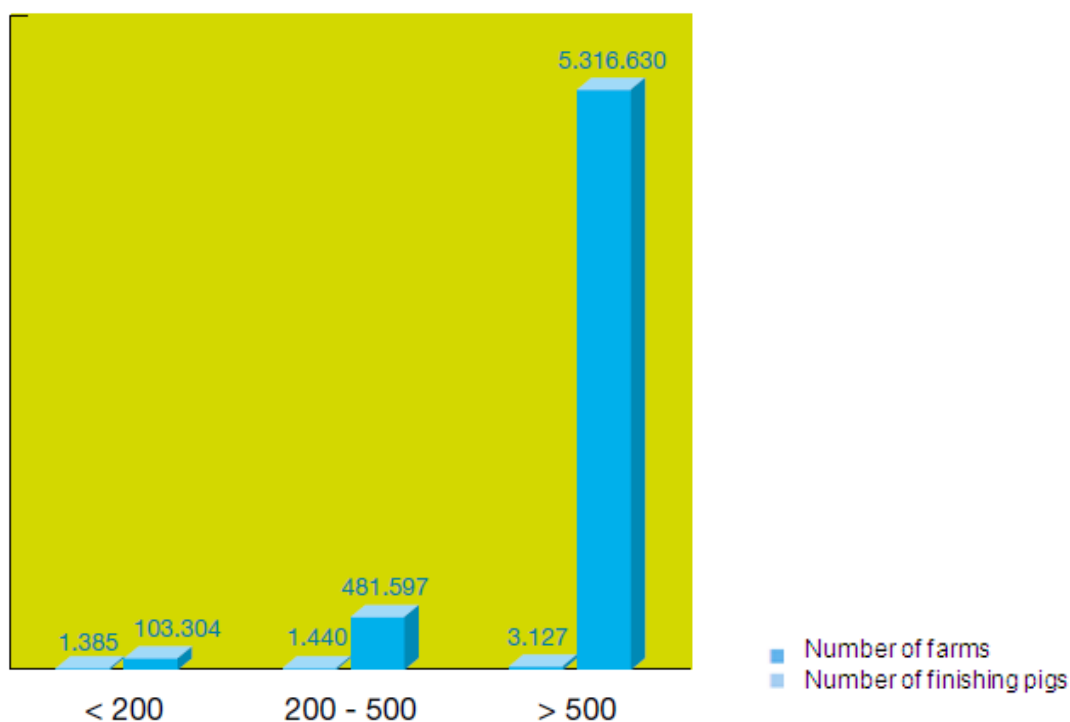


Figure 2.3: Number of pig farms per finishing pig size class and number of finishing pigs present per class in 2010 (Source: PVE, 2011).

In 2010 Dutch pig farmers produced 24.9 million finishing pigs and 13.9 million finishing pigs were slaughtered (PVE, 2011). The number of pigs slaughtered in the Netherlands slightly dropped after a period in which it was stable between 14.1 and 14.5 million from 2004 until 2008 (PVE, 2005; 2006; 2007; 2008; 2009).

2.1.2 Slaughterhouses

In 2008 there were 289 slaughterhouses in the Netherlands (personal information NVWA, 2009). Amongst them were 15 large pig slaughtering houses with over 100,000 slaughtered pigs per year, and 4 medium-sized with 25,000 to 100,000 slaughtered pigs per year. The 15 large pig slaughtering houses are located near the pig production areas in the south and east of the Netherlands. Figure 2.4. shows the locations of the 15 largest Dutch pig slaughterhouses in 2008 (PVE, 2009).



Slaughterhouse size	Number of Slaughterhouses		Total heads slaughtered	
	2007	2008	2007	2008
100.000-500.000	4	4	685.000	753.000
500.000-1.000.000	4	4	3.271.000	3.440.000
>1.000.000	7	7	9.706.000	9.717.000

Figure 2.4: Locations of the 15 largest Dutch pig slaughterhouses and number of slaughtering (Source: PVE, 2009).

2.1.3 Statistics on meat hygiene

In 2009 13,804,539 fattening pigs were slaughtered in the Netherlands of which 83,635 (0.6 %) were identified for further investigation (i.e. a check on bacteriological contamination and antibiotics) and 30,875 (0.2 %) were declared unfit for human consumption (personal information NVWA, 2010). More data on national level are not publicly available.

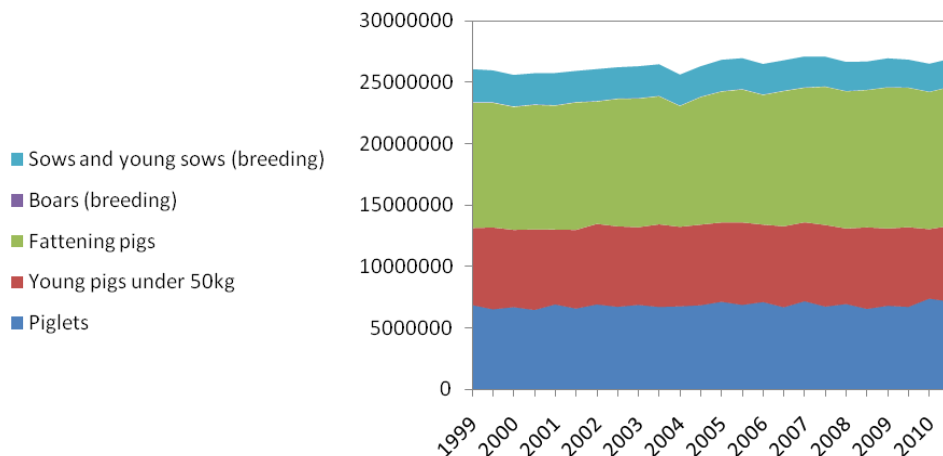
2.2 Germany

This section provides some graphs and statistics about piglet production, pig fattening, slaughter capacities and meat inspections results in Germany and, if appropriate, for North Rhine-Westphalia and Lower Saxony.

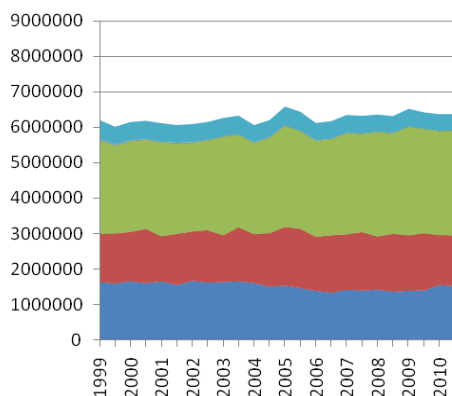
2.2.1 Primary pig production

Figure 2.5 shows the development of the German pig population during the last decade. These numbers do not come from the national I&R database HI-Tier⁵ but from a sample survey that is performed biannually by the Federal Statistical Office⁶

a) Germany



b) North Rhine-Westphalia



c) Lower Saxony

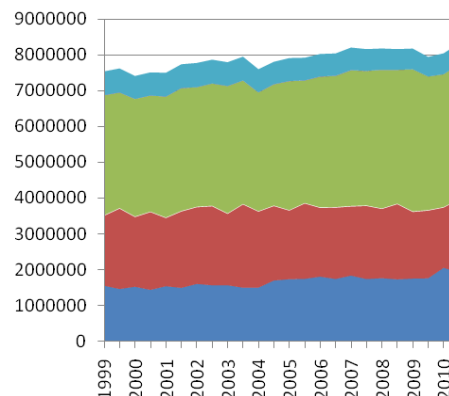


Figure 2.5: Pig population in Germany, North Rhine-Westphalia and Lower Saxony, from 1999 to 2010 (Source: Statistisches Bundesamt, 2011⁷).

In May 2010 pig population in Germany was about 26.5 million animals distributed on 33,400 holdings. Of these farms, 28,100 have finishing pigs and about 16,000 farms have breeding pigs. About 17.1 million of the pigs were kept in 8,600 holdings with more than 1,000 animals. During the last decades the number of pig farms decreased constantly (see Figure 2.6), but that development was over-compensated by an increase in farm size. And the development to larger holdings is still in progress: In 1997 only 14 % of all animals were kept in large farms, whereas in 2009 one third of all pigs lived in 1,900 holdings with more than

⁵ HI-Tier = Herkunftssicherungs- und Informationssystem für Tiere (German identification & registration database for livestock)

⁶ In 2010 the threshold value for official statistics sample survey was raised from 8 to 20 animals per farm excluding about 20,000 holdings with about 300,000 animals or ~ 1% of all pigs.

⁷ Statistisches Bundesamt (2011): Allgemeine und Repräsentative Erhebung über die Viehbestände.

1,000 animals. About 10,800 holdings have less than 250 pigs accounting for a total of 1.4 million animals.

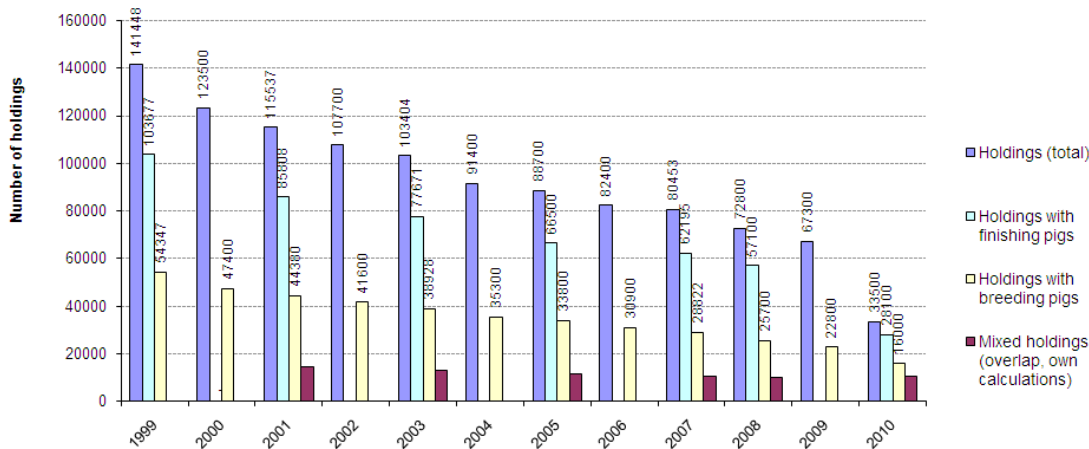


Figure 2.6: Pig holdings in Germany 1999 – 2010 (Source: Statistisches Bundesamt, 2010⁸).

The heartland of pig production is the north-western part of Germany. About 54% percent of all pigs are kept in two Bundesländer: 8 million pigs in Lower Saxony (about 8,800 holdings) and 6.4 million pigs in North Rhine-Westphalia (about 8,600 holdings) (see Figure 2.7)

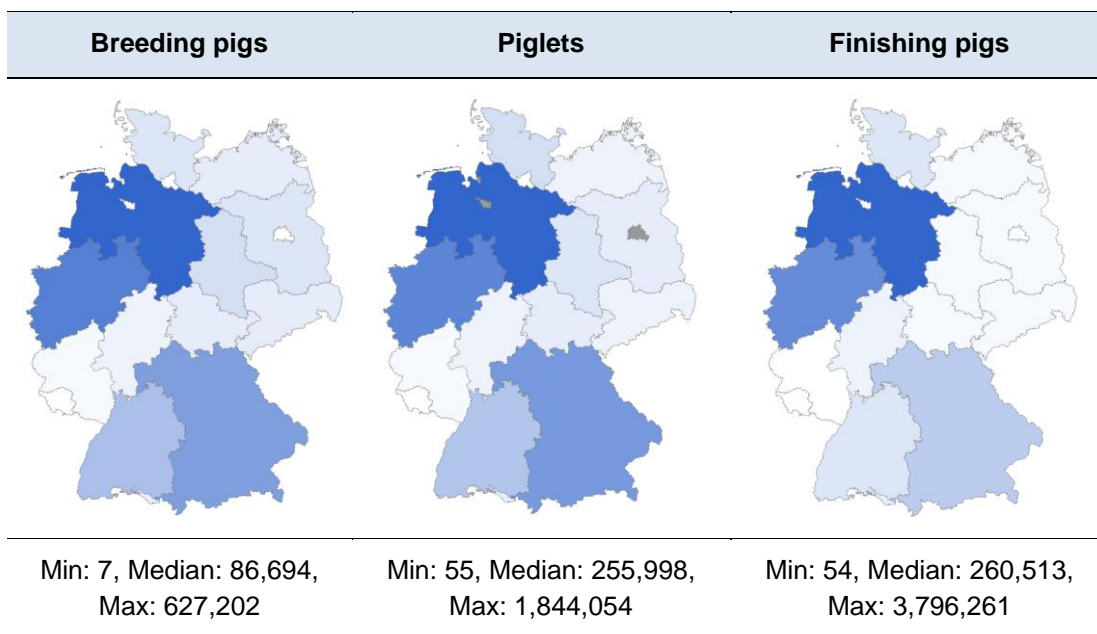


Figure 2.7: Pig production in Germany 2007– regional distribution of animals (Source: Statistisches Bundesamt 2011⁹).

⁸ Statistisches Bundesamt (2010): Allgemeine und Repräsentative Erhebung über die Viehbestände

⁹ Statistisches Bundesamt (2011): Allgemeine und Repräsentative Erhebung über die Viehbestände

2.2.2 Statistics on slaughtering

According to German laws about transparency on the meat market (“Fleischgesetz” and “1. Fleischgesetz-Durchführungsverordnung”) every slaughterhouse has to send the number of health marked carcasses to the District Veterinary Office (DVO). In Germany in 2009 about 56.4 million pigs with a mean carcass weight of 94.1 kg were slaughtered and declared fit for human consumption. North Rhine-Westphalia and Lower Saxony are each responsible for about one third of all pigs slaughtered in Germany (North Rhine-Westphalia: 19 million pigs, Lower Saxony: 17.1 million pigs). See table 2.1 for exact figures.

Table 2.1: Pig slaughterings in Germany, Lower Saxony and North Rhine-Westphalia 2010

	Germany	Lower Saxony	North Rhine-Westphalia
Total number of pigs slaughtered	58 625 627	17 629 769	19 522 287
Commercial / at the slaughterhouse	58 413 677	17 606 493	19 516 934
Private / at home	211 950	23 276	5 353

Source: Statistisches Bundesamt 2011¹⁰.

2.2.3 Slaughterhouses

In Germany there are 3,418 establishments approved for slaughtering (all kind of species) from which 206 are located in North Rhine-Westphalia and 307 are located in Lower Saxony (Sep 2010)¹¹. But a classification of slaughtering establishments is not possible from official statistics and there are no official or common rules for classification of establishments according to size (slaughterings per time, staff, turnover, etc.). During application for approval key figures (slaughter capacities, floor plans, etc.) of the establishments have to be provided to the competent authority (state agency). But these key figures are not always stored in the database of the competent authority¹² and are not send to higher authorities for statistical purposes. Hence, BVL who publishes the national list of approved establishments has no data about the capacities of the establishments.

The size of slaughterhouses is not a part of state or federal statistics because the figures are compiled from reports of the DVO. Official statistics are divided into surveys and calculations about industrial economics (“Wirtschaftsstatistik des verarbeitenden Gewerbes”), meat production (“Schlachtungen und Fleischerzeugung”) and meat hygiene (“Fleischhygiene-Statistik”). Meat production and meat hygiene figures are compiled by the DVO and all data relate to the district of origin but not to individual establishments. The economic statistics are bound to the classification system “WZ2008”, were no differentiation of slaughterhouses exists (only one code for slaughtering and cutting plants) and only cover enterprises with 20 or more employees. In 2009 about 284 establishments with more than 20 employees belonged to WZ2008-Code 10.11.0 (Slaughtering without poultry), 57 establishments were located in North Rhine-Westphalia (Personal communication of Mr. Friss from the statistical bureau of North Rhine-Westphalia), for Lower Saxony no such data were available.

Trade and marketing associations of the sector do not have or do not provide latest data about size and location of slaughterhouses. The former Central Market and Price Reporting

¹⁰ Statistisches Bundesamt (2011): Fachserie 3 Reihe 4.2.1. Schlachtungen und Fleischerzeugung 2010

¹¹ List of approved establishments according to Reg. EC 853/2004: <https://apps2.bvl.bund.de/bltu/>

¹² All DVOs and most state agencies in Germany run the same software (BALVI iP) for their data management, but it is largely voluntary what database fields are used and what information is stored in a non-electronic way.

Agency (“Zentrale Markt- und Preisberichtsstelle”) of Germany published a comprehensive illustration in 2007 (see figure 2.8). A list of the 10 largest slaughter companies (not establishments) is released annually by a German meat industry magazine. These 10 companies cover about two thirds all pig slaughters in Germany (see Table 2.2).

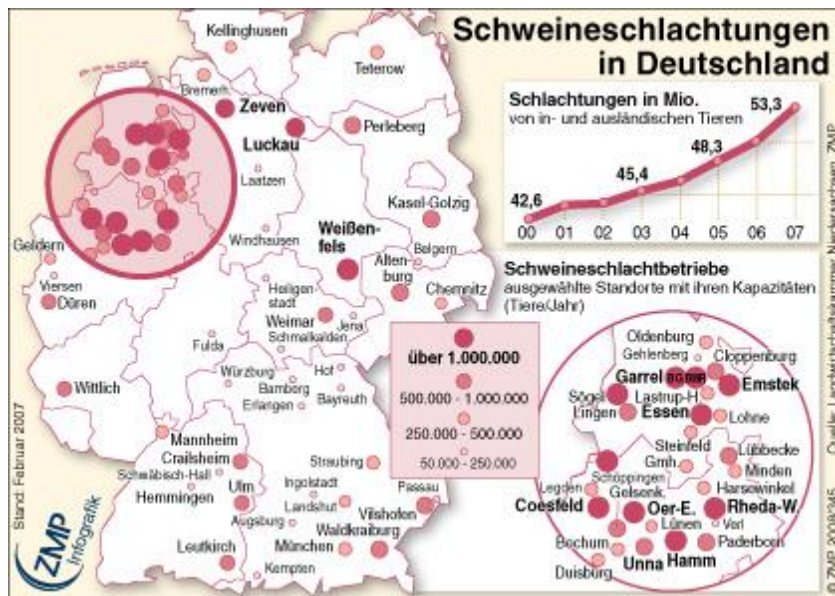


Figure 2.8: Location and size of pig slaughterhouses in Germany in 2007 (Source: Zentrale Markt- und Preisberichtsstelle (ZMP), 2008).

Table 2.2: Top 10 of German slaughter companies in 2010

Ranking	Establishments	Slaughtered pigs / annum	Percentage of Top 10	Percentage of whole Germany
1	Tönnies	15,300,000	33,92%	26,10%
2	Vion Food Germany	10,700,000	23,72%	18,25%
3	Westfleisch	6,580,000	14,59%	11,22%
4	D & S Fleisch	3,580,000	7,94%	6,11%
5	Vogler-Fleisch	1,950,000	4,32%	3,33%
6	Böseler	1,850,000	4,10%	3,16%
7	BMR Schlachthof	1,365,000	3,03%	2,33%
8	Tummel	1,346,000	2,98%	2,30%
9	Gausepohl	1,335,000	2,96%	2,28%
10	Müller Gruppe	1,100,000	2,44%	1,88%
Total of top 10		45,106,000	100%	76,94%
Total slaughtered pigs in Germany		58,625,627		

Source: afz 2011¹³ and Statistisches Bundesamt 2011¹⁴.

¹³ allgemeine fleischer zeitung (2011): Top 150 der Fleischbranche. 40/2011. 2011-10-05.

¹⁴ Statistisches Bundesamt (2010): Fachserie 3 Reihe 4.2.1. Schlachtungen und Fleischerzeugung.

2.2.4 Statistics on meat hygiene

According to the German ordinance about meat hygiene statistics (FIUStatV) the DVO is obliged to keep track of decisions and findings during ante- and post-mortem meat inspection for the purpose of federal statistics. The items are based on the tasks of meat inspection as described in EC Reg. 854/2004 (decisions concerning food chain information, decisions concerning live animals, decisions concerning meat). The records of all slaughterhouses within the scope of one DVO ("Landkreis") are collected in an aggregated manner. Every 6 months the DVO has to transmit the aggregated figures to the Federal Statistical Office, which provides special software therefore ("CORE Reporter"). Results are published biannually. Table 2.3 provides the most important figures. Of 53,208,257 pigs slaughtered in 2010 in Germany, 121,534 (0.2 %) were declared unfit for human consumption. In some points the frequencies differ remarkably between Lower Saxony and North Rhine-Westphalia e.g. the number of parts of carcasses with fecal or other contamination. These differences are unlikely to originate from the condition of the pigs before slaughter and therefore raise the question what factors might cause these differences.

Table 2.3: Results of meat inspection in Germany in 2010 (pigs of German provenance)

Description	Germany	Lower Saxony	North Rhine-Westphalia
Documentation checks on the farm	923,928	66,381	753,341
Documentation checks at the slaughterhouse	53,130,361	16,153,935	16,672,039
Animal identity unclear	9,169	0	0
No food chain information	67	0	66
Total number of ante-mortem inspections	53,208,257	16,156,523	16,695,793
Cleaning of animals before slaughter	921	880	0
Extended ante-mortem inspection	2,688	2,601	0
Separate slaughter	338	122	74
Killing before slaughter	15,735	1,913	1,360
Total number of pigs accepted for slaughter	53,192,549	16,154,611	16,694,433
Total number of post-mortem inspections	53,192,546	16,154,611	16,694,433
Visual meat inspections	1,992,243	695,496	1,295,863
Examinations for trichinosis	53,188,561	16,151,726	16,693,877
Tests for chemical residues	86,582	55,299	8,151
Number of complete carcasses declared unfit for human consumption	121,534	36,936	38,423
Number of cases where parts of the carcass were declared unfit for human consumption	2,914,114	383,137	1,699,755
Localized pathologies	1,677,100	316,341	795,400
Fecal or other contamination	1,040,870	55,769	743,935
Organs declared unfit for human consumption	21,540,997	4,067,314	8,212,962
Lungs (pneumonia)	3,365,812	661,327	771,226
Pleura (pleuritis)	3,140,826	1,306,457	942,151
Heart (pericarditis)	1,363,301	418,032	419,026
Liver (parasites)	5,071,848	1,281,037	1,606,774
Kidneys	1,129,245	117,515	168,435

Fecal or other contamination	4,942,491	60,921	4,003,976
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Source: Statistisches Bundesamt 2011¹⁵.

2.3 Trade of live pigs between NL and Germany

Livestock trading of Dutch piglets to German fattening farms and the transport of slaughter animals across the border are an important part of pig production in the Dutch-German border region. Table 2.4 provides an overview of the most important figures in transport of live pigs across the Dutch-German border. In 2008 Germany officially reported to have imported more than 3.6 million slaughter pigs and gilts from the Netherlands. Obviously the figures of both reporting countries do not match exactly. Whereas the German numbers of export to the Netherlands match quite well the Dutch numbers of import from Germany, Germany reported much more (156%) imports from the Netherlands (3,654,433) than the Netherlands reported exports to Germany (2,343,810). Such differences can occur when trade partners (enterprises) have very different trade volumes and therefore the bigger partner might have to report his numbers whereas the smaller remains below the reporting threshold. This might be the case when a large number of Dutch farmers deliver pigs to German slaughter companies.

Table 2.4: Pig trade statistics between Germany and the Netherlands in 2008

...	REPORTER ¹⁶		GERMANY	NETHERLANDS
FLOW ¹⁷	PRODUCT ¹⁸	PARTNER ¹⁹	NETHERLANDS	GERMANY
IMPORT	01031000 (pure-bred breeding pigs)		40,124	2,246
IMPORT	01039110 (piglets and pigs < 50kg)		1,998,327	157,857
IMPORT	01039211 (sows, at least primiparous)		95,944	:
IMPORT	01039219 (slaughter pigs and gilts)		3,654,433	66,472
EXPORT	01031000 (pure-bred breeding pigs)		1	156,484
EXPORT	01039110 (piglets and pigs < 50kg)		151,943	1,438,431
EXPORT	01039211 (sows, at least primiparous)		:	61,620
EXPORT	01039219 (slaughter pigs and gilts)		67,165	2,343,810

Source: Eurostat 2010²⁰.

¹⁵ Statistisches Bundesamt (2011): Fachserie 3 Reihe 4.3. Schlacht tier- und Fleischuntersuchung.

¹⁶ "Reporter" indicates the source of the numbers (statistical bureau of the member state)

¹⁷ „Flow“ indicates the direction of trade (import = trade from partner to reporter)

¹⁸ Product codes according to Combined Nomenclature 2008

¹⁹ „Partner“ indicates the trade partner (source of import or target of export)

²⁰ EUROSTAT DS-016890-EU27 Trade Since 1995 By CN8, extracted 27-08-2010 16:21:42.

3 Public and private organizations in meat safety control

Traditionally the supervision of slaughtering and meat hygiene lies in the hands of public authorities. But especially in The Netherlands private companies are involved in the public tasks of controlling meat safety. This chapter describes the public authorities and the private organizations involved in the official surveillance of pig holdings and slaughterhouses in the Netherlands and North Rhine-Westphalia and Lower Saxony in Germany.

3.1 The Netherlands

At the center of food safety supervision and control in the Netherlands is the Food and Consumer Product Safety Authority (NVWA). Though not a public organization, the Kwaliteitskeuring Dierlijke Sectoren (KDS) executes inspection tasks as part of the meat inspection on behalf of the authorities. The organizational structure of KDS, NVWA and the responsible Ministry of Economic Affairs, Agriculture and Innovation (EL&I) are explained below. The Ministry of EL&I was established in October 2010 and integrates parts of the former Ministry of Agriculture, Nature and Food Quality (LNV) and the Ministry of Economic Affairs. This chapter describes the situation late 2011.

3.1.1 Organizational structure and responsibilities

This section describes most important organizations and their responsibilities in the surveillance of animal production and meat inspection in the Netherlands. During the period of the SAFEGUARD project the structure of the Dutch ministry of agriculture and consumer protection and the affiliated public authorities was completely reorganized. At time of writing some parts of the new structure were still in a provisional state.

3.1.1.1 Dutch Food and Consumer Product Safety Authority (NVWA)

Since January 2012 the Dutch Food and Consumer Product Safety Authority is called the “Nederlandse Voedsel en Warenautoriteit” (NVWA). The NVWA came into existence in after the merge of the nieuwe Voedsel en Waren Autoriteit (nVWA), the General Inspection Service (AID) and the Plant protection Service (PD). The nVWA was established as an entity during the period of the merge of the former VWA, AID and PD. The former VWA was established in 2002 on behalf of both the former Ministry of Agriculture, Nature and Food Quality (LNV) and the Ministry of Health, Welfare and Sports (VWS) by the Order in Council “Besluit organisatie VWA”. The field of work is safety of consumer products, so the scope is broader than just food. The former VWA integrated the former “Keuringsdienst van Waren” (KvW, Control Service for Consumer Product products) and the “Rijksdienst voor Keuring van Vee en Vlees” (RVV, the Government Agency for the Inspection of Meat and Cattle). The nVWA’s budget in 2010 was about 160 million euro in 2010 of which almost half is contributed by the Ministry of VWS, 13% by the Ministry of EL&I and one third from charges for inspection services (VWA, 2007b).

The NVWA is an agency related to the Ministry of EL&I and final responsibility for NVWA lays with the Minister of EL&I. NVWA, however, is an independent organization with its own management and financial budget. Figure 3.1 provides the structure of the organizational relations of NVWA with both the Ministries of EL&I and VWS.

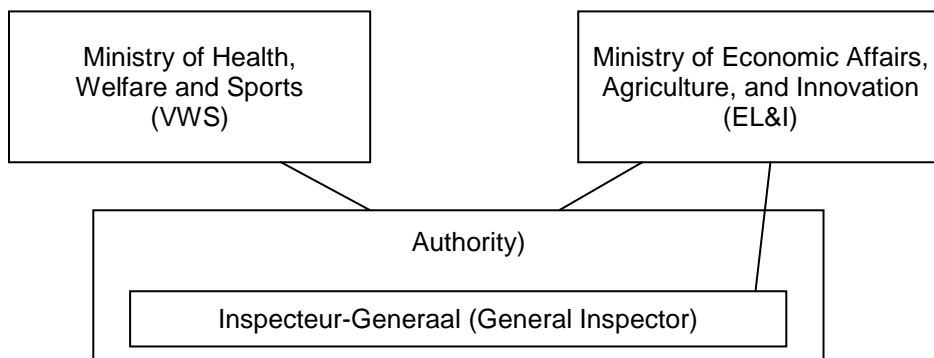


Figure 3.1: Organizational links between NVWA and the ministries of VWS and EL&I

The NVWA's director is called "Inspecteur-Generaal" (Inspector-General) and is employed by the Ministry of EL&I. In 2006 the former VWA had about 1,800 employees of which 477 inspectors for both food and non-food issues.

The organization of nVWA in 2011 had an Animal Division, which was in charge of food safety control in the meat chain from the primary production level till the meat cutting industry and export agencies (Figure 3.2). This is a consequence of the Regulation (EC) 854/2004 that requires inspections of veterinary officials in different stages of the production chain. Inspections concerning non-food related zoonoses and pathogens will be part of the working field of the Animal Division. Since 2012 in the NVWA these task are assigned to the Division Veterinary affairs and imports.

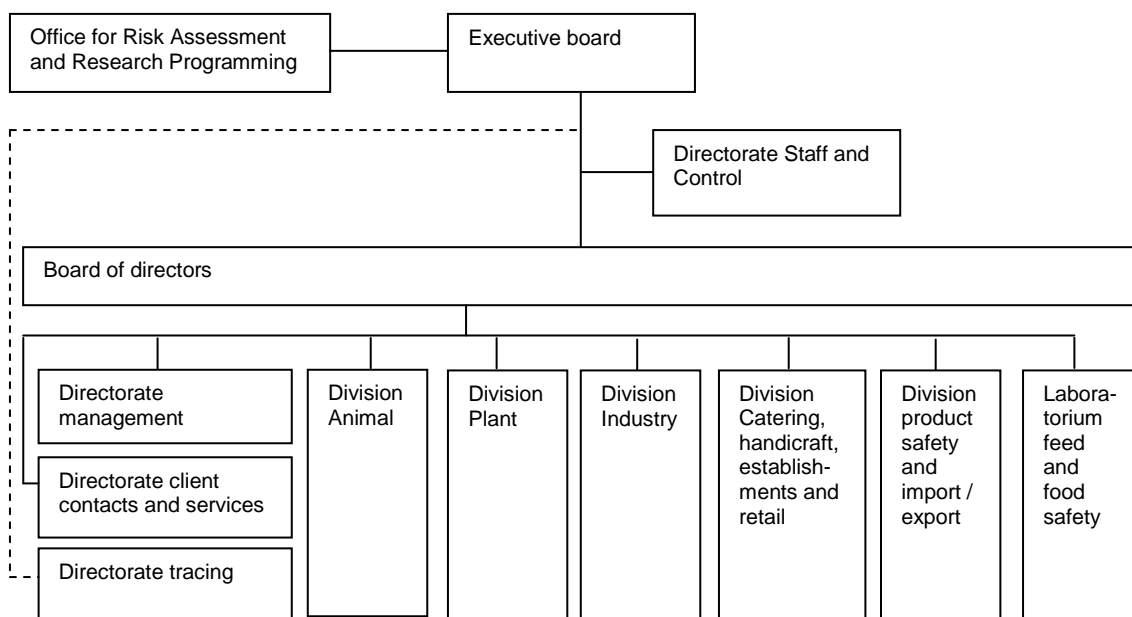


Figure 3.2: Organizational structure of the nVWA

3.1.1.2 Ministry of Economic Affairs, Agriculture and Innovation

Figure 3.3 provides the organizational structure of the Dutch Ministry of Agriculture, Nature and Food Quality (LNV) in 2011. The Ministry is headed by the Minister of EL&I. Agricultural affairs are the responsibility of the Secretary of State, internationally referred to as the Minister of Agriculture. The Ministry of EL&I has responsibility for the NVWA.

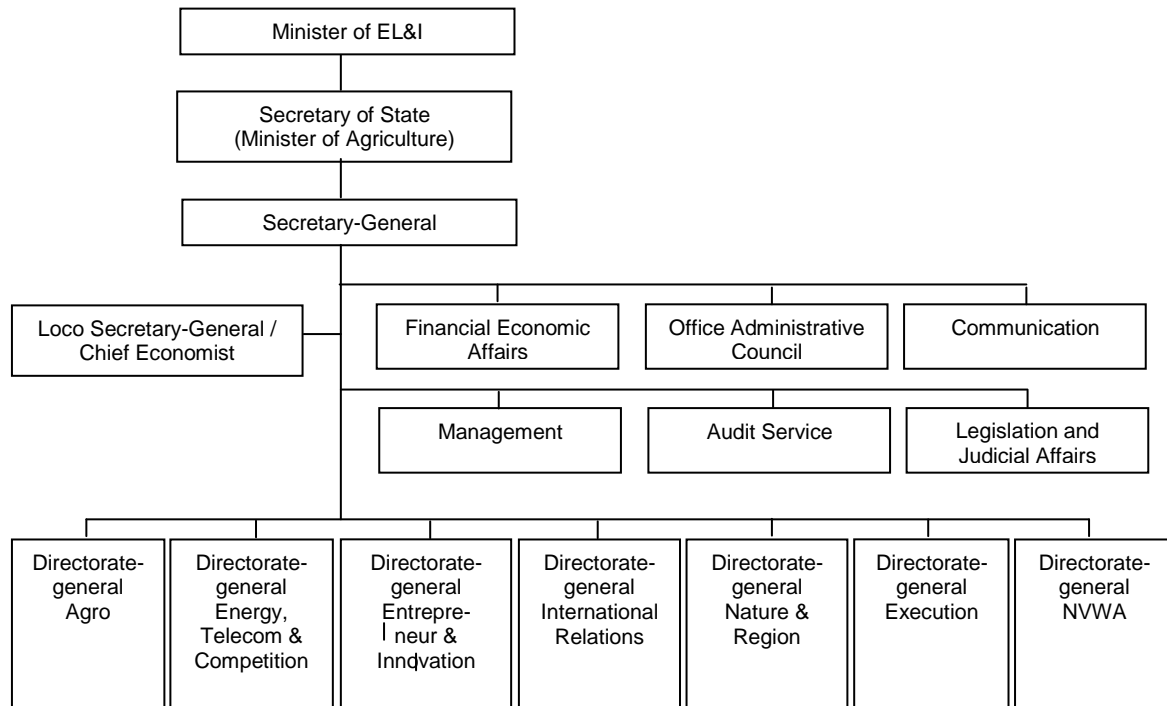


Figure 3.3: Organizational structure of the Dutch Ministry of Economic Affairs, Agriculture and Innovation (EL&I)

3.1.1.3 KDS

“Kwaliteitskeuring Dierlijke Sectoren” (KDS, Quality Inspection Animal Sectors) is a *private* organization that provides the *official* auxiliaries for post-mortem inspections. KDS is not an official control body. The official auxiliaries work under the supervision of official veterinarians of the NVWA. Regulation (EC) No 852/2004 allows for such an arrangement. In 2010 about 350 official auxiliaries worked at KDS for the post-mortem inspection of pigs, cows and calves. BSE-sampling is a separate activity of KDS for which they are accredited by the “Raad voor Accreditatie” (Council for Accreditation).

In 2009 the former VWA and KDS signed a 5 year contract to ensure the availability of sufficient official auxiliaries at KDS for the execution of post-mortem inspection activities in slaughterhouses. This contract refers to the Toezichtsprotocol (Inspection protocol), which describes the responsibilities, activities, and the mutual consultations with regard to meat inspections. This inspection protocol is based on Regulations (EG) nr. 853/2004 en 854/2004 (Annex I, Section IV, Chapter IV for domestic swine). The contract states that VWA (now NVWA) pays KDS for the work of the official auxiliaries. It is further stated that NVWA is the owner of the results of the post-mortem inspections. The contract guarantees the independence of KDS, amongst others through its accreditation. Therefore KDS developed a quality handbook in which their working processes and standards or verification norms (as agreed with NVWA) are laid down. These verification norms are further explained in section 4.5. For each slaughterhouse location, NVWA and KDS draw up a location protocol to agree on the exact post-mortem activities to be executed by KDS and the time involvement of the official veterinarian of the NVWA at that particular slaughterhouse location.

KDS is an autonomous subsidiary of the CoMore Holding. CoMore is a so-called not-for-profit organization, but its intention is to have favorable financial results. KDS has its own Supervisory Board. Figure 3.4 presents the organizational structure of KDS and other associated organizations under the CoMore Holding. Other autonomous subsidiaries of the CoMore holding include 2KP, BV CBS and NV CBS. Tasks of the organizations are also

shortly explained in figure 3.5. CoMore is rendering services (like searching for qualified personnel and education) to these organizations. CoMore has over 600 employees.

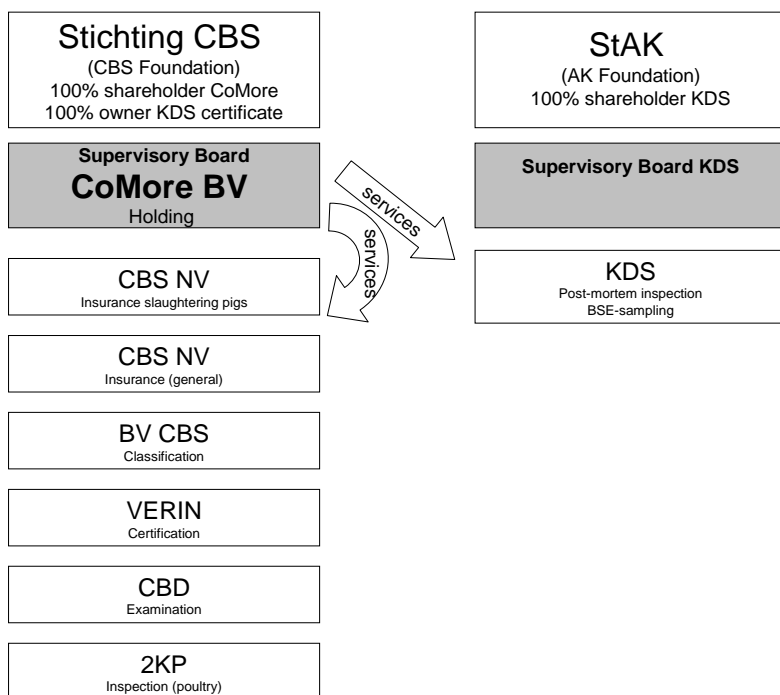


Figure 3.4. Organizational structure of CoMore and KDS

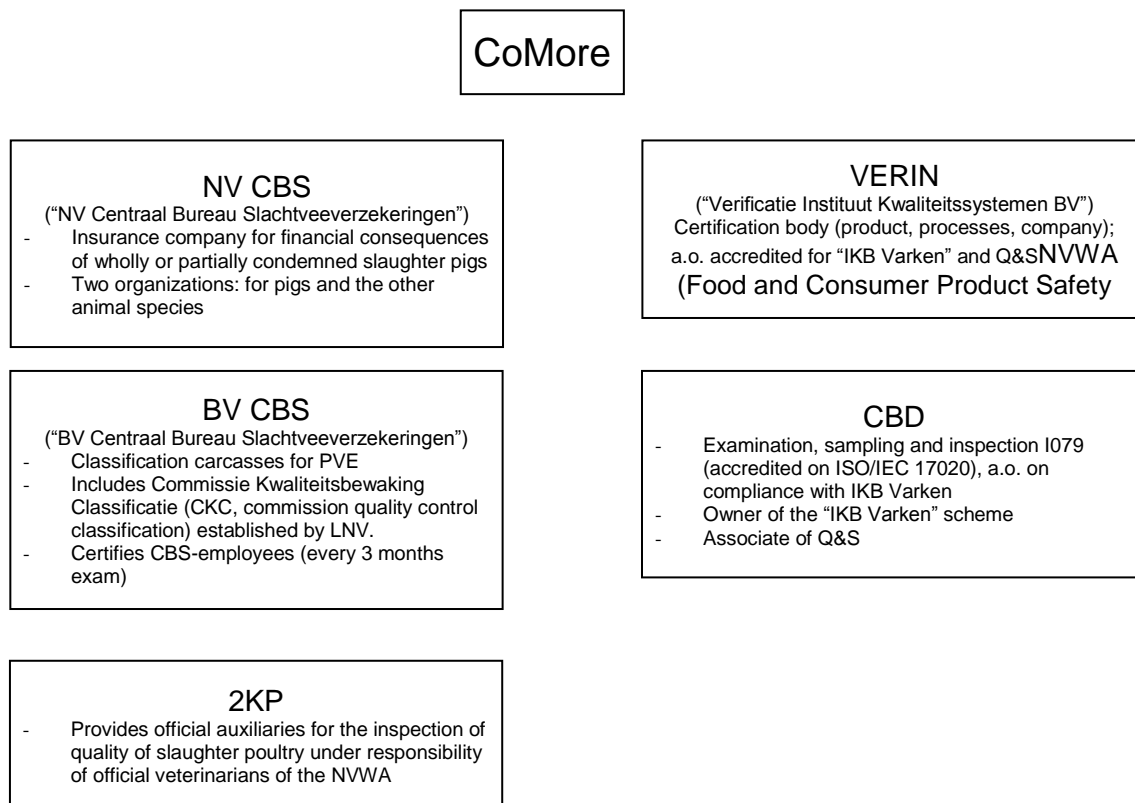


Figure 3.5: Tasks of the organizations in the CoMore holding

3.2 Germany

Meat safety supervision as a part of food safety supervision in Germany is primarily a public task of Bundesländer. The execution of controls and the prosecution of offences are mainly a task of the district veterinary offices. The Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) and its subordinate authorities are involved in tasks that cannot be solved by individual states and in aspects of the European Union. The following chapter describes the situation at the time of late 2010 with a focus on North Rhine-Westphalia and Lower Saxony.

3.2.1 Organizational structure

Food and veterinary affairs are governed on either two or three administrative levels within the individual Bundesländer:

- At the level of Bundesländer, the Ministry in charge of food, feed and veterinary affairs is the highest ranking authority. All state ministries have subordinate authorities (Landesämter) for food, veterinary and consumer affairs.
- At the intermediate level of governmental districts (Regierungsbezirke), five Bundesländer (Bavaria, Baden-Württemberg, Hesse, North-Rhine Westphalia and Saxony) have intermediate authorities (Bezirksregierung, Regierungspräsidium) responsible for the surveillance and instruction of work of local authorities and the coordination of tasks.
- At a local level, district authorities are responsible to implement the food and veterinary controls. The veterinary offices of the administrative districts ("Veterinär- und Lebensmittelüberwachungsämter" or "Kreisveterinäramt") are directly responsible for farm inspections and for ante- and post-mortem inspection of slaughter pigs.

A picture of the organizational structure of administrative bodies involved in meat safety supervision is drawn in Figure 3.6. The lines and arrows in Figure 3.6 do not mean that one institution has control or power over the other but should only indicate the level of organization. Especially it should be emphasized that the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) on top of the picture does not directly control the work of the ministries on state level. Names and abbreviations used in Figure 3.6 are explained in Table 3.1.

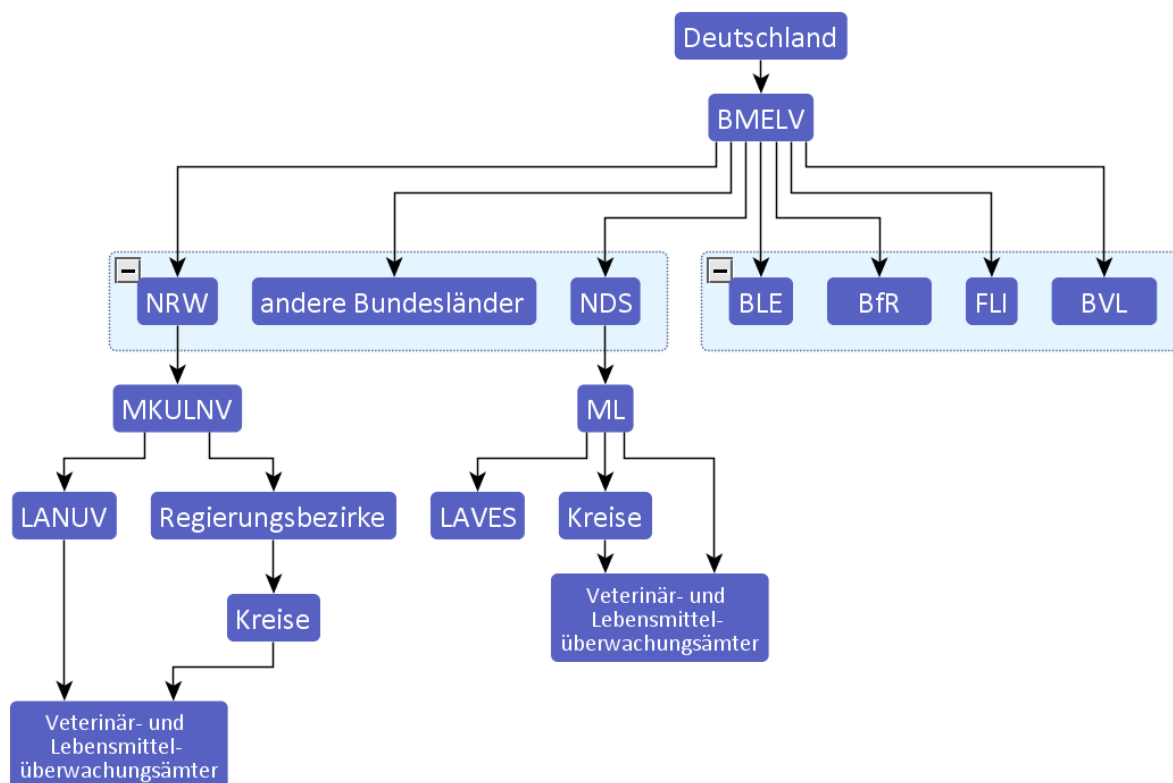


Figure 3.6: Organization chart of German administrative bodies concerning food safety

Table 3.1: Public bodies in meat safety supervision in Germany and their abbreviations

Abbreviation	German	English
Bundesebene		Federal level
BMELV	Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz	Federal Ministry of Food, Agriculture and Consumer Protection
BVL	Bundesamt für Verbraucherschutz und Lebensmittelsicherheit	Federal Office of Consumer Protection and Food Safety
BfR	Bundesinstitut für Risikobewertung	Federal Institute for Risk Assessment
FLI	Friedrich-Loeffler-Institut	Federal Research Institute for Animal Health
BLE	Bundesanstalt für Landwirtschaft und Ernährung	Federal Institute for Agriculture and Nutrition
Länderebene		State level
NRW	Nordrhein-Westfalen	North Rhine-Westphalia
MKULNV	Ministerium für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen	Ministry for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection
LANUV	Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen	State Agency for Nature, the Environment and Consumer Protection North Rhine-Westphalia

NDS	Niedersachsen	Lower Saxony
ML	Ministeriums für Ernährung, Landwirtschaft, Verbraucherschutz und Landesentwicklung	Ministry of Food, Agriculture, Consumer Protection and State Development
LAVES	Landesamt für Verbraucherschutz und Lebensmittelsicherheit Niedersachsen	State Agency for Consumer Protection and Food Safety Lower Saxony
Kreisebene		District level
DVO	Veterinär- und Lebensmittelüberwachungsämter	District veterinary supervisory office
OV	Amtstierarzt, Amtlicher Tierarzt *)	Official veterinarian
AV	Zugelassener Tierarzt	Approved veterinarian
OA	Amtlicher Fachassistent	Official auxiliary

*) The German terms traditionally used in this field are not fully compatible with the definitions from EU Reg. 854/2004

3.2.1.1 Differences between North Rhine-Westphalia and Lower Saxony

The system of supervision of food safety is quite similar between North Rhine-Westphalia and Lower Saxony. The State Agency for Consumer Protection and Food Safety Lower Saxony (LAVES) is somewhat more specialized as it covers mainly aspects of food, feed, animal health and animal welfare. Instead, the State Agency for Nature, the Environment and Consumer Protection North Rhine-Westphalia (LANUV) also incorporates departments that are responsible for nature conservation, environmental impacts, recycling and water management. Table 3.2 gives an overview about the organizational units in North Rhine-Westphalia and Lower Saxony.

Table 3.2: Organizational units in North Rhine-Westphalia and Lower Saxony concerning food safety

	Lower Saxony	North Rhine-Westphalia
Ministry	ML Referat 201: Lebensmittel tierischer Herkunft (food of animal origin)	MKULNV Referat VI-3: Lebensmittel tierischer Herkunft, Futtermittel, Zoonosen (food of animal origin, feed, zoonoses)
State agency	LAVES Dezernat 21: Lebensmittelüberwachung (food surveillance) Dezernat 22: Lebensmittelkontrolldienst (food inspection service) Dezernat 23: Tierarzneimittelüberwachung,	LANUV Abteilung 8: Verbraucherschutz, Tiergesundheit, Agrarmarkt (consumer protection, animal health, agricultural market) Fachbereich 82: Marktüberwachung, Futtermittel, Tierarzneimittel (market, feed, veterinary drugs)

	Rückstandskontrolldienst (supervision of veterinary drugs and residues) Abteilung 5: Untersuchungseinrichtungen (laboratories)	Fachbereich 85: Inspektionsdienst (inspection services) Fachbereich 86: Lebensmittel, Kosmetika, Bedarfsgegenstände, Tabak (food, cosmetics, consumerproducts, tabac) Fachbereich 87: Tiergesundheit, Tierschutz (animal health, animal welfare)
District administration	48 Veterinär- und Lebensmittelüberwachungsämter	51 Veterinär- und Lebensmittelüberwachungsämter

Source: Multi-annual national control plan of Germany 2009, Websites LANUV, LAVES.

3.2.2 Responsibilities

This section describes the main responsibilities regarding meat inspection of the organizations in Germany that were described before.

3.2.2.1 Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)

Because the Bundesländer are responsible for food safety, the main tasks of BMELV are in the field of coordination and legislation especially on the European and international level. BMELV is responsible for the external representation of Germany to the European Union and collaboration with the European Commission's DG Health and Consumer Protection. Since 2001 most aspects of food safety and consumer protection lie within the responsibility of BMELV. Before that time these tasks were shared between the ministry of agriculture and the ministry of health. For historical and political reasons supervision of veterinary drugs and regulations about the veterinary profession are still located at the Ministry of Health.

3.2.2.2 Federal Office of Consumer Protection and Food Safety (BVL)

At a first glance BVL might be regarded as the counterpart of NVWA in the Netherlands. But at a closer view its role is quite different. BVL has only in some special fields own executive power. Its main task is the collection, aggregation and interpretation of information and data provided by the Bundesländer in order to attend reporting duties and to inform the public. For example the list of approved establishments handling products of animal origin (as referred to in annex V Chapter I of Regulation 2074/2005) is published by the BVL. BVL is highly involved in the coordination of work between Bund and Bundesländer on the different national monitoring programs. In order to aggregate their supervision results it has to collect and compare data from the 16 Bundesländer. Hence, another important task is the development of common standards for data collection and data exchange. In the process of food safety risk analysis BVL has the task of risk management.

3.2.2.3 Federal Institute for Risk Assessment (BfR)

BfR "is the scientific agency of the Federal Republic of Germany which is responsible for preparing expert reports and opinions on food and feed safety as well as on the safety of

substances and products”²¹. It gives scientific advice to BMELV, BVL and other bodies involved in food safety. The main tasks of BfR can be described as risk assessment, risk communication and research. And BfR plays an important role as Germany’s single contact point for the European Food Safety Authority (EFSA).

3.2.2.4 Federal Institute for Agriculture and Nutrition (BLE)

BLE is a market organization agency regulating the market of different agricultural products. Concerning meat BLE is responsible for issuing of import and export licences, the supervision of carcass classification and all aspects of market intervention.

3.2.2.5 State ministries (MKUNLV and ML)

The two state ministries of North Rhine-Westphalia and Lower Saxony are called “Ministry for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection” (MKULNV) and “Ministry of Food, Agriculture, Consumer Protection and State Development” (ML). The main tasks of these ministries are the legislation in the field of food safety, the development of strategies for supervision, regulation of competences, representation on federal level and justification to the state parliament. Another task is the participation in the different working groups (“Arbeitsgruppen” and “Arbeitskreise”) of the working committee on consumer protection which was established to coordinate work between Bund and Länder and between the Länder (“Länderarbeitsgemeinschaft Verbraucherschutz LAGV”).

3.2.2.6 State Agencies (LANUV and LAVES)

In the course of the reorganization of food safety and consumer protection during the last decade North Rhine-Westphalia and Lower Saxony established special authorities (“Landesämter”) for that task. In North Rhine-Westphalia it is called “State Agency for Nature, the Environment and Consumer Protection North Rhine-Westphalia” (LANUV) and in Lower Saxony it is the “State Agency for Consumer Protection and Food Safety Lower Saxony” (LAVES). Actions of supervision and investigation are integrated into these agencies and separated from the political influence of the ministries, as requested by Regulation (EC) No 882/2004. Both agencies have several hundred employees and consist of several departments at different locations. LANUV and LAVES are the competent authorities for the approval of slaughter establishments.

3.2.2.7 District veterinary supervisory offices (DVOs)

The administrative districts are responsible for the execution of control of food safety and other aspects of consumer protection and animal health. Usually a district administration (“Kreisverwaltung”) is organized in departments with one department (DVO) responsible for food safety and veterinary affairs. In most Bundesländer the DVOs are called “Veterinär- und Lebensmittelüberwachungsämter” or just “Veterinäramt” for short. The size of a DVO varies according to the size of the agribusiness sector that has to be supervised in a DVO’s area. The DVO is headed by an official veterinarian. Typically the DVO is subdivided into special units, e.g. for animal health (including veterinary drugs and vaccines), animal welfare, food of animal origin, feed and trade.

²¹ Website Bundesinstitut für Risikobewertung (BfR) www.bfr.bund.de (2011)

3.2.2.8 Differences between North Rhine-Westphalia and Lower Saxony

The system of supervision of food safety is quite similar between North Rhine-Westphalia and Lower Saxony. Some responsibilities are located on different stages, but the differences appear subtle. Table 3.3 gives an overview.

Table 3.3: Differences in responsibilities in North Rhine-Westphalia and Lower Saxony concerning food safety

	Lower Saxony	North Rhine-Westphalia
State agency	LAVES Approval of establishments (except small slaughterhouses < 80 LU/week) Education / Exam of official auxiliaries Education / Exam of food inspectors	LANUV Approval of establishments Education / Exam of food inspectors
District administration	Approval of small establishments Official supervision of establishments Execution of ante- and post-mortem meat inspection Official sample-taking	Official supervision of establishments Execution of ante- and post-mortem meat inspection Official sample-taking Education / Exam of official auxiliaries

4 Traditional system of meat inspection in pigs

Since the introduction of the European hygiene package the general legal conditions for meat inspection of pigs are the same in Germany and in the Netherlands. Basically there are two forms of meat inspection: The **traditional meat inspection** and the **Supply Chain Meat Inspection (SCMI)**²². This chapter deals mainly with traditional meat inspection. Chapter 5 deals with SCMI. Since most surrounding conditions of the two approaches are quite the same, this chapter describes these common aspects (e.g. Salmonella Monitoring). Before describing the actual meat inspection in the Netherlands (section 4.1.2) and Germany (section 4.2.2) we provide a description of the complete system supporting meat safety control for each country. The complete system consists of public inspection, private quality assurance systems and public supervision of these private quality assurance systems.

4.1 Introduction to the Dutch system

This paragraph describes the system of meat safety control in the Netherlands. Over the last 8 years public inspection was modernized along two lines. The first modernization was a shift to supervision of control. Under the precondition that guides of good practice or private HACCP-based quality assurance systems are in place, the role of public control could partially be shifted from direct control of the system by own public personnel to public supervision of private control by others. The second modernization was a shift to public inspection that has more focus on the production chain as a whole. New inspection regimes have been developed based on these developments.

Figure 4.1 shows an integrated picture of the organizations involved and their inspection relations. In the center of the picture is the chain from pig producer to slaughterhouse. On the right side of the picture is the public inspection and on the left side the private inspection. As a general rule for private quality assurance systems there is an owner of the scheme which is setting the norms, a certification body which is contracted to audit if the criteria of the scheme are met. Certification bodies have to be accredited by the "Raad voor Accreditatie" (the Dutch Accreditation Council) to show that they work according to standards.

Private food safety assurance systems on both the slaughterhouse and farm level are reported in section 4.1.1. Organizations involved in public inspection activities on both the slaughterhouse and the farm level are described in section 4.1.2. Note that the post-mortem and ante-mortem inspections are a part of public inspection. Public inspections also include system inspections and audit and sampling. In the next sections we will describe how public inspection and private quality assurance systems are connected to each other.

Next to these official inspections NVWA organizes internal audits on different activities. The inspection work in the meat chain is also audited from time to time. Finally, there are also meta-controls like the audit on all the operations of NVWA related to slaughterhouses and the export gathering stations that was executed by the audit commission under the leadership of Vanthemse in 2008. These meta-controls take place incidentally and often for political reasons.

²² This report uses the term Supply Chain Meat Inspection (SCMI) to refer to the alternative way of performing meat inspection that was introduced by Regulation (EC) No 1244/2007. Synonyms for SCMI are "risk-based meat inspection" or "visual meat inspection". In Germany the term "risikoorientierte Fleischuntersuchung" is most commonly used.

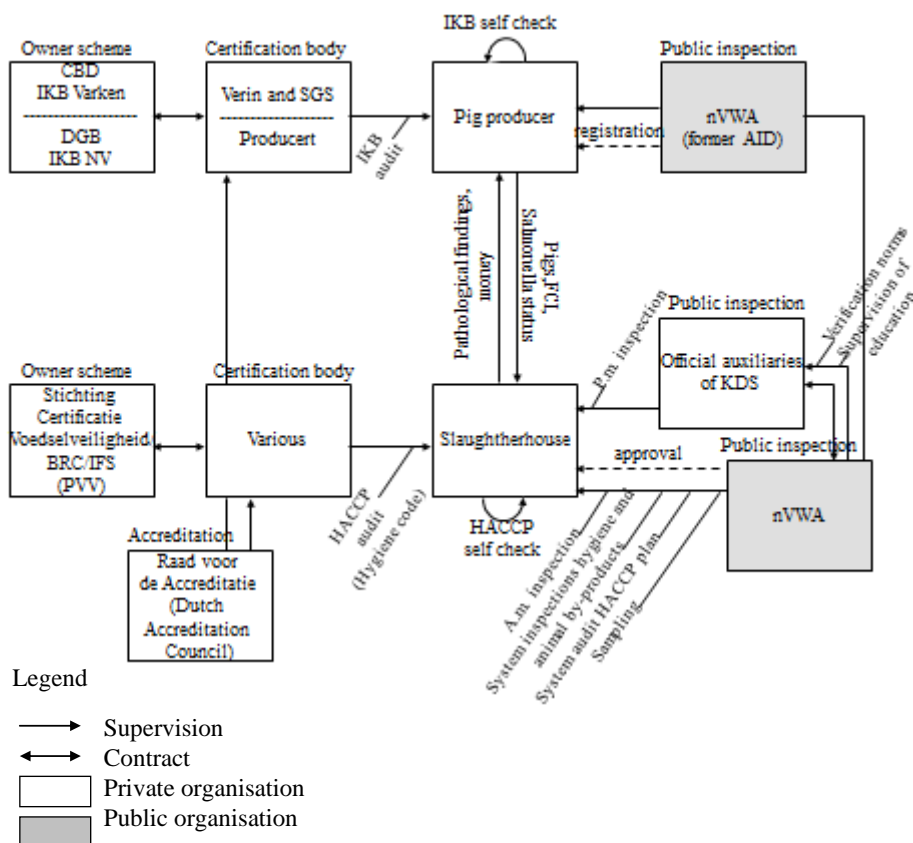


Figure 4.1. System of meat safety control in the pork sector in the Netherlands

4.1.1 Private quality assurance systems

Private organizations and systems play an important role in the assurance of quality and safety of pig meat. At farm level the quality schemes IKB NV (Integrale Keten Beheersing Nederland Varkens) and IKB Varken (Integrale Keten Beheersing Varken) are the main systems in the Netherlands. At the slaughterhouse level the “Dutch HACCP” system is intended to ensure compliance with legal hygiene requirements.

4.1.1.1 Farm level

On farm level in the Dutch pork sector two private chain quality schemes exist: “Integrale Keten Beheersing Nederland Varkens” (IKBNV) and “Integrale Keten Beheersing Varken” (IKB Varken). About 95% of the pig farms is certified, either through IKB NV (15 – 25 %) or IKB Varken (70 – 80 %). Certified farms and food business operators are registered under their unique company number (Uniek Bedrijfsnummer, UBN) in a public accessible register. Both IKB schemes include minimal legal requirements for housing, animal welfare and food safety. The “Verordening Monitoring Kritische Stoffen bij varkens” on the monitoring of critical substances in pigs and the “Verordening Salmonellamonitoring Varkenssector 2003” on the monitoring of salmonella, both issued by the PVV are included in both IKB schemes. Box 4.1 explains the salmonella monitoring system.

Box 4.1: Salmonella monitoring in the Netherlands: based on public regulation

The salmonella monitoring on pig farms is based on the Regulation “Verordening Salmonellamonitoring varkenssector 2003” and accompanying decisions of PVV. Regulations

of PVV are part of public law. PVV also determines the testing and sampling regime for salmonella control. The sampling intensity for a pig producer depends on his number of slaughtered pigs per period of 4 month. If a pig farmer delivers more than 30 pigs in one period, 12 blood samples will be taken on his request either by the veterinarian, or his assistant, or at the slaughterhouse. Individual samples are analyzed using the Salmonella-Idexx BCD-Elisa test in recognized labs and presented as percentage of higher Optical Density values (OD%). Results are available for the farmer within 10 days. Supervision on compliance with the regulation is executed by the inspectors of CBD, so a private body.

Based on the test results of one period, a farm receives a score of 1, 2, or 3, with a higher score indicating a higher salmonella contamination. The scores of the last three periods are added up. Based on this total the farm is categorized in three groups: category I, II and III.

≤ 20% een OD% groter dan OD40	Score 1
>20% and ≤ 40 % een OD% groter dan OD40	Score 2
>40% een OD% groter dan OD40	Score 3

Total score of latest three periods is 3 or 4	Category I (low risk)
Total score of latest three periods is 5 to 7	Category II (medium risk)
Total score of latest three periods is 8 or 9	Category III (high risk)

High risk farms must take actions to reduce salmonella (like cleaning and disinfection), but so far no obligatory general measures are enforced.

Slaughterhouse level

For the salmonella monitoring at slaughterhouse level, the frequency of sampling at the slaughterhouse depends on the annual number of slaughterings per year, as described in the table below. Samples are taken from at least four spots of the carcass with either the destructive (“kurkeboormethode”) or the non-destructive (“sponsmethode”) method. The samples of a carcass are pooled and the pooled sample is analysed.

Annual number of slaughtered pigs	Minimum number of samples
10,000 – 150,000	<i>10 carcasses once every two weeks</i>
> 150,000	<i>5 carcasses each day of slaughtering after 12 hours of cooling</i>

Test results at farm and slaughterhouse level are gathered by the PVV, but not made public.

Sources: Verordening Salmonellamonitoring Varkenssector (PVV 2009); Besluit categorie-indeling Salmonellamonitoring varkenssector (PVV 2009); Besluit erkenningsvoorwaarden en analysemethoden laboratoria Salmonellamonitoring varkenssector (PVV 2009) en Besluit aanwijzing toezichthouders autonome Verordeningen (PVV 2009).

IKBNV is owned by “De Groene Belangenbehartiger B.V.” (DGB), an autonomous subsidiary of the Dutch Association of Pig producers (Nederlandse Vakbond Varkenshouders, NVV). Their certification is done by “Producert” and inspections are conducted by “Deltacon”. The scheme of IKBNV only covers pig producers.

IKB Varken is owned by CBD (Centrum voor Bedrijfsdiensten B.V.), an autonomous subsidiary of the CoMore holding. Whereas CBD is the formal owner, the Central Board of Experts of IKB Varken (CCvD of IKB Varken) determines the content of the IKB Varken scheme. The quality scheme IKB Varken covers multiple parts of the production chain (pig breeders and fatteners, pig slaughterhouses, meat cutters and selling points of pig meat). The CCvD of IKB Varken has final responsibility towards the Dutch Accreditation Council. Members of the CCvD of IKB Varken are representatives of all the involved chains links, veterinarians and Non-Governmental Organizations (NGO's), such as animal welfare organizations. Since September 2008 on farm checks related to Regulation (EC) No 852/2004, 853/2004 and 183/2005 are also included in IKB Varken. So participants in the IKB Varken scheme are not subjected to separate governmental checks for these regulations.

The IKB Varken scheme has three levels of monitoring: first, the self-assessment by the farms, second the independent inspection by certification bodies and third the meta-controls that support the system integrity (figure 4.2). Self-assessment by the farm concerns own control of participants. Self-assessment is not obligatory, but there is a checklist for internal control. Independent inspections concern the compliance with the scheme of the scheme participants. Certification of the IKB Varken scheme is executed by VERIN (Verificatie Instituut Kwaliteitssystemen) and SGS. The certification bodies VERIN and SGS are accredited for EN 45011. VERIN has contracted CBD to perform the inspections. The inspection body CBD is accredited for ISO 17020. Meta-control concerns the functioning of the IKB Varken scheme, performed by the CCvD of IKB Varken. Also the IKB Varken scheme itself is accredited implying that the procedures of the CCvD of IKB Varken are recognized by the Dutch Accreditation Council, the measurability of the scheme is tested and the relation to the legal requirements is well specified.

<p align="center">System Integrity (level 3)</p> <p>By Central board of experts of IKB Varken (CCvD of IKB Varken) through:</p> <ul style="list-style-type: none"> - the reports of the certifying bodies (on the scheme and their work) - Inspections on behalf of CCvD and the audits of the Dutch Accreditation Council
<p align="center">Independent Inspection (level 2)</p> <p>Certification and inspection bodies that are authorised by the CCvD of IKB Varken are accredited to EN 45011 (VERIN and SGS) and/or ISO17020 (CBD). In addition to this accreditation the CCvD of IKB Varken has formulated requirements for the education of inspectors. Presently CCvD IKB Varken has contracted :</p> <ul style="list-style-type: none"> - VERIN to make IKB Varken-agreements with pig producers , meat processors and retailers - VERIN to arrange inspections for IKB Varken executed by CBD inspectors for which CBD is ISO17020 accredited) - VERIN and SGS to certify companies for IKB Varken based on the results of inspection. <p>The CCvD of IKB Varken will inform IKB Varken participants in case of changes in the contract between the CCvD of IKB Varken and VERIN or SGS.</p> <p>Monitoring frequency is once every year. Non-compliance is categorized in five groups ranging from light, intermediate, severe, suspension to exclusion. In case of severe non-compliance a restoration inspection must follow. In case of use of prohibited substances a company is suspended right away. Positive samples in restoration inspection, refusal of inspection or refusal of payment, lead to exclusion.</p>
<p align="center">Self-assesment by company (level 1)</p> <p>Monitoring and documentation by participating companies. Because participants are checked</p>

every year, internal control is not obligatory. However, a checklist for internal control exists.

Figure 4.2: The three control levels of the Dutch IKB Varken system (Source: CBD, personal information, 2011 and http://www.ikbvarken.nl/nl_NL/Voorwaarden.html).

4.1.1.2 Slaughterhouse level

On slaughterhouse level different private organizations and quality assurance systems are in place.

Dutch HACCP “Stichting Certificatie Voedselveiligheid” is a foundation for certifications of food safety. It is the legal owner of the “Requirements for a HACCP based Food Safety System©” and manages this copyright with license agreements. The HACCP scheme is also known as “Dutch HACCP”. The foundation facilitates the National Board of Experts that develops and maintains the norms and it arranges contracts with certification bodies. The Dutch HACCP includes almost all food safety aspects of Regulation (EC) No 853/2004. NVWA reduces supervision activities on companies certified for this scheme. The foundation is also participating in the National Technical Working Group of GlobalGap and the Food Safety System Certification scheme 22000 (FSSC 22000).

“IKB Varken” aims to guarantee IKB quality throughout the whole supply chain. CBD (part of CoMore) owns the “IKB Varken” scheme for tracking and tracing in the slaughterhouses. Slaughterhouses with this scheme have a quality assurance system, follow animal welfare procedures at the slaughterhouse, and separate IKB-certified pigs and pork from the non-IKB-certified to guarantee the IKB-standards. Retail organizations, however, stopped to participate in the IKB Varken scheme in 2008. Instead, they now require either BRC (British Retail Consortium) or IFS (International Food Standard) certification for their supplying food processors and IKB and GlobalGap for the primary producers. The IKB Varken scheme has recognized the BRC standards.

The “Hygiëncode varkensslachterij” and the Hygiëncode Uitsnijderijen’ (national guides to good practice for small industrial pig slaughterhouses and cutting plants), as drafted by the PVV, was developed in 2007 in close cooperation with the NVWA. It is, however, not yet submitted for approval, because the discussion on the sampling of carcasses still lingers on. So the proposed hygiene code has not yet been discussed in the regular consultations Warenwet (“Regulier Overleg Warenwet”).

Within the Dutch salmonella monitoring system slaughterhouses have to take samples to verify the control of salmonella in the slaughterhouse. Box 4.1 provides detailed information about this system.

For butchers (shops), a new hygiene code (The “Hygienecode voor het slagersbedrijf”) became effective in June 2011. The “Vereniging van Keurslagers” (Association of Top-quality Butchers) has its own food quality assurance system on top of this code. Associated butchers do have to comply with norms and the Association has inspectors that supervise compliance.

4.1.2 Public inspection

This section gives an overview about the surveillance tasks of Dutch authorities at the level of pig holdings and at the level of slaughterhouses and the involvement of private parties.

4.1.2.1 Farm level

Farms are registered by NVWA (for Regulation (EC) No. 853/2004) and each production location has an unique farm number UBN. Public food safety related inspection in the pork

chain is conducted by the NVWA. Table 4.1 provides the activities of the NVWA at the level of pig production and transportation of pigs to the national legal framework.

Table 4.1: Inspections by NVWA at the pig production level and their legal base

Legal framework	Activity
Diergeneesmiddelenwet	<ul style="list-style-type: none"> - Inspection on residues of medicines - Inspection of the use of animal medicines and the administration of animal medicines.
Kaderwet diervoeders	Inspection on contamination of animal feed
General Food Law / Kaderwet Diervoeders/ Diervoederhygiëne-verordening	Inspection of the use of animal feed, preparations and additional feeds.
Regeling preventie, bestrijding en monitoring besmettelijke dierziekten etc. (Landbouwwet, Gezondheids- en welzijnswet voor dieren)	Sampling of manure for the monitoring of Salmonella and the monitoring of MSRA-bacterium (in cooperation of RIVM)
Landbouwwet/ Diergeneesmiddelenwet/ Richtlijnen 96/22/EG en 96/23 EG	Inspection of the presence of illegal substances, sampling on animals, feed and products. In particular execution of the National Plan Residues on farms in cooperation with RIKILT.
Regeling vleeskeuring (Landbouwwet)/ Besluit doden van dieren (Gezondheids- en welzijnswet voor dieren)	Inspections of forms for emergency slaughtering and animal welfare rules for the killing of animals.
Regeling dierlijke bijproducten (Gezondheids- en welzijnswet voor dieren)	Inspection on reporting/ covering of / availability of destruction material.

Source: VWA (2007), adapted.

4.1.2.2 Slaughterhouse level

There are five categories of official inspection activities by the NVWA on the level of slaughterhouses. These are:

1. System inspections on basic rules for hygiene and animal byproducts,
2. System audits on the HACCP plan or hygiene code,
3. Ante- and post-mortem meat inspection,
4. Sampling, mostly within the framework of monitoring plans and
5. Approval inspections.

System audits and system inspections only exist for high capacity slaughterhouses. Table 4.2 gives an overview of the legal basis of the categories. For each category of inspection activity the NVWA has formulated standards for their work. In the next paragraphs these activities and standards are further explained.

Table 4.2: Inspections by the NVWA at (larger) slaughterhouse and their legal base

Legal framework: Regulation (EC) No	Activity
882/2004	Permanent ante-mortem inspection by an official veterinarian of the NVWA. Supervision by the official veterinarian of the NVWA on post-mortem inspection by official auxiliaries (OAs) Post-mortem inspections by official auxiliaries of KDS.
852/2004 (art.5); 853/2004 (art.4); 854/2004 (art 4)	System audit on the HACCP-plan or hygiene code
882/2004; 1774/2002 2073/2005	System inspections on basic rules for hygiene, animal byproducts (BSE) and other inspections microbiological criteria.
2073/2005	Sampling for microbiological criteria
853/2004	Approval inspections

Source: VWA (2007).

Ante- and post-mortem inspection

The NVWA has final responsibility for both ante- and post-mortem inspection. Official veterinarians of the NVWA execute the ante-mortem inspections. Official auxiliaries of the KDS execute the post-mortem inspection, under supervision of an official veterinarian of the NVWA. The frequency of supervision by NVWA in the post-mortem inspection increases with the size of the slaughter location (table 4.3). On large pig slaughterhouses (over 2,000 slaughtered pigs per week) supervision of NVWA is permanent, whereas on small slaughterhouses (less than 1,000 slaughtered pigs per week) supervision only takes place every month. Extend of the post-mortem inspection is further explained in section 4.4. Costs of the supervision are at the account of the slaughterhouses.

Table 4.3: Frequency of supervision of official veterinarians of the NVWA at the post-mortem inspection

Number of pigs slaughtered per hour ¹	Number of pigs slaughtered per week ¹	Frequency of NVWA supervision of KDS post- mortem inspection
1-50	1-1,000	1 x month
51-200	1,000-2,000	1 x week
>200	>2,000	Permanent

¹If the numbers are different the higher frequency of supervision is chosen

Figure 4.3 is summarizing the Dutch system for ante-mortem and post-mortem inspection from a quality management point of view. The actors involved in meat inspection are arranged on three levels: First, on the normative level those elements are located that release or own standards that have to be fulfilled. Second, on the supervisory level different

actors are responsible for the implementation of these standards and formulation of rules. The supervisory bodies have to ensure that the rules are observed on the third operational level. The two columns on the left represent the two private quality assurance systems on farm level IKB Varken with owner CBD and IKB NV with owner DGB. At the supervisory level VERIN and PRODUCERT are the accredited certification bodies. Both use other organizations for performing the actual audits and inspections, CBD and Deltacon. Note that CBD is both owner of the IKB Varken and is also involved in auditing at the operational level. The organizations performing the audits and inspections need to be accredited to ISO 17020. ISO 17020 concerns “General Criteria for the Operation of Various Types of Bodies Performing Inspection.” IKB guarantees animal welfare and public health that are the main issues in the ante-mortem inspection. The column to the right represents the institutional arrangement of the official meat inspection. In this column, KDS as private body is executing the post-mortem inspection under the responsibility of NVWA.

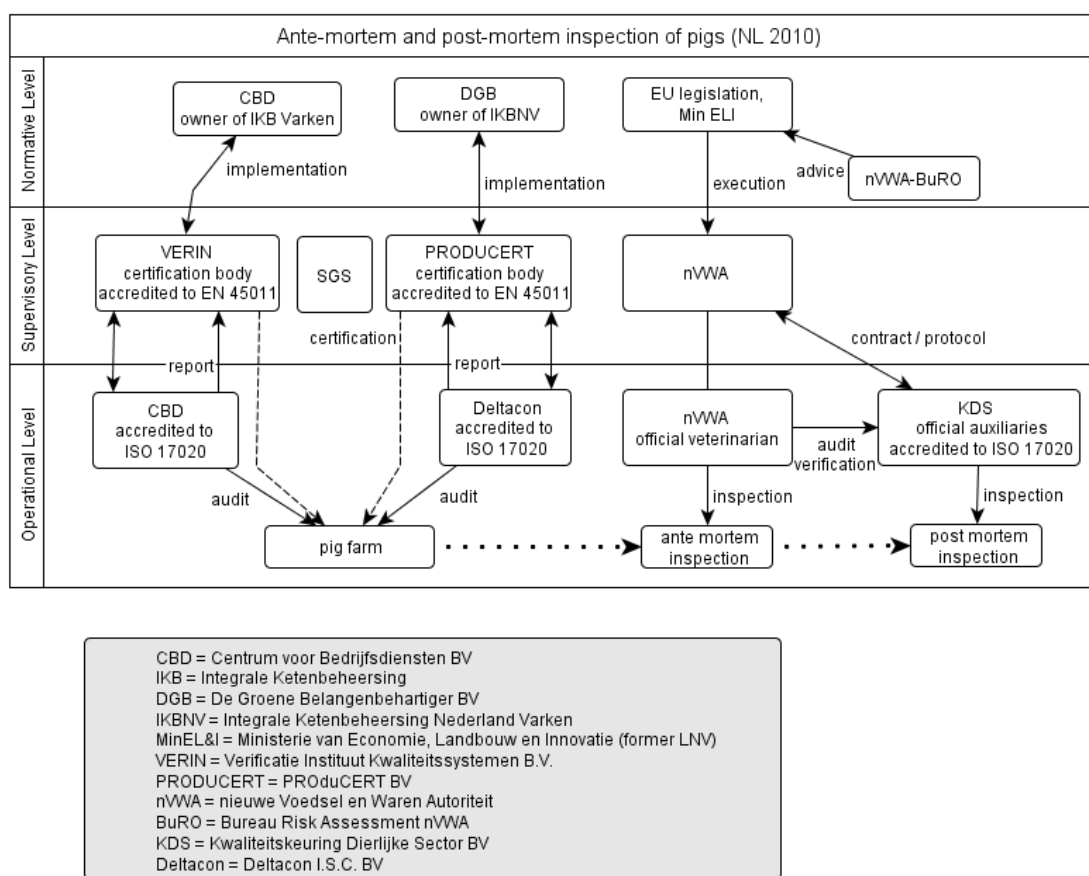


Figure 4.3: Ante-mortem and post-mortem inspection in the Netherlands

System audit on HACCP-plan or hygiene code

System audits have the purpose to verify that slaughterhouses apply HACCP-procedures continuously and properly. The list of subjects for the audit is based on Regulation (EC) No 854/2004 (art.4, paragraph 4 and 5) and the Annex I of Regulation (EC) No 853/2004 (chapter 2 till 7) and section II. The audit usually takes 12 hours and is executed by a senior system auditor, the OV working at the location and, if needed, a third OV. In case of 100% compliance, the NVWA executes one system audit per year. In the case of non-compliance re-inspection and penalties may follow. The kind of follow-up depends on the seriousness of the offence. In the case of minor offences remarks of the auditor can suffice. Major offences

always lead to a re-inspection. In severe offences the NVWA starts an intervention policy and as a result the slaughterhouse will receive written warnings or fines.

Implementation of Regulation (EC) No. 2073/2005 is always evaluated. During the audit it is decided whether sampling based on Regulation (EC) No. 2073/2005 will take place. This is only in the case that the auditor has not enough confidence in the sampling of the company itself or based on trend analysis of results of own sampling of the company.

The costs of the system audit (and possible re-inspection) are at the account of the slaughterhouse (VWA, 2007). Results of the HACCP-audits are made public on the website of the NVWA.

System inspections

The frequency of the system inspections depends on the risk category that is based on the building and hygiene conditions of the slaughterhouse (status by approval). The slaughterhouses are classified in low and higher risk companies. Two annual inspections take place at low risk companies, up to four at higher risk companies. System inspections are executed by the official veterinarian working at that location.

System inspections focus on hygiene, animal by-products and mycobacterial criteria, and are either required or optional. One of the inspections is focused on hygiene. Until 2011 a system inspection on Regulation (EC) No. 2073/2005 was required, but it became optional because results were always good. If the slaughterhouse applies a hygiene code or a certified HACCP-system the inspection lasts 4 hours of which 3 are at the account of the slaughterhouse. Results of inspections are made public. If relevant deviations are found, a re-inspection will follow. Enforcing measures could be administrative (withdrawal of approval) or based on criminal law.

Sampling

Sampling by VWA may take place as part of the official control at larger slaughterhouses:

- as part of the system audit (if sampling has special attention of the auditor, or
- as part of a system inspection, and
- for verification of own sampling by the slaughterhouse.

For example, own sampling on salmonella by slaughterhouses (and farmers) is required by Regulation (EC) No 2073/2005 (see Box 4.1 for more information about the salmonella monitoring system). Butcheries and small slaughterhouses are exempted from taking samples themselves. At the larger slaughterhouse sampling by VWA for Regulation (EC) No 2073/2005 can take place within a system audit (as described above) or in the case of a system inspection on this theme.

Inspection for approval

All slaughter locations have to be approved by NVWA (for Regulation (EC) No. 853/2004). Inspections for approval include the building inspection. Based on the technical status of the building and hygiene conditions slaughterhouses are divided into two categories: If technically in good condition the NVWA may reduce the number of system inspections/ inspection time. If the requirements are not met, re-inspection will follow.

Results of the approval inspection are taken into account in the ante- and post-mortem inspections. A list of approved establishments (as referred to in annex V Chapter I of Regulation 2074/2005) is made public through the website of the NVWA.

4.2 Introduction to the German system

This paragraph describes the system of meat inspection in Germany. Official supervision is supplemented by private organized quality assurance systems. Figure 4.4 gives an overview about the interaction of the different actors in this system. Pig producers deliver slaughter pigs with appropriate food chain information to the slaughterhouse. The slaughterhouse returns money and results of the post-mortem inspection (in an aggregated form) to the farmer. Inspections take place at farm level and at the level of the slaughterhouse. They can be assigned to three categories: self-checks, audits as part of private quality assurance systems and official inspections of the public authorities. The key players in the system of meat inspection in Germany are the quality assurance system “QS” owned by Qualität und Sicherheit GmbH and the district veterinary office (DVO) of the administrative district where the slaughterhouse is located.

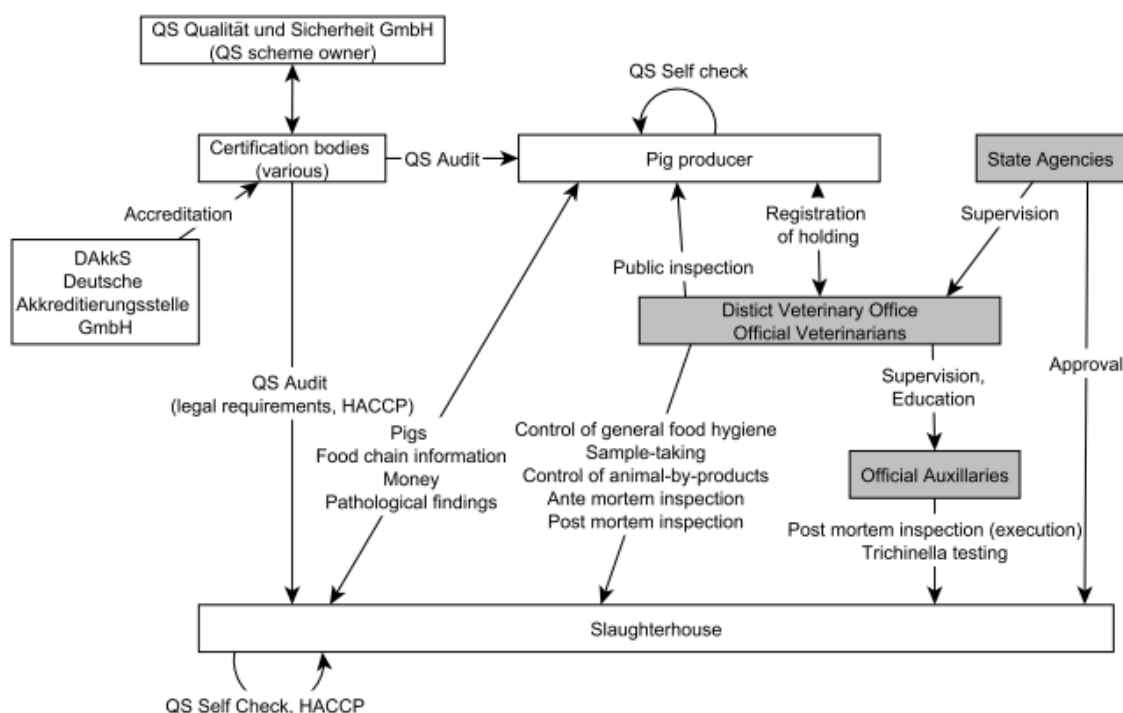


Figure 4.4: System of meat safety control in the pork sector in Germany

Figure 4.5 illustrates the system from a quality management point of view. The actors involved in meat inspection are arranged on three levels: On the normative level actors are located that release or own standards that have to be fulfilled. On the supervisory level actors are responsible for the implementation of these standards and formulation of rules. The supervisory bodies have to ensure that the rules are observed on the operational level. On the private side these are accredited certification bodies (accredited to EN 45011) and on the public side these are the District Veterinary Offices. On the operational level the inspection

personnel and the controlled production sites are located. The auditors in the private part of the QS-System on this level must be professionally qualified (advanced agricultural education) and accredited according to ISO 19011²³.

Looking generally at the German control system, it becomes clear that in Germany the control of meat safety lies mainly in the hand of public authorities. Private parts of the agri-food sector play, up to now, a minor role in the surveillance system.

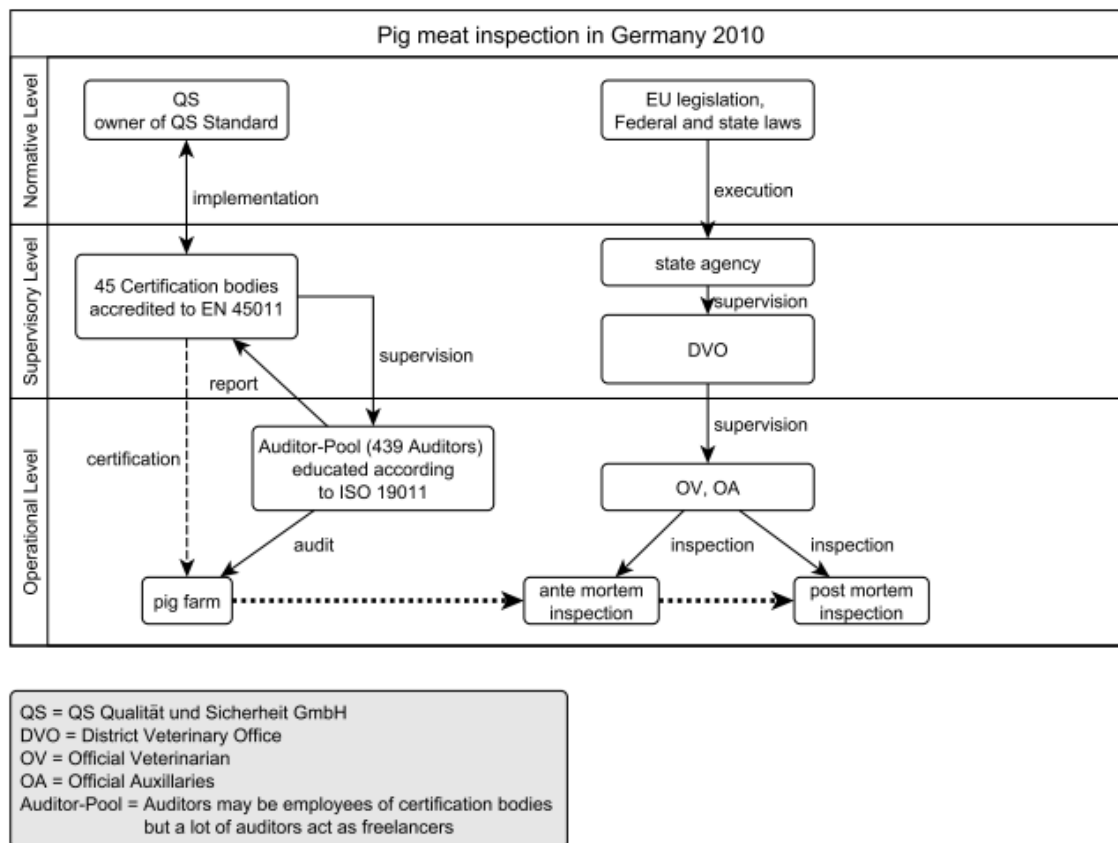


Figure 4.5: Pig meat inspection in Germany from a quality management perspective

4.2.1 Private quality assurance systems

In Germany a number of private initiatives of quality assurance in the pork sector exist. Some systems only cover the animal production stage, others are located at the processing stage. The only private system of inspection at farm level and at slaughterhouse level that covers North Rhine-Westphalia and Lower Saxony (and whole Germany) is the QS-System (QS stands for “Qualität und Sicherheit”). Therefore the following paragraphs focus on the QS-System. QS was founded in 2001 and is the owner of the QS-standard scheme. Leading associations and organizations of the food retail industry joined together in order to create a voluntary basis for a system of proofed quality assurance. Initially the QS system was developed for meat and meat products with a special focus on salmonella prevention. In 2004, quality assurance for fruit, vegetables and potatoes was added. The owner of each farm or slaughterhouse is responsible for compliance with the QS standards.

²³ The ISO 19011 norm concerns “practical guidelines for audits concerning quality management systems and environmental management systems.”

4.2.1.1 Farm level

Within the QS system the farmer has to ensure that regular own-checks are performed and documented. Adherence to these obligations is checked during audits performed by auditors working for or on behalf of a certification agency. The QS system consists of a three-level monitoring system (see Figure 4.6):

- The first level is internal company monitoring. Regular monitoring within the company, made on the basis of the guideline developed for the production, processing or marketing level, form the foundation of the QS system.
- The second level is independent inspection by certification bodies authorized by QS form the second stage of monitoring. With the help of standardized check lists, these bodies check whether all of the QS criteria have been fulfilled. The certification bodies must be accredited in accordance with DIN EN 45011, the standard for product certification. The auditors working for a certification body must be professionally qualified (advanced agricultural education) and accredited according to ISO 19011 24.
- The third level concerns the system integrity monitoring - the monitoring of certification bodies and laboratories - with sample monitoring, traceability investigations, test report checks and the auditing of certification bodies. In addition, QS recognized laboratories must take part in ring examinations.

If a QS participant offends against the rules of the QS-System he can be sanctioned by a special advisory council. Possible sanctions are follow-up checks, warnings, penalties (up to 30,000 EUR) and suspension or exclusion from the system.

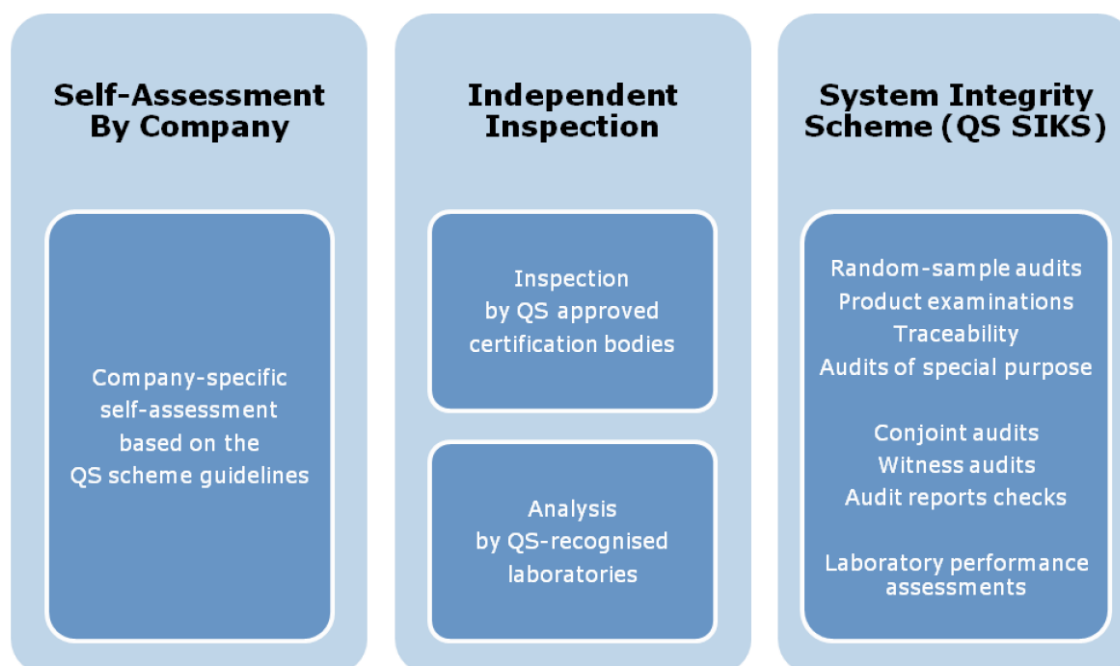


Figure 4.6: The three monitoring levels of the German QS system (Source: QS GmbH 2011²⁵).

²⁴ The ISO 19011 norm concerns "practical guidelines for audits concerning quality management systems and environmental management systems."

²⁵ QS Website: 3-Stages-Inspection-System: General Regulations.

QS has the overall goal to ensure a farm's compliance with current law. By fulfilling the QS requirements pig producers can ensure that most legal requirements are met – especially in the field of documentation. The QS system plays a central role in salmonella monitoring. Since 2007 participation in salmonella monitoring is compulsory for every holding with more than 50 places for finishing pigs and the basic rules of monitoring formerly developed in the QS-System are now part of a federal law ("Schweine-Salmonellen-Verordnung"). Pig producers have the duty to ensure that enough blood or meat juice samples of their pigs are tested for salmonella antibodies and the result is sent to the "Qualiproof" database in order to calculate a risk category. This works also without participating in the QS system, but for QS farms the whole process is more or less automated. And QS assures the quality standard of the laboratories where all samples have to be tested (see Box 4.2).

Apart from that, the QS-System only plays a marginal role in official food safety control. No legal acts on federal or state level exist that make use of the information gathered by the QS-System. In a few single districts DVOs and QS have started cooperation. The DVO gains partly access to the QS-database entries of their district's farmers and may take these ratings into account for the calculation of inspection intervals. Some DVOs are planning to accept QS audits as a proof of compliance and therefore may reduce inspection efforts. However, up to now those approaches are hampered by privacy concerns because every farmer has to agree to that procedure individually.

Box 4.2: Salmonella monitoring in Germany

On the normative level QS determines the testing rhythm for salmonella antibodies. The monitoring intensity depends on the annual delivered slaughter pigs, shown in Table 1.

Table 1: Number of annual samples

Annual delivered slaughter pigs	Minimum samples per year
≤ 50	1
51 – 100	20
101 – 200	47
> 200	60

Source: QS GmbH (2010)

The online platform "Qualiproof" administrates the salmonella categories of each grower. Germany makes a differentiation between three salmonella categories (I, II and III). The category depends on the positive findings within the taken sample. In Table 2 the correlation between salmonella category and findings is highlighted.

Table 2: Salmonella category and results of the sampling

Risk of salmonella within the herd	Category	Percentage of positive findings within the sample
Low	I	≤ 20
Medium	II	$>20 \text{ and } \leq 40$
High	III	>40

Source: QS Quality and Safety GmbH (2010)

As the sampling is conducted at the slaughterhouse, the communication between Qualiproof and slaughterhouse is investigated further. Each daily delivery is matched with the data in Qualiproof. Qualiproof gives a feedback which delivery has to be sampled. Therefore,

Qualiproof sends the sampling plan. Additionally, the salmonella category is transferred, which enables the coordination of the different of batches with different salmonella categories within the plant. The meat samples are taken and frozen at the slaughterhouse and send to a laboratory. In the laboratory meat juice is obtain by thawing the samples and meat juice is tested for Salmonella antibodies with a QS-approved commercial ELISA test kit. A sample is regarded as positive when optical density exceeds 40%. The laboratory transfers the results to the Qualiproof database. Sampling is conducted randomly throughout the year.

If a farm is assigned category II, the farmer is required to self-check his farm's hygiene status for well-known weak points of salmonella-introduction. Measures (bacteriological and epidemiological investigations by the farm's veterinarian, intensified hygiene procedures) have to be taken, if a farm belongs to category III.

Slaughterhouse level

QS recommends that slaughterhouses routinely sample carcasses for salmonella (bacteria or nucleic acid depending on methodology) as part of the "Salmonellenreduzierungsplan", according to the following sampling protocol:

- Sampling frequency: 5 samples per week at different working days at different week days
- Sampling site: Skin surface of ham, chest, back, cheek
- Sampling method: Punch biopsy, area: 4 x 5 cm²
- Sampling location: Sampling should take place during entrance of cold storage, or in case of rapid freezer, after the rapid freezer
- Detection method: ISO 6579 method" (culture) or "PCR method" (nucleic acid)

The QS guidance document does not contain any rules how to deal with the results of those voluntary tests. It is only recommended to have management measures in place in case of positive results or negative trends.

4.2.1.2 Slaughterhouse level

Of course general aspects of hygiene at the slaughterhouse, like HACCP, personal hygiene or cleaning and disinfection are part of private organized quality management systems (QS, IFS, GMP, etc.). There is no specialized HACCP control and certification organization like in the Netherlands. Slaughterhouses (and processing plants) that want to produce or process or sell QS-labeled pig meat, have to participate in the QS system. They are provided with a guidance document and self-check lists by QS and get audited by auditors from the QS auditor pool and get certified by one of the certifying bodies who are accredited for QS compliance. Like other private food standards the QS rules for slaughterhouses mainly repeat the legal requirements – for example self-check of process hygiene according to Regulation (EC) No. 2073/2005, including Salmonella sampling. In addition QS requires that slaughterhouses have to set up a HACCP-based salmonella reduction plan ("Salmonellenreduzierungsplan"). Other requirements for slaughterhouses in the QS systems refer to personal hygiene, good manufacturing practice, HACCP, traceability, personnel trainings, crisis management, animal welfare, stunning and slaughtering, chilling and freezing, labeling, waste management, etc. And of course, QS certified slaughterhouses have to ensure that QS-meat and non-QS-meat stays separated along the whole slaughter line and across all processing stages.

QS encourages the information flow from the slaughterhouse back to the farm. For pigs, cattle, calves and poultry, the slaughterhouse is required to provide the farmer with, at least, information about pathological findings to lung, pericard, pleura, liver and “other findings” in the last batch of his animals delivered to the slaughterhouse.

4.2.2 Public inspection

This section gives an overview about the surveillance tasks of German authorities at the level of pig holdings and at the level of slaughterhouses. According to European food law all inspection measures have to be risk oriented.

4.2.2.1 Farm level

Food business operators in Lower Saxony and North Rhine-Westphalia have to register with LAVES or LANUV and according to Regulation (EC) No 853/2004 have to apply for approval if they operate with food of animal origin. Pig producers are excluded from this obligation to be approved as a food business operator. This obligation had mainly been waived in order to avoid additional bureaucratic burden for pig producers. Instead they have to register as an animal holding (according to “Tierseuchengesetz” and “Viehverkehrsverordnung”). Initial inspection and subsequent control of food business operators as well as of animal holdings are carried out by the DVO’s staff.

According to European food law all inspection measures have to be risk oriented and should not only rely on fixed control intervals. For establishments at stages of production, processing and distribution a harmonized system of risk assessment and calculation of control frequencies is established in the general administrative provision “AVV Rüb”. But “AVV Rüb” states also, that primary production is excluded from these approach and therefore DVOs have to create own systems for the inspections on farm level. For food establishments at stages of production, processing and distribution usage of HACCP is compulsory. Farmers (primary production) do not have this duty and there are no farm level HACCP systems established in North Rhine-Westphalia or Lower Saxony related to pig production.

4.2.2.2 Slaughterhouse level

In the traditional system of meat inspection in Germany no private organizations are involved, though there are examples of private involvement in some other Bundesländer than North Rhine-Westphalia and Lower Saxony. For example in Bavaria a system was established where ante- and post-mortem meat inspection is performed by a private company (see Box 4.3). This concept is currently implemented in a few administrative districts. In Lower Saxony and North Rhine-Westphalia public inspection of slaughterhouses is performed by staff of the DVO. The supervisory activities of the DVO at slaughterhouse level can be assigned to different fields:

1. Supervision of basic rules for hygiene, Good Manufacturing Practice and HACCP
2. Proper handling of animal by-products
3. Ante- and post-mortem meat inspection
4. Sampling within the framework of (national) monitoring plans
5. Inspections for approval

Except for the inspections for approval, these activities are generally organized and conducted by the DVO of the district where a particular slaughterhouse is located.

Supervision of basic rules for hygiene, Good Manufacturing Practice and HACCP is performed by the official veterinarians who are present at the slaughterhouse. Up to now, no framework exists when or how often these things have to be subject to official inspection. In contrast, in large slaughterhouses it is common practice that the DVO maintains a place of business at the slaughter plant with an official veterinarian who is present every day. This official veterinarian then supervises the work of the other veterinarians and auxiliaries in ante- and post-mortem meat inspection as well as the hygienic production processes in general and handling of animal by-products. It should be emphasized that no official rules exist in what circumstances a slaughterhouse should be considered “large” and what minimum frequencies of inspection must be met, neither in Lower Saxony nor in North Rhine-Westphalia.

Box 4.3: Fleischprüfing Bayern – private companies performing meat inspection

Since January 2008 the Bavarian healthcare and consumer protection law (Bayerisches Gesundheitsdienst- und Verbraucherschutzgesetz GDVG) allows to transfer individual tasks in the area of meat hygiene to private bodies (GDVG art. 11 par. 2). Figure 4.7 shows this system in Bavaria. In Bavaria the QAL (Society for Quality Assurance in Agricultural and Food Economics GmbH), which is a subsidiary of the Fleischprüfing e.V., runs two regional non-profit companies “Hygiene- und Prüf- GmbH” (H&P) and “Fleischhygiene Südostbayern GmbH” (FIHS). Both companies act independent from the economy with a clear focus on consumer protection and health care. Consequently both bodies are registered as non-profit organizations. The objective is to carry out the meat hygiene inspections with by law appropriate personnel in a mortgage contract. The companies’ staff conducts the meat hygiene investigation.

Five tasks are performed by staff of these companies: 1) Performance of the official investigation, including health marking of carcasses 2) Monitoring of compliance with the prescribed requirements under the quality control 3) Monitoring the rules for the transport of meat, including controls on meat shipments from other Member States and other parties to the agreement on the European area 4) Sampling for the BSE testing in cattle 5) Appointment of the official personnel.

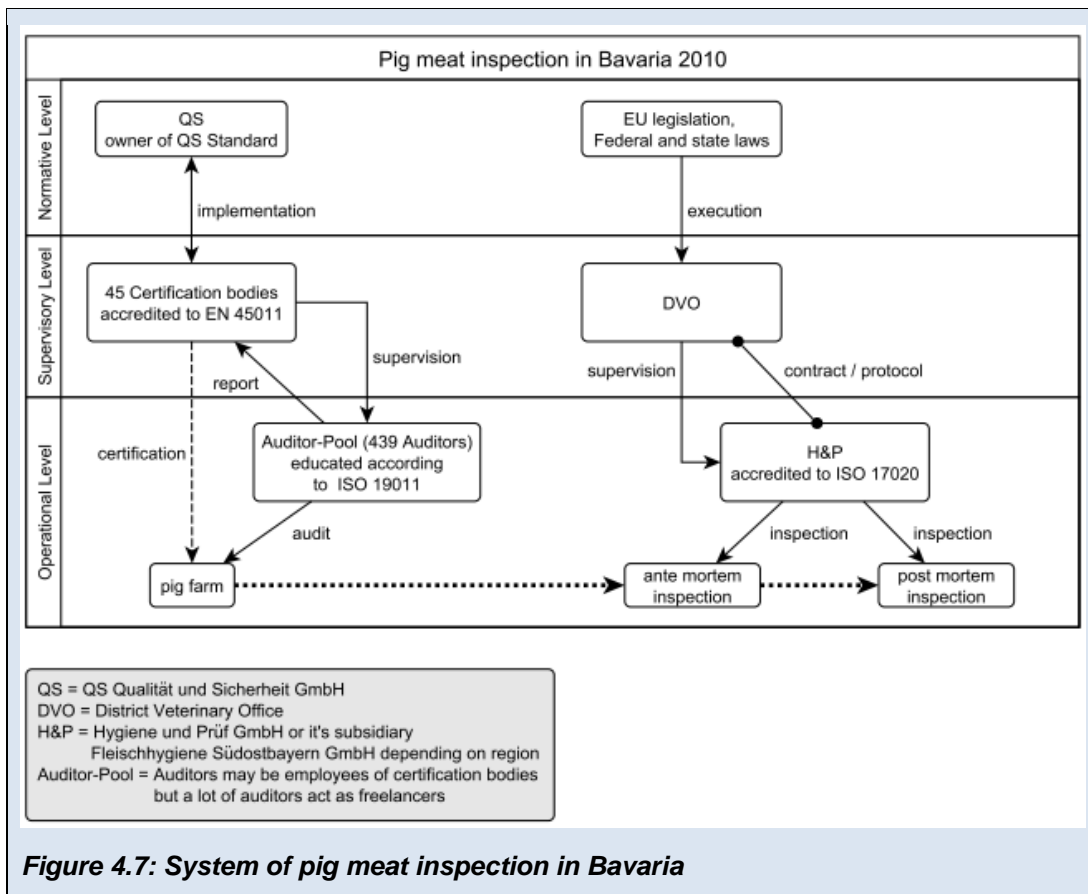


Figure 4.7: System of pig meat inspection in Bavaria

Ante- and post-mortem meat inspection is performed by veterinarians and auxiliaries who are employees of the DVO. An official veterinarian supervises and organizes their work. The process of ante- and post-mortem inspection and the personnel involved are described in more detail in paragraphs 4.3 to 4.6.

National monitoring plans

On national level, different monitoring plans are in place. The DVO's staff conducts the samplings according to the sampling plans that are issued annually. The most important monitoring programs currently in place are

- "Lebensmittelmonitoring (LMM)": annual monitoring of food and consumer products; detection of chemicals and residues; based on LFGB and AVV Monitoring;
- "Bundesweite Überwachungsplan (BÜp)": annual food monitoring; results of the supervision of food safety; risk oriented; based on AVV Rahmenüberwachung;
- "Nationaler Rückstandskontrollplan (NRKP)": annual monitoring of substances and residues thereof in live animals and animal products; based on Directive (EC) 96/23;
- "Mehrfähriger nationaler Kontrollplan (MNKP)": multiannual plan about supervision of food safety; compiled mainly by results from other monitoring programs; based on Regulation (EC) No. 882/2004;
- "Zoonosen-Monitoring": annual monitoring of food borne zoonoses and antimicrobial resistance of zoonotic pathogens; based on „AVV Zoonosen Lebensmittelkette“ and Directive (EC) 2003/99/EG about surveillance of zoonoses;

- “Dioxin-Monitoring”: annual monitoring of dioxin residues in food and consumer products; based on Recommendation 2002/201 of the European Commission.

As most of the programs require reporting on national or European level BVL, as a federal authority, acts as a platform data collection and is involved in setting up sampling plans.

Risk based system to determine system inspection frequencies

In the Netherlands distinction is made between “*system audit*” and “*system inspection*”, and well-defined rules concerning frequency, duration and scope apply to both. It should be mentioned that these terms are no common in the public supervision of the Bundesländer North Rhine-Westphalia and Lower Saxony.

Veterinary authorities in North Rhine-Westphalia and Lower Saxony use a risk based system to determine frequencies of general inspections of the DVOs. A concept of risk based inspection of food processing establishments was introduced in Germany in 2009. AVV Rüb §6 prescribes that inspection intervals can vary between one day and three years depending on the assessment. The classification method must follow the basic principles described in Annex 2 of AVV Rüb. It prescribes that a classification method has to consider at least the type of establishment, the behavior of the food business operator, the reliability of self-checks and the hygiene management. A classification method has to use a maximum 200 points scoring system. The score consists of a (static) score according to the type of establishment and the type of product (*risk category + risk level*) plus a (dynamic) score based on the last inspection result (*inspection score*). The summed score is used to assign the establishment to one of nine risk classes (“Risikoklassen”). The risk class determines the inspection interval, from daily (class 1) to triennial (class 9). Risk classes and calculation schemes for assessment differ slightly between Bundesländer. Most Bundesländer use a system with six risk categories in which establishments that process raw meat belong to the high risk category 1. Because slaughterhouses belong to the high risk category, they are classified at least in risk class 5 (semi-annually inspection). Establishment size and slaughter capacities are not considered in this risk assessment.

Inspection for approval

An exception from the rule that inspections are performed by DVO staff is made during approval of slaughterhouses: As slaughterhouses in North Rhine-Westphalia and Lower Saxony get approved by the respective state agencies (LANUV and LAVES) initial inspections during the application phase are performed under the guidance of the state agency’s inspection service together with staff of the DVO. Within these approval inspections the whole system of a slaughterhouse is examined very carefully. Slaughterhouses have the obligation to keep the supervisory authority informed on changes in their processes. Hence, although approvals basically do not have an expiration date the state agencies re-check establishments based on individual assessment and results of official inspections through the DVO.

4.3 Structure and qualifications of personnel in ante- and post-mortem inspection

The efficacy and sensitivity of meat inspection depends on the qualification of the persons in charge and on number of inspectors available. Paragraph 4.3.1. explains the origin of the most important qualifications and roles in meat inspection from a EU perspective. The

subsequent paragraphs explain the structure and capacity of personnel in the Netherlands and North Rhine-Westphalia and Lower Saxony. Each paragraph contains a rough overview of the educational background of the different persons involved.

4.3.1 EU law

Annex 1, section III, Chapter IV of Regulation (EC) No 854/2004 describes the qualifications of the official veterinarian (OV) and the official auxiliaries (OA). The competent authority may appoint only veterinarians or auxiliaries who passed a test meeting the different requirements. The competent authority must make arrangements for such tests. Member states may lay down specific rules for official veterinarians that work on a part-time basis for small slaughterhouses

Approved veterinarians (AV) are “normal” veterinary practitioners who are not employed by a public authority but fulfill tasks on behalf of and under special arrangement with the competent authority. The education of veterinary surgeons is one of the few professions that are regulated on the European level. Section 5 of Directive 2005/36/EC²⁶ describes the requirements of professional qualification of veterinary surgeons. The European Association of Establishments for Veterinary Education (EAEVE), founded in 1998, has the objective “to maintain and develop the standards of veterinary education in Europe and so ensure that those trained in veterinary medicine meet the requirements of society”²⁷.

4.3.2 The Netherlands

The following paragraphs describe the number and the education of personnel involved in meat inspection in the Netherlands.

4.3.2.1 Structure

Data on numbers of staff are based on personal communication of the (former) nVWA or from the report of Vanthemsche (2011). In 2011 the workforce at the Division Animal was 610 full time equivalents (FTE)²⁸. In 2011 the former workers of the AID were part of the Division Animal, but from 2012 on they will be part of a separate Division.

In 2011, the inspection activities of nVWA were organized in 13 teams. These teams worked for all red meat sectors, not just the pork supply chain. Each team had a team leader and one supervising manager. The nVWA had 185 FTE of official veterinarians (OVs) who were permanent staff (for Dutch designation see Table 4.4). In addition nVWA hired about 85 FTE practitioners who worked on notice and usually part-time for nVWA. They were mainly involved in the ante-mortem inspection. According to the nVWA these practitioners were also OV. In the Netherlands no approved veterinarians (AV) were present. The nVWA charged about 120,000 hours for both ante-mortem and post-mortem inspection activities annually.

Besides the OVs, nVWA employed 90 FTE of official auxiliaries (OAs). From 2012 on this number FTEs will be reduced to 54 FTE. KDS engaged 272 FTE of OAs for the post-mortem inspection. KDS had regional managers to coordinate the work.

²⁶ Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications

²⁷ Wanner M, Oakley R (2009): Veterinary Education in Europe 2009 and beyond. In: Bulletin UASVM, Veterinary Medicine 66(2), 6–10.

²⁸ Full-time equivalent (FTE), is a unit to measure employed persons in a comparable way. 1.0 FTE means full-time working person, a half-time working persons equals to 0.5 FTE.

Table 4.4: Designation of personnel in meat safety supervision in the Netherlands

Abbreviation	English (854/2004)	Dutch (854/2004)	Commonly used
OV	Official veterinarian	Officiële dierenarts	- Toezichthoudend dierenarts Ante Mortem (TDA AM) - Toezichthoudend dierenarts Post Mortem (TDA PM) - Assistent toezichthoudend dierenarts (ATDA)
AV	Approved veterinarian	Erkende dierenarts	- Erkende dierenarts of 'practitioner'
OA	Official auxiliary	Officiële assistent	OA

4.3.2.2 Qualifications

The NVWA is responsible for the training of the OVs. The basic educational training for a OV is the University Degree of the Faculty for Veterinary Medicine in Utrecht. The training for veterinarians who start inspection work takes 6 months full-time. They get trained in organizational matter, behavioral aspects, and quality management. The 6 months include a practice time. For this training modules on food law and regulations and on more technical aspects were developed. Also the veterinarians, OVs and practitioners have regular back-up meetings to update their knowledge.

The basic training of OAs is intermediate vocational training ("MBO") called "Production employee fresh food industries" (level 2) and an additional training at level 3 to become OA pig sector. KDS provides the content of the additional training for the OAs conform Regulation (EC) No. 854/2004. The NVWA determines if their education program fulfills all requirements set by the regulation and imposes terms for examination. KDS has to keep a register of all OAs. KDS has obliged itself in the "Toezichtsprotocol" to regularly update the education of the OAs every 2 till 4 year. The NVWA determines the content of the update in consultation with KDS.

4.3.3 Germany

The following paragraphs describe the number and the education of personnel involved in meat inspection in Germany.

4.3.3.1 Structure

The DVO is responsible for ante- and post-mortem meat inspection. According to the definitions in Article 2 of Regulation (EC) No. 854/2004 ²⁹ inspection tasks are executed by three types of personnel: Official veterinarians (OV), approved veterinarians (AV) and official auxiliaries (OA). Approved veterinarians are designated to perform on-farm inspections. Attention should be paid to the German terms as they are somewhat misleading: In the German language version of Regulation (EC) No. 854/2004 the official veterinarian is called

²⁹ " [...] (f) "official veterinarian" means a veterinarian qualified, in accordance with this Regulation, to act in such a capacity and appointed by the competent authority; (g) "approved veterinarian" means a veterinarian designated by the competent authority to carry out specific official controls on holdings on its behalf; (h) "official auxiliary" means a person qualified, in accordance with this Regulation, to act in such a capacity, appointed by the competent authority and working under the authority and responsibility of an official veterinarian; [...]"

“amtlicher Tierarzt”. That sounds quite similar to the German term “Amtstierarzt” what describes the head of the DVO and his deputy (also often translated as “official veterinarian”). Besides that, for personnel of public organizations distinction is made between civil servants (“Beamte”) and public service employees (“Angestellte im öffentlichen Dienst”). On the district level usually only the head of the DVO and his deputy are employed as civil servants but the rest of the veterinarians of the DVO are public service employees. In this context the term “amtlicher Tierarzt” is sometimes used erroneously for these employees disregarding whether they do work as an official veterinarian in the DVO or whether they perform meat inspection at the slaughterhouse. Table 4.5 lists the designations of personnel in Germany.

Table 4.5: Designation of personnel in meat safety supervision in Germany

Abbreviation	English (854/2004)	German (854/2004)	German (common)
OV	Official veterinarian	Amtlicher Tierarzt	Amtstierarzt (head of DVO), Amtlicher Tierarzt (working at DVO), Amtlicher Tierarzt (working at the slaughterhouse)
AV	Approved veterinarian	Zugelassener Tierarzt	Zugelassener Tierarzt
OA	Official auxiliary	Amtlicher Fachassistent	Amtlicher Fachassistent

The official statistics of the German Federal Chamber of Veterinarians (“Bundestierärztekammer”) does not differentiate between fields of activity (meat inspection) but between employers (Table 4.6).

Table 4.6: Veterinarians in Germany employed as civil servants or public service employees

Employer & Employment	Germany	Lower Saxony	North Rhine-Westphalia
Sum	5,433	870	644
civil servants	1,564	237	263
public service employees	3,869	633	381
Administration	2,258	262	398
civil servants	1,107	152	237
public service employees	1,151	110	161
Federal level	74	3	21
civil servants	42	1	17
public service employees	32	2	4
State level	893	63	47
civil servants	536	37	39

public service employees	357	26	8
District level	1,291	196	330
civil servants	529	114	181
public service employees	762	82	149
Other (e.g. Research institutes, Laboratories, Universities)	3,175	608	246
civil servants	457	85	26
public service employees	2,718	523	220

¹ sum of the two state chambers of veterinarians located in North Rhine-Westphalia.

Source: Bundestierärztekammer 2009³⁰.

According to the documents of the 2009 multi-annual national control plan (based on Article 44 of Regulation (EC) No. 882/2004) in North Rhine-Westphalia the following numbers of personnel were involved in ante- and post-mortem meat inspection: 37 official veterinarians (full time), 417 approved veterinarians (part time) and 545 official auxiliaries³¹. At the same time in Lower Saxony 106 OV's, 409 AV's and 436 OA were involved in meat inspection³².

4.3.3.2 Qualifications

This section explains the educational background and requirements of the Official Veterinarians, Approved Veterinarians and Official Auxiliaries in Germany.

Official veterinarians

The education of official veterinarians in Germany is divided in two parts: The basis is a degree in veterinary medicine and conferment of approbation as a veterinarian. Veterinary education in Germany is regulated by a federal ordinance, the "Verordnung zur Approbation von Tierärztinnen und Tierärzten (TAppV)". The second step is a further education in order to deepen theoretical and practical knowledge in the field of veterinary public health, food and feed hygiene, notifiable animal diseases and general aspects of administration and jurisdiction.

But this further education is implemented differently in Bundesländer. Basically there are three types of education models: Some Bundesländer do not provide an own education program for official veterinarians, some provide a short but intensive preparatory course, and some offer a separate two-year traineeship ("Referendariat")³³. North Rhine-Westphalia and Lower Saxony belong to this last group. Both Bundesländer have an ordinance in force that regulates requirements, curriculum and examination of future official veterinarians. In North Rhine-Westphalia it is called „Verordnung über die Ausbildung und Prüfung für die Laufbahn des tierärztlichen Dienstes in der Veterinärverwaltung im Land Nordrhein-Westfalen (VAPVet)" and in Lower Saxony "Verordnung über die Ausbildung und Prüfung für die Laufbahn des höheren Veterinärdienstes (APVO-Vet)". Table 4.7 gives an overview about the education of veterinarians.

³⁰ Bundestierärztekammer 2010: Statistik 2009. In: Deutsches Tierärzteblatt 4/2010

³¹ Mehrjähriger Nationaler Kontroll-Plan 2007-2011: Integrierter mehrjähriger Einzel-Kontrollplan von Nordrhein-Westfalen, Version 1.1.2 vom 1. Juli 2009

³² Mehrjähriger Nationaler Kontroll-Plan 2007-2011: Integrierter mehrjähriger Einzel-Kontrollplan von Niedersachsen, Stand Oktober 2009

³³ Haunhorst E und Bottermann H (2008): Berufsbild Amtstierarzt. Stuttgart: Parey.

Table 4.7: Education of official veterinarians in Lower Saxony and North Rhine-Westphalia

	Lower Saxony	North Rhine-Westphalia
	5.5 years university education based on TAppV	
Veterinarians	theoretical part: 2031 hours of lecture, including: <ul style="list-style-type: none"> • 56 h Animal husbandry and animal hygiene • 39 h Epizootic diseases and epidemiology • 84 h Pharmacology and toxicology • 28 h Poultry diseases • 252 h “food science, food hygiene, meat hygiene and milk science” 	
	practical part: 1100 hours of practice, including: <ul style="list-style-type: none"> • 150 h in a curative veterinary practice or veterinary clinic • 75 h at control of foodstuffs • 100 h at ante- and post-mortem inspection • 75 h at public veterinary affairs • 700 h in a curative veterinary practice or veterinary clinic 	
	All veterinarians in Germany have to prove continuous education annually	
Official veterinarians, working at the slaughterhouse	As laid down in Regulation (EC) No 854/2004 veterinarians with a valid approbation have to undergo practical training for a probationary period of at least 200 hours under the supervision of an experienced official veterinarian.	
	2 year education based on APVO-Vet	2 year education based on VAPVet
Official veterinarians, employed as civil servants at a DVO or another veterinary administrative body	<u>Stages:</u> <ul style="list-style-type: none"> • residence at LAVES incl. public veterinary laboratories, DVO, epizootic fund • special course 	<u>Stages:</u> <ul style="list-style-type: none"> • introductory course • residence at LANUV, DVO incl. slaughterhouse, public veterinary laboratories • meat technology course • special course
	<u>Learning content:</u> <ul style="list-style-type: none"> • Animal diseases and health • Foodstuffs of animal origin • Meat and poultry-hygiene • Animal welfare, feedstuff, veterinary drug • General administration- and legal bases of the veterinary sector • Specific administration- and legal provisions <u>Examination:</u> <ul style="list-style-type: none"> • House work • Proctored examination • Oral examination • Final evaluation 	<u>Written examination:</u> <ul style="list-style-type: none"> • Control of animal diseases • Animal welfare or veterinary drug monitoring • Monitoring of foods animal origin or feedstuff monitoring or foodstuff technology • Foodstuff hygiene • Foodstuff monitoring <u>Oral examination:</u> <ul style="list-style-type: none"> • General administration- and legal bases • Specific administration- and legal provisions • Control of animal disease • Monitoring of foods animal origin • Feedstuff (including monitoring) • Animal welfare and –breeding • Veterinary drug monitoring • Foodstuff technology • Foodstuff hygiene • Residuals • Foodstuff monitoring

Source: Haunhorst 2008³⁴, TAppV³⁵

Approved veterinarians

Approved veterinarians are normal veterinary practitioners who are approved by the DVO to perform on-farm ante-mortem meat inspections.

Official auxiliaries

Education of official auxiliaries rests on Regulation (EC) No. 854/2004. At the moment there are no federal regulations describing that education in detail. Paragraph 3 of Tier-LMÜV mainly refers to Annex I Section III Chapter IV Letter B of the regulation. North Rhine-Westphalia and Lower Saxony have issued own laws education and examination of official auxiliaries. In North Rhine-Westphalia it is called “Ausbildungs- und Prüfungsordnung amtlicher Fachassistent (VAPFaF NRW)” and in Lower Saxony “Verordnung über die Schulung, Prüfung, Fortbildung und Nachprüfung für amtliche Fachassistentinnen und amtliche Fachassistenten (FachassVO)“.

Candidates of OA must be at least 18 years old and have a lower secondary education (“Hauptschulabschluss”)³⁶. Typically the candidates already have passed vocational training in an associated profession (butchery, agriculture). Education lasts at least 6 month and consists of a 500 hour theoretical part and a 400 hour practical part. For North Rhine-Westphalia and Lower Saxony the education is quite comparable since both Länder send their candidates to the same training centre – the Academy for public health system (“Akademie für öffentliches Gesundheitswesen”) located in Düsseldorf (North Rhine-Westphalia).

4.4 Extent of the official ante- and post-mortem meat inspection

In this paragraph we describe the regulations and procedures of traditional meat inspection. In paragraph 4.4.1 we explain general details of this framework for the official ante- and meat inspection, because the general legal conditions for meat inspection of pigs are the same in Germany and in the Netherlands. In the following country paragraphs 4.4.2 (the Netherlands) and 4.4.3 (Germany) we explain how the legal requirements for food chain information, ante-mortem and are post-mortem inspection are implemented in each country.

4.4.1 European law on ante- and post-mortem meat inspection

The ante-mortem and post-mortem inspections are only part of the tasks that belong to the official veterinarian. Regulation (EC) No 854/2004 (Annex I, Section I, Chapters I and II) describes these tasks:

- a) Auditing tasks:

³⁴ Haunhorst E und Bottermann H (2008): Berufsbild Amtstierarzt. Arbeiten im Tier- und Verbraucherschutz. Stuttgart: Parey.

³⁵ TAppV: Verordnung zur Approbation von Tierärztinnen und Tierärzten, vom 27. Juli 2006 (BGBl. I S. 1827), Geändert durch Art. 37 G v. 2.12.2007 I 2686.

³⁶ “Hauptschulabschluss” corresponds to Level 2 (Lower Secondary Education) of the International Standard Classification of Education (ISCED 1997). Paris, UNESCO, November 1997.

1. in addition to his or her tasks of auditing good hygiene practice (so the check on applying the procedures), the OV has to verify the compliance with the food business operators' own hygiene procedures.
 2. in addition to the audits on HACCP-based principles, the OV should check that meat does not contain patho-physiological abnormalities or changes, does not contain (fecal) contaminations and risk material.
- b) Taking into account the results of the auditing tasks, the inspection tasks include the following themes:
1. Food chain information
 2. Ante-mortem inspection
 3. Animal Welfare
 4. Post-mortem inspection
 5. Specified material and other animal by-products
 6. Laboratory testing

The content of inspection of the food chain information, ante- and post-mortem inspection will be explained further below.

4.4.1.1 Food chain information

According to Annex II, Section III of Regulation (EC) No. 853/2004 every slaughterhouse should receive food chain information based on the records kept at the holding of provenance. For pigs food chain information became obligatory per 1 January 2008. Food chain information must be in the slaughterhouse 24 hours before the arrival of the animals, though exceptions are possible. According to Annex II of this regulation the food chain information contains:

- a) the status of the holding of provenance or regional health status.
- b) health status of the delivered animals
- c) veterinary medicinal products or other relevant treatments together with their dates of administration and withdrawal periods;
- d) occurrence of diseases that may affect the safety of meat;
- e) results or findings indicating diseases that may affect the safety of meat;
- f) relevant reports about previous ante- and post-mortem inspections;
- g) production data, when this might indicate the presence of disease
- h) the name and address of the farm's veterinarian

It is not necessary to provide information on a, b, f and h if the slaughterhouse is already known with this information or on a, b, f, and g if there is no relevant information. Commission Regulation (EC) No. 2074/2005 Annex I, Section II, Chapter I states that the competent authority must verify that the food chain information is consistently and effectively communicated between the farm and the slaughterhouse, and that the food chain information is reliable. Farms should receive relevant information as feedback and the Regulation provides a model form for this feedback. During the meat inspection the food chain information and the declarations of the farm's veterinarian must be analyzed (Regulation (EC) No 854/2004 Annex I, Section I, Chapter II-A). Also at this point the official veterinarian *may* take into account the private food safety assurance systems or integrated systems when they

are clearly identifiable. The results should be taken into account in the ante- and post-mortem inspection. Though the Regulation demands the exchange of food chain information, food business operators have to organize the information exchange themselves.

4.4.1.2 Ante-mortem inspection

According to Regulation (EC) No. 854/2004 Annex I, Section I, Chapter II-B the ante-mortem inspection must take place within 24 hours of arrival at the slaughterhouse and less than 24 hours before slaughter. The regulation also allows for pigs to be examined at the farm. At the slaughterhouse the OV checks:

- the animals' identification;
- if there is any sign that welfare has been compromised; and
- if there is any condition which adversely affects human or animal health (esp. a check on zoonotic diseases).

The latter is to rule out possible hazards/diseases for the health of consumers. An official auxiliary may carry out this screening (Regulation (EC) No. 854/2004, Annex I, Section IV, Chapter IV-A, 4b), but should report immediately in case of urgency. Actions following controls are described in Chapter II to IV of this Regulation.

The results should be documented during the execution of the ante-mortem inspection and passed on to the food business operator and should also be included in relevant databases (Regulation (EC) No. 854/2004, Annex I, Section II, Chapter I-3).

4.4.1.3 Traditional post-mortem meat inspection

Regulation (EC) No. 854/2004, Annex I, Section I, Chapter II-D prescribes that carcasses and accompanying offal are subjected without delay to post-mortem inspection. The external surfaces are to be viewed and additional examinations should take place as explained in Regulation (EC) No. 854/2004, Annex I, Section IV, Chapter IV-B, 1. The second paragraph (Chapter IV-B, 2) allows for visual inspection, but only under the condition that epidemiological data of the holding is available and that pigs were housed under controlled housing conditions since weaning. This so-called Supply Chain Meat Inspection (SCMI) will be explained in detail in chapter 5.

Table 4.8 describes the examination procedures for detection of pathological lesions as is described in Regulation (EC) No. 854/2004, Annex I, Section IV, Chapter IV-B. Annex I, Section I, Chapter II, passage D of E of this Regulation prescribes, that a contamination of the carcasses by palpation and incision is to be kept to a minimum. If it is considered as necessary for the final result or there is a suspicion of epizootic or zoonotic disease, residues, contaminations, non-compliance of microbial criteria or sign of other factors, an additional examination must be attended. It is stated in Annex I, Section III, Chapter I that the OAs may assist in the OV, but that the latter should regularly check their work.

Table 4.8: Examination steps in traditional meat inspection of pigs

	Visual inspection	Palpation	Incision
Head	X		
Submaxillary lymph nodes	X		X
Mouth, Throat, Tongue	X		
Lung	X	X	(X)

Lymph nodes of the lung and mediastinum		X	
Trachea	X		
Larynx	X		
Heart and Pericardium	X		X
Diaphragm	X		
Liver	X	X	
Lymph nodes of the liver	X	X	
Lymph nodes of the pancreas	X		
Gastro- intestinal system	X		
Mesenterium	X	(X)	(X)
Lymph nodes of Stomach	X		
Mesenterial lymph nodes	X	(X)	(X)
Spleen	X	(X)	
Kidneys	X		(X)
Pleura and Peritoneum	X		
Genitalia	X		
Teats/ Udder and their Lymph nodes	X		
Lymph nodes of Teats/Udder of sows	X		X
Umbilicus and Joints (Juvenile)	X	X	(X)

X = mandatory

(X) = if necessary

Source: Beutling 2004³⁷.

4.4.1.4 Frequency of controls

During the ante-mortem and post-mortem inspection an OV must be present. However, Regulation (EC) No 854/2004 Annex I Section III, Chapter II-2 allows for some flexibility on the basis of risk analysis. This flexibility does not apply to pigs that have undergone emergency slaughter or are suspected to have a disease, or in case of an outbreak of diseases listed on OIE List A or List B.

During post-mortem inspection the official veterinarian need not be present all the time if the official auxiliary carries out post-mortem inspection and puts aside meat with abnormalities and all other meat from the same animal for the official veterinarian to subsequently inspect this meat. The official auxiliary documents his/her procedures and findings in such a way that standards are met.

4.4.2 The Netherlands

Two systems for the post-mortem inspection are in operation in the Netherlands: the traditional and the Supply Chain Meat Inspection (SCMI). The specific procedures and requirements of SCMI are described in Chapter 5. This paragraph describes the traditional post-mortem meat inspection. Note that this traditional post-mortem inspection procedure is still in use in slaughterhouses that apply SCMI for those carcasses in which abnormalities are detected.

³⁷ Beutling D M (2004): Lehrbuch der Schlachtier- und Fleischuntersuchung: Parey.

Food chain information supports all inspection activities and will be described in section 4.4.2.1. There is only one scheme for the ante-mortem inspection and it is described in section 4.4.2.2. Paragraph 4.4.2.3 describes the traditional post-mortem meat inspection. Most information is based on the NVWA report *Normstelling en normen roodvlees en pluimveevlees Slachthuizen, uitsnijderijen en koel- en vrieshuizen* of March 4, 2010³⁸ and the website of PVE³⁹.

4.4.2.1 Food chain information

In the Netherlands food chain information comprises of information on animal health and public health at the level of the batch of the delivery. However, every animal that has been treated with medicines within 60 days prior to slaughtering should be indicated individually. Food chain information must have been analyzed by the slaughterhouse and the OV *before* the actual slaughtering. It has to be emphasized that the check of the presence and correctness of food chain information is an activity to be executed by the food business operators since January 2010. Pig producers can deliver food chain information to the slaughterhouse through electronic data exchange or a signed standard paper form. There are two procedures for food chain information in the pig sector, one for IKB certified companies and one for other companies:

- Food chain information is part of the delivery statement in the case of IKB certified companies. There are two formats for these statements: one from the “IKB Varken” scheme and one from the “IKBNV”. A third format is developed by VION as base for the Supply Chain Meat Inspection. One day before delivery the slaughterhouse prepares a list of UBN numbers of farmers that will deliver the next day. The slaughterhouse presents this list to NVWA. The actual food chain information will travel with the pigs (in case of the paper form). The slaughterhouse checks food chain information upon arrival at the slaughterhouse. Slaughtering will not take place if information is missing or incorrect. The name and the address of the veterinarian is available in the IKB-data base. The slaughterhouse draws up a list of pigs that need special attention (the “signaleringslijst”) resulting from the provided food chain information. This list is handed over to NVWA together with all the delivery statements of the pig farmers. The pigs on this list are inspected by the OV instead of by the OAs.
- For non-IKB farms (and as a general rule) the food chain information must be at the slaughterhouse 24 hours before the arrival of the animals. The slaughterhouse passes on relevant information to the OV of the NVWA. The OV takes account of the results in the ante-mortem and post-mortem inspection.

Other exceptions to the general rule that the food chain information must be at the slaughterhouse 24 hours before the arrival of the animals are described in “Beleidsregel aanleveringstermijn voedselketen informatie” (policy statement delivery term of food chain information) of 26 January 2010. For example for pigs delivered to very small slaughterhouses it is also allowed to provide food chain information together with the pigs.

4.4.2.2 Ante-mortem inspection

In general, at all slaughterhouses in the Netherlands, small or with a large capacity, the ante-mortem inspection is conducted by the OV of the NVWA. Unlike for the post-mortem inspection there are no exact working procedures or checklists for the ante-mortem

³⁸ VWA (2010). Normstelling en normen roodvlees en pluimveevlees Slachthuizen, uitsnijderijen en koel- en vrieshuizen, 4-3-2010, versie 4.0.

³⁹ <http://www.pve.nl>

inspection. The inspection is based on “the master”s eye’ (as stated by the auditteam headed by Vanthemse in 2008⁴⁰).

In smaller slaughterhouses requirements for the ante-mortem inspection results are written down in a health statement called the “combiformulier”. This form combines the results of the ante-mortem and post-mortem results and is signed by the OV. In slaughterhouses with permanent supervision the combiformulier is the (paper) VOS forms (Verzamelstaat Onderzoek Slachtdieren). Animals of which is indicated that the post-mortem inspection should be done by the OV have to be passed on to the official veterinarian (so, not the official auxiliaries of KDS).

4.4.2.3 Traditional post-mortem inspection

Inspection activities in the slaughterhouse are based on the location protocol drawn up by NVWA and KDS. Their work is planned based on the number of pigs that are slaughtered per hour (“bandsnelheid”) and the working hours. Inspection activities and procedures are laid down in the quality handbook developed by KDS. Traditional post-mortem inspection as executed by KDS is divided in inspection of heads, of organs, of carcasses and inspection of rework. Rework (cleaning after defilement) is executed by OAs and a worker of the slaughterhouse on the rework platform. The presence of the agreed number of OAs is very strict. If insufficient OAs are present, the slaughtering process cannot start.

The inspection procedure for detection of pathological lesions is described in Regulation (EC) No. 854/2004, Annex I, section IV, chapter IV. This procedure is summarized in table 4.8 in paragraph 4.4.1.3. The inspections are executed by the OAs on the inspection platform in large slaughterhouses. Carcasses and organs which have more than a “small” defection have to be passed on to the OV for inspection. Animals that are declared unfit for human consumption are recorded with lesions on the VOS-forms (Verzamelstaat Onderzoek Slachtdieren) together with the results of the ante-mortem inspection.

Daily inspections of the OV (beside the ante-mortem inspection) include:

- verification of hygiene *before and during slaughtering*;
- verification of control of critical control points;
- synchronizing speed of lines with carcasses and organs;
- inspection of the carcasses and organs of pigs which have been appointed by the OV doing the ante-mortem inspection;
- inspection of the carcasses and organs which have been passed on by the OA of KDS;
- inspection of carcasses and organs of emergency slaughterings;
- verification of the post-mortem inspection of the OAs of KDS to sampling (and reported on the inspection forms (“controleformulieren”) and putting the results in the ISI (“Informatie Systeem Inspecties”));
- surveillance of the release (“vrijgave”) of carcasses by KDS on the rework platform;
- sampling, if necessary, and surveillance of sampling;
- checking VOS-forms (the results of ante-mortem and post-mortem inspection, sampling and in some cases the reasons of rejection) and summarizing them in the DOS-forms

⁴⁰ Groot, M. de (ed.) (2008). Het functioneren van de Voedsel en Warenautoriteit VWA in de controle op slachthuizen en exportverzamelplaatsen. Auditteam: Piet Vanthemse, Bert Matthijs, Christian Landuyt, Ilse van Vlaanderen. Den Haag.

(Dagstaat Onderzoek Slachtdieren), sending information to the central of regional office that will put the results in the RSG application (Roodvlees en witvlees Slachtgegevens);

- consultation with the slaughterhouse;
- certification for export.

Next to the daily activities NVWA's work includes the system inspection, audit and inspection with respect of the EU approval as described in sections 4.1.2.2.2 – 4.1.2.2.4. From the RSG data application the number of pigs delivered for slaughtering per location is known, and the number of approved pigs and the disapprovals and their reasons. The verification activities will be explained in section 4.5.

Producers receive feedback information about the results of ante-mortem and post-mortem inspection. Lesions (pleuritis, lung, skin, liver and paw lesions), filling of the gastro-intestinal skin diseases are reported on the bill and the, if available, via the digital account of the farmer at the slaughterhouse.

4.4.3 Germany

Most slaughterhouses in Germany perform the traditional form of meat inspection. At the time of writing only three companies and their associated authorities make use of SCMI. The specific procedures and requirements of the Supply Chain Meat Inspection are described in Chapter 5. The subsequent paragraphs describe the traditional post-mortem meat inspection in Germany.

4.4.3.1 Duties of the pig supplier

Each farmer who wants to deliver pigs to a slaughterhouse has to ensure the following:

- Daily updating of the farm's log with following information:
 - Number and origin of the animals at the date of housing;
 - Number of animals at the date of delivery;
 - Results of the pre-selection of animals;
 - Medical treatments (with drugs that are available only on prescription or in pharmacies); date and mode of application; treating person; withdrawal period; Number and identity of the treated (group of) animals; location of the (group of) animals at the date of application; name and quantity of applied medicine.
- Identification of the animals: According to Annex III Section I Chapter IV Nr. 3 of Regulation (EC) No. 853/2004 every carcass has to be traceable to its farm of origin. In the first week of its life a pig has to be ear tagged. Prior to slaughter each animal gets marked with a tattoo stamp ("Schlagstempel"). The "Schlagstempel" is not officially regulated, but in 2006 the sector agreed on an unified alphanumeric structure of the stamp. In the first row 2 letters for the "Kreis" and 3 digits for the "Gemeinde", in the second row 4 digits to identify the holding. A third row with one single sign is allowed.
- Transmission of food chain information 24 hours before arrival at slaughterhouse.

4.4.3.2 Food chain information

According to Annex II, Section III of Regulation (EC) 853/2004 every slaughterhouse must receive food chain information with each batch of slaughter pigs (see paragraph 4.4.1.1 for

the content of food chain information). The farmer takes responsibility for their validity. Food chain information must be present in the slaughterhouse 24 hours before the arrival of the animals, just as in the Netherlands. Exceptions can be made, if the producer is for example participant of a quality assurance system (e.g. QS System in Germany) or has another type of contract where information about a), b), f) and h) can be derived from. Furthermore there can be made an exception by omitting a), b), f) and g) when the producer assures that everything is clear in his stock. Hence, only c) withdrawal periods, d) occurrence of diseases affecting meat safety and e) test results have to be submitted in any case. A producer can deliver this information via electronic data exchange or via a signed standard form to the slaughterhouse. For Germany Annex 7 of Tier-LMHV provides a template form for the submission of food chain information (see Annex 1).

4.4.3.3 Ante-mortem inspection

Regulation (EC) No. 854/2004, Annex I, Section I, Chapter II Letter B and C describes, that the focus of the official veterinarian is on animal welfare and animal protection to rule out possible hazards for the health of consumers. An approved veterinarian performs the ante-mortem inspection and records, checks and analyzes the results and decides the animals further fate. In slaughterhouses for pigs and cattle usually the same veterinarian observes both species. The following aspect should be considered during ante-mortem inspection⁴¹:

1. Unloading and control of the batch;
2. Assessment of the behavior of the animals;
3. Inspection on transport damage;
4. Inspection on general and movement disorders;
5. Inspection on presence of communicable diseases;
6. Inspection on residual substances;
7. Control of carcasses in the waiting area;
8. Putting to slaughter.

All animals that do not have any deviation in the ante-mortem inspection are allowed to be slaughtered. Depending on the deviation during ante-mortem inspection the OV can order

- a) cleaning of animals before slaughter;
- b) an extended ante-mortem inspection;
- c) delayed or separate slaughter in order to avoid cross-contamination;
- d) killing and immediate disposal of the animal.

4.4.3.4 Traditional post-mortem meat inspection

Immediately after slaughter each carcass gets a slaughtering stamp with a number that is unique at least for the day of slaughter and this number is associated with other data of the delivery (date, food chain information, supplier, etc.). Post-mortem inspection is performed at the inspection platform of the slaughter line by a team of OA headed by an OV. The examination includes visual inspection, palpation and incision of the carcass according to Regulation (EC) 854/2004 (see Table 4.8 in paragraph 4.4.1.3).

⁴¹ Beutling D M (2004): Lehrbuch der Schlacht tier- und Fleischuntersuchung: Parey.

The AVV LmH (General administrative provision for food hygiene) states that the examination time per slaughtered pig without any changes and further examinations must be at least 50 seconds (more time has to be scheduled for example for further examinations or unavoidable production processes). Defects and complaints have to be categorized and recorded in damage categories. The results of the complete examination must be delivered back to the producer either via electronic data or as a handwritten standard form.

4.5 Verification of (the supervision of) the official meat inspection

According to Article 2 of Regulation (EC) No. 882/2004 the term “verification” means “checking, by examination and the consideration of objective evidence, whether specified requirements have been fulfilled”. Article 8 No 3 of the same Regulation states that “competent authorities shall have procedures in place [...] to verify the effectiveness of official controls that they carry out”. This means, that the public authority that conducts meat inspection has to test on a regular basis the quality of the inspection itself. EU law does not prescribe how verification should be done. The way in which the OVs verify the meat inspection work of the OAs during post-mortem inspection and the verification of food chain information is covered in the sections below.

4.5.1 The Netherlands

4.5.1.1 Verification of the quality of the meat inspection

The NVWA report *Normstelling en normen roodvlees en pluimveevlees Slachthuizen, uitsnijderijen en koel- en vrieshuizen*⁴² (Standards red meat and poultry meat for Slaughterhouses, meat cutters and cool/freeze storages) of 4 March 2010 distinguishes two kinds of verification activities by the OV: 1) the verification of inspection *activities* and 2) the verification of inspection *decisions* by the OAs. The activities refer to the examination scheme of pathological lesions in the traditional post-mortem inspection of slaughtering pigs as summarized in table 4.8.

Inspection decisions itself are divided into two categories: the verification of the *pathological lesions* on the inspection platform and the verification of *hygiene practices by the slaughterhouse*. Hygiene practices by the slaughterhouse are inspected between the rework platform and the end of the slaughtering line. Hygiene during slaughtering is responsibility of the food business operator. In larger slaughterhouses fecal defilement is a critical control point within the HACCP system and verification of the system on this point is under the responsibility of the slaughterhouse. Verification of *inspection work on hygiene by KDS* (finding omissions in their work) is responsibility of NVWA and takes place just after the inspection platform.

The NVWA has set standards for (a) the inspection activities and how they are executed by KDS, (b) their decisions on pathological lesions and (c) decisions on hygiene, like fecal defilement. These standards are derived from experiences in the New Zealand. There is no literature publicly available about the basis for these standards. With respect to (a) and (b) a sample will be taken for each inspection position with a size of the square root of the number of pigs slaughtered per day and it will be examined in 2 batches (with a maximum of 25 per

⁴²NVWA (2010). Normstelling en normen roodvlees en pluimveevlees Slachthuizen, uitsnijderijen en koel- en vrieshuizen, 4-3-2010, versie 4.0.

batch). For (c) the sample size is two times the square root of the number of pigs to be slaughtered divided over four batches (with a maximum of 25 per batch).

For (a) the inspection *activities* a maximum percentage of deviation of 5% is set per inspection position (“keurpositie”). Concerning (b) the decisions of the OAs on the *pathological lesions*, a maximum percentage of undetected deviations is fixed at 6% in total and 2% for each position. Results of (a) and (b) are put down in an inspection form per inspection position (Controleformulieren post-mortem inspectie varkensslachterij, positie karkassen, koppen, organen). Concerning (c) hygiene, no fecal defilement is tolerated at the end of the slaughtering line, so the norm for *undetected fecal defilement* by KDS is 0%. The percentage of other defilement should not exceed 2%. The results of the verification are put down on the inspection form (Controleformulier hygienisch slachten varkensslachterij, positie op of direct na keurbordes).

The standards or verification norms are also laid down in the KDS quality handbook. Early 2010 KDS’ post-mortem inspection activities received accreditation by NVWA. Possibly, in the future, KDS can become an official control-body, comparable to COKZ and CPE⁴³. KDS is also in charge of the BSE-control by order of meat production and processing companies themselves.

4.5.1.2 Examination times

In general, at large slaughterhouses an OV is permanently present for the post-mortem inspection. So since 2006 including the OV for the ante-mortem inspection two OVs were present in a large slaughterhouse, and possibly a third assistant OV present for daily inspection activities. However, starting per June 2010 the verification activities of NVWA are reduced given satisfying performance of KDS and the accreditation of KDS’ post-mortem inspection activities. The verification of the inspection decisions (on hygiene and pathological lesions) will be executed three times a week (instead of daily). Starting from January 2011 the frequency of this verification activity is further reduced to once every week.

4.5.2 Germany

The inspection procedures of traditional meat inspection are not explicitly verified. But the DVO have the obligation to provide statistical data about findings and decisions in ante- and post-mortem inspection to the higher authorities. These data are collected on state and federal level and get published on a yearly basis. This gives the supervisory bodies and the DVO the opportunity to compare their results and to adjust inspection methods.

4.6 Data exchange and information management

This paragraph deals with data exchange and the information management in the field of meat inspection. Data collection and data exchange stem from a number of reasons and considerations like cross compliance, traceability, food chain information, registration of animal holdings, etc. As long as meat inspection exists (about since the beginning of the 20th century) dealing with information and data was part of it. In the modern times of food safety and consumer protection, traceability and quality assurance systems information management became a crucial aspect of food production in general. Since computerized systems are widespread in all parts of the production chain, electronic data processing

⁴³ COKZ is the Dutch Inspection Authority for Milk and Milk products and assures the safety and quality of dairy products produced in the Netherlands. CPE is the Inspection Authority on Poultry and Eggs.

becomes more and more important. Finally, the risk-based concept of SCMI relies to a vast extent on prior information and quick and seamless data flows.

The technical basis for seamless data exchange along the pork production chain are standardized formats for data interchange and spread of computer systems implementing appropriate software interfaces on all production stages.

4.6.1 The Netherlands

Many organizations in and around the pork supply chain receive and keep data about the farm the pigs were kept or about the pigs. This paragraph lists the most important organizations and the data they keep.

Service Desk (Dienst Regelingen) of the Ministry EL&I

This Service Desk releases the registration number (UBN) of the holding as livestock holding (Based on Regulation (EC) No. 853/2004) and the registration numbers of animals (yellow earmarks) at that farm through the I&R-system. The registration number (UBN) is publicly accessible.

IKB Varkens and IKB NV

Both IKB systems manage a list with IKB certified farms and farms with a supplementary modules (IKB data base) and check the gathering of data for the monitoring of salmonella and critical substances (either executed at farm or at slaughterhouse). This data is exchanged with QS.

Health Service (Gezondheidsdienst)

The Health Service is the actual manager of the I&R-system and records new animals and removal of animals or dead animals. They also manage the salmonella Database.

Productschap Vee en Vlees

PVV is the legal owner of data on salmonella and critical substances and has access to data and makes available data to NVWA.

Pig producer (IKB certified)

A pig producer has to perform multiple tasks concerning data. He has to:

- Keep record of necessary items to fulfill the IKB requirements. In case of visual inspection blood samples will be checked through an supplementary IKB module on the request of the slaughterhouse (see Chapter 5);
- Provide the IKB data base with the name and address of his veterinarian;
- Keep record of the use of animal medicines and the administration of animal medicines (Based on the Diergeneesmiddelenwet);
- Declare to slaughterhouse to deliver (at least 24 hours before slaughtering);
- Deliver Food Chain Information as part of the IKB-delivery statement. This statement includes the salmonella risk category of the farm;

- Inform I&R, to get a “slachtblik”.

Slaughterhouse

A slaughterhouse has to perform multiple tasks concerning data. It has to:

- Check IKB data base for certification of holding one day before delivery;
- Check Food Chain Information of the farm holdings and their salmonella status;
- Check risk category in case of visual inspection (see Chapter 5);
- Put inspection results into a digital system managed by the slaughterhouse. This system is connected to the IKB data base. The inspections results concern information on pleuritis, pneumonia, skin diseases etc. found on the inspection platform. This data is available at the individual level of the animal;
- Give feedback to farmers on lesions (pleuritis, lung, skin, liver and paw lesions) and the filling of the gastro-intestinal tract, together with quality qualification, weight and price.

NVWA

The NVWA has to perform multiple tasks concerning data. It has to:

- Manage a list of approved establishments (as referred to in annex V Chapter I of Regulation 2074/2005), which is made public through the website of the NVWA;
- Manage the Registratie Slachtgegevens (RSG) software application. The number of animals slaughtered for different species, the number of condemnations and the reasons why, and emergency slaughterings are digitally recorded. The bases for inputs are the paper forms on which the results of the ante-mortem and the post-mortem inspections are registered. The OV's and OA's on location keep record of the ante-mortem and post-mortem inspection findings on paper forms, the so-called “VOS-formulieren” (Verzamelstaat onderzoek slachtdieren). These “VOS – formulieren” contain information on the group level of pigs to be slaughtered. Each condemned carcass is registered by number. In the case of partial condemnation there is no data account on the individual level of the animal. The report states the number of kilos of condemned material and the reasons at the batch level. “VOS- formulieren” are summarized on the slaughter location on the so-called the “DOS- formulieren” (Dagstaat onderzoek slachtdieren). These paper forms are sent to the NVWA-office where data are put in the RSG system.
- Manage the digital Information Systeem Inspecties (ISI). The NVWA verifies the performing of the meat inspection, executed by OA 's in the red meat sector and results are recorded in ISI. Data is used for internal reports and evaluation. Only NVWA has access to this system, not KDS. The information consists among others of the results of the verification activities of the OV's gathered on the forms “Controle formulieren post-mortem inspectie varkensslachterij, posities karkassen, koppen, organen” and the “Controle formulieren hygienisch slachten varkensslachterij, positie op of direct na keurbordes”. Larger slaughterhouses gather these control forms daily, but these are only summarized monthly as input in ISI. Also the results of system audits or inspections are put in ISI. Results of inspections on the HACCP are made public through the internet.
- Send samples taken at the slaughterhouse to the laboratory accompanied by a form. The OV's only get feedback in the case of a carcass that is blocked and waiting for the results

to release. Results of these samples are not yet registered in one of the present IT-systems.

- In the near future the ISI and the RSG-application will be replaced by a system called SPIN. This system allows for direct data input in the system on location (De Groot (ed.), 2011)⁴⁴. This report of the audit team noticed that OV's and slaughterhouses hardly get any feedback on the results in ISI and RSG.

4.6.2 Germany

Obligations in the field of information management and data exchange are not regulated in a single law but are scattered over a number of national and European laws. This implies, that the regulations about data exchange stem from a number of reasons and considerations like cross compliance, traceability, food chain information, registration of animal holdings, etc. Rothfuß (2009) lists 13 laws that contain information obligation for pig producers: the EU Regulations (EC) No. 1831/2003, 853/2004, 911/2004, 1760/2000, 1946/2003, and the German laws ViehVerkV, AGTierSG, Tier-LMHV, ZoonoseV, SchwSalmoV, TierSchNutztV, TierNebV, ANTHV, TierImpfStV, AMG and BtMG. To some extent information management along the pork production chain can only be as quick and effective as the weakest part of the chain. Hence, it must be mentioned that up to now all legal obligations to provide information within the food production chain do not prescribe electronic data exchange. There always exists an additional paper based way to transmit data (e.g. notice of animal movement via postal cards).

This section describes the situation for traditional meat inspection. In the course of establishing the concept of supply chain meat inspection, new concepts of data exchange have been developed. In particular two aspects have repeatedly been highlighted: Utilization of meat inspection results for farm health management and usage of quality assurance audit results for risk orientation at the slaughterhouse.

Concerning data exchange the most important actors in the pork production chain are: pig producers, veterinary practitioners, livestock traders, slaughterhouses and District Veterinary Offices and private quality assurance systems (QS-System). The characteristics of these actors regarding data exchange are described in the following overview.

Pig producers

According to "Viehverkehrsverordnung" (ViehVerkV) each pig holding is registered with a registration number (BNR) and each pig holding has to report its number of live animals (not places) on 1 January of each year in the national "HI-Tier" data base. Each reception of live pigs (or piglets) has to be registered in "HI-Tier" (BNR of both farms, date, number of animals). Finishers have to announce each batch of animals at the slaughterhouse prior to arrival and have to send food chain information with each batch of slaughter animals and results of salmonella monitoring have to be mentioned in the food chain information form. For salmonella monitoring each delivery of a batch of slaughter pigs can be announced at the national salmonella monitoring database (Qualiproof). Other mandatory record keepings like records about medical treatment of animals, registration as a feed producer, storage of salmonella monitoring status are regulated in different laws, supervised by different authorities and stored in different databases. Specialized software for the management of pig farms exists, but is mainly used for internal purposes (monitoring performance, health status,

⁴⁴ Groot, M. de (ed.), (2011). Vervolgaudit aangaande het functioneren van de nieuwe Voedsel- en Waren Autoriteit (NVWA) inzake de controle op slachtplaatsen en exportverzamelplaatsen. Concept-rapport. Auditteam: Peit Vanthemse, Christian Landuyt, Ilse van Vlaanderen, Tom Vanoverschelde. Den Haag.

planning). Software interfaces are mainly for farm internal purposes (temperature monitoring, feed monitoring, data logging) and not for data exchange with external bodies. Within producer associations and research pilots information and communication systems have been developed, that integrate several data sources. Under the leadership of the German Agricultural Construction Association (Bauförderung Landwirtschaft e.V.) two data exchange formats called ISOagriNET and agroXML were developed. The main purpose of ISOagriNET is farm internal data exchange (between PC, machines, etc.) and was published as ISO standard 11788 (Part 3 pig farming). AgroXML deals with data exchange between a farm and its external partners. The pig part of agroXML is still under development.

Veterinary practitioners

Although veterinary practitioners have a lot of documentation obligations they are not mandatory involved in data exchange related to meat inspection and no standardized data exchange formats exists for special veterinary purposes. Veterinary practitioners are not involved in the generation of food chain information. Dispensation and application of veterinary drugs have to be recorded and receipts have to be transmitted to the farmer. This can be done electronically. For internal purposes of veterinary practices electronic data documentation and specialized software are widespread.

Livestock traders

According to "Viehverkehrsverordnung" (ViehVerkV) livestock traders are registered with a BNR and have to keep records about the farm of origin, the identity of the animals, the date and the destination farm. Pure livestock traders play a minor role in data exchange and have little information obligations. But some livestock traders operate in several business fields. Some act as "bundlers" in the QS-System and take over the announcement of slaughter pigs at the national salmonella monitoring database (Qualiproof).

Slaughterhouses

Slaughterhouses have to announce the takeover of live animals at the national "HI-Tier" data base. And for purposes of traceability slaughterhouses have to record each batch of slaughter animals. Slaughterhouses also must ensure that each animal can be identified and tracked through the slaughter process. They therefore have to exchange slaughter line data with the meat inspection personnel. Slaughterhouses can check via web or software interface a supplier's QS status and a supplier's Salmonella monitoring status. According to "Fleischgesetz" (FIG) the results of the classification of carcasses (EUROP-system, weight and price) have to be feed back to the farmer within 15 day in an electronic way. For internal organizational reasons and common business management purposes slaughterhouses maintain powerful data management systems, but no standardized data exchange format exists between pig suppliers and slaughterhouses. As slaughterhouses are deeply linked with further meat processing and food production companies, they usually have software interfaces with partners downstream the production chain.

District Veterinary Offices

According to Regulation (EC) No. 2074/2005 findings in the meat inspection that indicate a health risk for humans or animals have to be feed back to the farmer and its veterinarian. According to §8 of AVV LmH, figures about the pathological findings from each batch of slaughter pigs have to be feed back to the farmer in an aggregated form (lungs, pleura,

pericarditis, liver). Pathological findings from meat inspection at the slaughter line are usually collected via electronic terminals. But data acquisition systems differ in regard to content and technique between slaughterhouses. The list of possible findings that can be entered at the terminal and their internal coding is not harmonized in any way⁴⁵. Electronic and paper based systems can exist parallel, completing each other. Additionally, findings from extra inspections of separated carcasses are often recorded another form (in text form, on paper)

Meat inspection results are collected on the DVO level and the DVO has no access to inspection results of other administrative districts. Since most administrative districts have at most one slaughterhouse it is impossible to recognize if pigs (potentially with different health status) from one holding are sold to different slaughterhouses.

According to „Fleischuntersuchungsstatistik-Verordnung“ (FIUStatV), results of meat inspection within an administrative district have to be sent to the state statistical office. Since 2008 data of meat inspection statistics must be transmitted electronically to the Federal Statistical Office. The federal bureau of statistics therefore provides a software tool for data collection and transmission („CORE Reporter“). The catalogue of possible findings in the official meat inspection statistics is much longer than the average list used during meat inspection. Meat inspection statistics are not related to individual slaughterhouses or companies, but get aggregated on federal state level. And meat inspection statistics do record the origin of the animals solely to the federal state of the slaughterhouse and the foreign country.

Private quality assurance systems (QS-System)

QS has developed and maintains its central database, called „QS Plattform“. All master data of the participants and all audit results are stored in that database. Maintenance of master data and entry of audit results is performed by subcontractors, so-called „bundlers“. Results of the salmonella monitoring get automatically transferred to the QS database. At regular intervals each participant in the QS-System gets informed about its current QS status and their salmonella monitoring status. Actuality of master data (e.g. contact details, number of pig places) depends on the compliance of the farmer and the commitment of the bundler organization. Information on QS status of farmers and livestock-traders can be integrated in the data management of the slaughterhouse via an automatically database request.

4.7 Financial aspects

Financial aspects play also an important role in the way the private sector complies with rules or inspections from public authorities. Without going deeply into details, this section describes the general economic approaches in the Netherlands, North Rhine-Westphalia and Lower Saxony.

4.7.1 Netherlands

In the Netherlands, the NVWA aims to recover all its costs of system audits, system inspections, ante- mortem and post- mortem inspection and additional inspections (like certifying for export) through fees (also called retribution) from fbos. The aim is to recover the

⁴⁵ In 2001 Bandick et al. reported that the number of possible findings in the systems of German slaughterhouses reach from 7 to 127 (Bandick N, Kobe A und Fries R (2001): Inhaltliche Sichtung von Merkmalkatalogen bei der Fleischuntersuchung beim Schwein. In: Fleischwirtschaft 81 (5), 193 – 197). Similar numbers were discovered in Bavarian slaughterhouses in the course of a diploma thesis of the University of Bonn in 2011.

costs of all hours of OV's and OA's from slaughterhouses. In 2005, 2006 and 2007 the share of official controls of the NVWA covered by fee revenue was respectively 75%, 86% and 81% (Food Chain Evaluation Consortium FCEC, 2008). Since 2007, the NVWA has further increased the fee revenue.

Fees of the NVWA are set annually aiming to recover all costs of official controls. In general, fees consist of a starting fee and a fee per 15 minutes per person conducting inspection activities. Concerning the fees of the ante-mortem and post-mortem inspections, a distinction is made between fees for an OV from the NVWA and a fee for the OA from KDS. Table 4.9 provides the fees for the AM and PM-inspection for an OV and for an OA. The fees and surcharge fees for an OA are, in general, lower than the corresponding fees for an OV. Table 4.9 also provides the fee of the NVWA for approval and registration of FBO's (food business operators).

Table 4.9: Fees for Official Controls in red meat slaughterhouses in the Netherlands in 2011

Activity	OV of NVWA	OA of KDS
Red meat slaughterhouses		
Starting fee per person	€ 74.34	€ 77.43
Starting fee per person for slaughterhouse with less than 10 GVE per week	€ 18.57	
Fee 15 per minutes employee of NVWA for AM-inspection	€ 28.32	-
Fee 15 per minutes employee of NVWA for PM-inspection	€ 20.02	
Fee 15 per minutes (6.00-18.00 hr.) on work days		€ 13.66
Surcharge outside opening hours per 15 minutes per person for AM-inspection	€ 8.50	
Surcharge outside opening hours per 15 minutes per person for PM-inspection	€ 6.01	
Surcharge outside opening hours (18.00-22.00 hr.) per 15 minutes per person for PM-inspection		€ 1.50
Surcharge outside opening hours (00.00-6.00 hr. and 22.00-24.00 hr.) per 15 minutes per person for PM-inspection		€ 3.01
Surcharge outside opening hours (Saturday and Sunday) per 15 minutes per person for PM-inspection		€ 5.27
Surcharge outside opening hours (feast days) per 15 minutes per person for PM-inspection		€ 7.54
Surcharge outside opening hours per 15 minutes per person for slaughterhouse with less than 10 GVE per week	€ 36.82	
Surcharge for late sign-off/interruption/delay of AM-inspection per 15 minutes per person	€ 28.32	
Surcharge for late sign-off/interruption/delay of PM-inspection per 15 minutes per person	€ 20.02	€ 13.66
Surcharge for late sign-off for slaughterhouse with less than 10 GVE per week per 15 minutes per person	€ 18.57	
Surcharge extension AM-inspection per 15 minutes per person	€ 28.32	
Surcharge extension PM-inspection per 15 minutes per person	€ 20.02	€ 13.66

Surcharge extension per 15 minutes per person for slaughterhouse with less than 10 GVE per week	€ 18.57	
Surcharge for late sign-in for AM-inspection per 15 minutes per person	€ 8.50	
Surcharge for late sign-in for PM-inspection per 15 minutes per person	€ 6.01	
Surcharge for late sign-in per 15 minutes per person for slaughterhouse with less than 10 GVE per week	€ 18.57	
Fee per ton slaughter weight for the control of residues	€ 1.40	
Analysis of samples	real costs	
Fee for re-inspection per animal	€ 314.57 (+ laboratory cost)	
Approval and registration		
Starting fee approval per person	€ 113.67	
Fee 15 per minutes employee of NVWA for approval	€ 30.96	
Surcharge outside opening hours per 15 minutes per person for approval	€ 9.29	
Surcharge for late sign-off for approval per 15 minutes per person	€ 30.96	
Fee for registration	€ 23.08	

Source: NVWA Website 2011⁴⁶.

4.7.2 Germany

In 2008 European Commission's DG SANCO performed a study about fees and charges collected by the Member States to cover the costs occasioned by official controls according to Regulation (EC) No. 882/2004⁴⁷. Germany was one of the case studies investigated in depth by interviews with stakeholders and authorities representatives. As a result Germany got attention as a paragon for a quite confusing situation promoting strong intra member state distortions:

*"The issue of potential distortion in competition between regions within MS was of particular concern to those MS that have devolved power from central to regional and even district level. This included such MS as Germany, Italy and Spain (but not the UK at present). A common perception in these MS is that the financing provisions of Regulation 882/2004, as they currently stand, allow MS sufficient room for a relatively open interpretation which results in widely divergent fee systems and fee levels. [...] The most documented examples on regional distortions at present can be found in Germany where a number of court cases have been filed since the beginning of the system [...]. These cases, which are all driven by industry complaints, point to the relatively liberal approach taken at Lander and district level in defining their own systems: to determine the activities for which fees are charged, the fee calculation method and the various cost components taken into account for the calculation of the flat rates. This situation results in highly divergent levels of fees for the different activities across Germany."*⁴⁸

⁴⁶ NVWA (2011): Overzicht tarieven NVWA per 1-1-2011. http://www.vwa.nl/txmpub/files/?p_file_id=25404

⁴⁷ DG SANCO (2009): Study on fees or charges collected by the Member States to cover the costs occasioned by official controls. Final Report. Awarded through tender 2004/S 243-208899. http://ec.europa.eu/food/food/controls/inspection_fees/docs/external_study_en.pdf [2010-08-13].

⁴⁸ DG SANCO (2009): Study on fees or charges collected by the Member States to cover the costs occasioned by official controls. Final Report. Awarded through tender 2004/S 243-208899. http://ec.europa.eu/food/food/controls/inspection_fees/docs/external_study_en.pdf [2010-08-13].

The costs that have to be covered by the fees mainly consist of staff costs and administrative costs. Concrete values about the relative share of administrative costs are lacking, but are reported to vary significantly (up to 30%) between the Bundesländer. Besides that, differences occur on how much of these administrative costs are taken into account when fees are calculated. Veterinarians and official auxiliaries involved in ante- and post-mortem meat inspection are paid according to a special collective wage agreement (“Tarifvertrag Fleischuntersuchung”). Staff costs were subject of a yearlong collective bargaining. Negotiations were finished successfully in May 2010⁴⁹. In large slaughterhouses the basic hourly rates are about €32 for official veterinarians and about €16 for official auxiliaries.

4.7.2.1 North Rhine-Westphalia

North Rhine-Westphalia has issued an ordinance about administrative fees in general (“Allgemeine Verwaltungsgebührenordnung - AVerwGebO NRW”) based on the North Rhine-Westphalian Fees Act (“Gebührengesetz - GebG NRW”). AVerwGebO contains a directory with scales of charges for official actions. Position No 23 (“Tarifstelle 23”) of the AVerwGebO lists minimum charges in the field of food and veterinary administration. For example position “23.8.4.1.3 a)” states that the minimum charge for post-mortem meat inspection of a pig carcass heavier than 25kg is €1 per animal. District administrations are allowed to differ from that charges and a lot of them use this option. Usually the special charges of an administrative district are written down a document called “Satzung” (statute). Large slaughterhouses do not pay charges on a per animal basis but negotiate flat rates for the most common activities. These contracts are not open to the public.

4.7.2.2 Lower Saxony

Lower Saxony has issued an ordinance about veterinary administrative fees (“Gebührenordnung für die Veterinärverwaltung - GOVet”) based on the Lower Saxonian Act on Administrative Costs (“Niedersächsischen Verwaltungskostengesetz”). GOVet contains a directory with scales of charges for official veterinary actions. For example position “IV, D, 1.1.3.2” states that the minimum charge for post-mortem meat inspection of a pig carcass heavier than 25kg is €1.30 per animal. As in North Rhine-Westphalia district administrations are allowed to differ from that charges to make them cost-covering and a lot of them use this option. Usually the special charges of an administrative district are written down a document called “Satzung” or “Gebührenverzeichnis” (statute, directory of fees). Large slaughterhouses do not pay charges on a per animal basis but negotiate flat rates for the most common activities. These contracts are not open to the public.

⁴⁹ dbb beamtenbund und tarifunion (2010): Pressemitteilung vom 20.5.2010.
<http://www.dbb.de/cache/teaserdetail/artikel/kommunale-angestellte-in-der-fleischuntersuchung-anschluss-an-tvoed-erreicht/archivliste/2010/Mai.html>

5 Supply chain meat inspection: adaptations to the traditional system

Since the introduction of the European hygiene package the general legal conditions for meat inspection of pigs are the same in Germany and in the Netherlands. Basically there are two forms of meat inspection: the **traditional meat inspection** and the **Supply Chain Meat Inspection (SCMI)**⁵⁰. This chapter deals mainly with SCMI. Chapter 4 deals with traditional meat inspection.

5.1 Introduction

Meat inspection without incisions has the advantage of speeding up the slaughter line and of reducing the possibility of cross contamination. EU allows for meat inspection without incisions if certain requirements are met. In Regulation (EC) No. 854/2004, specifically Annex I Section IV Chapter IV part B where is stated that *“the competent authority may decide, on the basis of epidemiological or other data from the holding, that fattening pigs housed under controlled housing conditions in integrated production systems since weaning need, [...], only undergo visual inspection.”* Regulation (EC) No. 1244/2007 introduced more specific requirements for a SCMI without incisions amending and supplementing Regulation (EC) No. 2074/2005 (its Annex VIb 3a and 3c). Further, the term “integrated production system” is defined (supplementary to the Appendix to Annex VIb).

How to implement the EU regulations is up to the European food business operators, but each system has to be approved by the competent authority of the member state where the establishment is located. In Germany two SCMI are approved and in operation and we will call them: the North Rhine Westphalia approach⁵¹ and the Lower Saxony approach. In other German Bundesländer (e.g. Baden-Württemberg, Bayern) other concepts for SCMI are in development, but these are outside the geographical scope of this research. In the Netherlands there is one system for SCMI, equal to the Lower Saxony approach because it is run by the same slaughter company.

In the following sections we will first describe how the official supply chain meat inspection differs from the traditional meat inspection (Section 5.2), and then we describe how the requirements of the EU are implemented by the food business operators (Section 5.3) in the two approved systems. Section 5.4 describes additional measures taken by the food operators in both approaches. In Section 5.5 we summarize adaption that have been applied to the system. Section 5.6 describes the results of the supply chain meat inspection and plans for the future.

5.2 Overall principle and procedure of the official inspection

The overall principle of SCMI is to replace examination by incision and palpation by visual examination in combination with information about the housing conditions of the delivered

⁵⁰ This report uses the term Supply Chain Meat Inspection (SCMI) to refer to the alternative way of performing meat inspection that was introduced by Regulation (EC) No. 1244/2007. Synonyms for SCMI are “risk-based meat inspection” or “visual meat inspection”. In Germany the terms “risikoorientierte Fleischuntersuchung” and “risikobasierte Fleischuntersuchung” are most commonly used.

⁵¹ During the work on this report a second slaughter company in North Rhine-Westphalia started to introduce SCMI. That approach is not considered in this report.

pigs and serological or microbiological information about the pigs. This information that is gathered by the food business operators is evaluated by the slaughterhouse and the authorities. The slaughterhouse has to ensure that the farms that deliver slaughter pigs are covered by a regular serological or microbiological monitoring system on specific bacteria. In addition the pigs must come from controlled housing conditions in integrated production systems since weaning and the farms of provenance must participate in a serological or microbiological monitoring system. If these conditions are fulfilled the delivered pigs can be recommended for SCMI. The final decision whether the meat inspection is conducted under the traditional or visual inspection lies with the official veterinarians at the slaughterhouse.

Table 5.1 describes the procedure of the official supply chain meat inspection as far as it is adapted from the traditional meat inspection (section 4.2.2.3 and 4.2.3.3). However, SCMI does not mean that no parts of carcasses and organs are cut away. But the task is shared between the OA that mark findings and slaughterhouse staff who processes the carcass.

Table 5.1: Procedure of the official inspection in the two approaches North Rhine-Westphalia and Lower Saxony / The Netherlands (as of September 2010)

North Rhine-Westphalia	Lower Saxony / The Netherlands
The OV evaluates registered information in his own and the slaughterhouse's database and decides what system of meat inspection is appropriate.	The OV evaluates registered information in the database and decides what system of meat inspection is appropriate.
Pigs designated for SCMI are moved to separate waiting pens. Batches of pigs that are not allowed for SCMI are slaughtered at the end of the day or at special days of the week.	Pigs designated for SCMI are moved to separate waiting pens which are marked with special signs. At the slaughter line phases of SCMI are indicated by colored signs attached to the first and the last pig.
Visual inspection replaces:	Visual inspection replaces:
a) Incision of heart and submaxillary lymph nodes	a) Incision of heart and submaxillary lymph nodes
b) Palpation of lungs, mediastinal lymph nodes, liver and hepatic lymph nodes	b) Palpation of lungs, mediastinal lymph nodes, liver and hepatic lymph nodes
Information about the history of the pathological findings of a farm's animals is at hand and is used to gradually intensify meat inspection.	Relevant reports on previous ante- en post mortem inspections are part of food chain information
Pathological findings during visual inspection are marked by the OA and get re-worked by slaughterhouse staff.	Pathological findings during visual inspection are marked by the OA and get re-worked by slaughterhouse staff.

Source: DVG-Tagung 2010⁵², personal communication.

⁵² 2010 Annual meeting of the food hygiene working group of the German Veterinary Medical Society (DVG), personal communication.

5.3 Compliance with EU requirements

The legal requirements for SCMI and how slaughter companies in North Rhine-Westphalia, Lower Saxony and the Netherlands comply with these requirements are summarized in table 5.2. The compliance with the controlled housing conditions (see table 5.2 i) is complicated, because the systems that exist in Germany and the Netherlands that guarantee use different conditions. The German QS-System requires that all holdings fulfill the controlled housing conditions to get accepted as QS-compliant⁵³. QS-certification gives access to SCMI. However controlled housing conditions are not part of the regular certification scheme of IKBNV or IKB Varken). Therefore IKBNV or IKB Varken certified farms need to comply with additional requirements on controlled housing conditions to have access to SCMI in North Rhine-Westphalia or Lower Saxony. The additional requirements are part of the so-called “plus modules”. These extra programs are specific to the slaughterhouses or even the “concept” for which the farm produces (like the “Welfare Concept” for the British market or the production of meat with “Better Life” stars). “Plus modules” consist of other requirements than just controlled housing conditions. In fact no Dutch plus module exists that deals with the housing conditions only. The content of the different plus modules is company specific and not made public. Hence, Dutch farms that deliver to German slaughter locations need to comply with a “QS plus module” which states that requirements of controlled housing conditions are met. Other requirements in the “QS plus module” are for example that piglets stem from QS certified farms. The QS certification scheme allows for farms with outdoor access to become QS-compliant if stipulated by the responsible official veterinarian. The provision for outdoor farms is also arranged for in the “QS plus module” for Dutch farms on top of the IKB scheme.

Providing Food Chain Information (see table 5.2 ii) with each delivery of slaughter pigs is already required as part of the traditional meat inspection system.

In both approaches of SCMI include monitoring on *Mycobacterium avium* (see table 5.2 iii). In the Lower Saxony and the Netherlands farms are categorized with a company risk profile, called BRP (Blood Risk Profile) on the results of the blood samples of *Mycobacterium avium*, whereas in North Rhine-Westphalia the lymph nodes are visually inspected. In North Rhine-Westphalia farms are classified based on serological monitoring on salmonella as done in the regular system (see Box 4.2).

Table 5.2: Compliance with EU requirements of Regulation (EG) No. 2074/2005 Article 6b in conjunction with Annex 6b, Number 3, Letter a) Number i) to iii) and its corresponding Appendix in the two approaches for SCMI (as of September 2010)

Requirement from Regulation (EG) No. 2074/2005	North Rhine-Westphalia	Lower Saxony/ The Netherlands
i) Kept under controlled housing conditions and integrated production systems according to	Suppliers have to be part of the QS or IKB system (with plus module) or they have to	Suppliers have to be part of the QS or IKB system (with plus module)

⁵³ In fact, some of the required criteria of Regulation (EC) 2074/2005 cannot be audited and proofed by QS:

1. animals have no access to outdoor facilities prior to the last fattening farm.
2. animals may be moved at most on one occasion between holding of birth and slaughterhouse.
3. availability of food chain information (as laid down in Section III of Annex II to Regulation (EC) No 853/2004) from birth to slaughter.

Appendix to Annex 6b	declare themselves compliant	
ii) Transmission of food chain information within 24 hours prior to slaughter without exception	Food chain information has to be submitted prior to slaughter. Food chain information is extended to contain data about the prevalence of pigs that show a lag in growth.	Food chain information has to be submitted prior to slaughter in electronic or paper form. Food chain information is extended to contain data about the farm's feed supplier
iii) Regular serological and / or microbiological monitoring	<p>Farms that belong to Salmonella risk category III (or II with a negative trend) are slaughtered separately/delayed.</p> <p>Focal lesions in the lymph nodes are visually checked and those suspicious for <i>Mycobacterium avium</i> are registered for each animal (like other pathological findings).</p>	<p>2 blood samples are taken from each batch of slaughter pigs. The blood samples are tested for antibodies of Salmonella and <i>Mycobacterium avium</i>. <i>Mycobacterium avium</i> test result (negative optical density < 50% optical density > 50%) are used to define a farm's risk profile. The status of the risk profile can be "unknown/new", "low", "low on probation", "neutral", "neutral on probation" and "high". Depending on the current status and the results of the last 18 tests, up to 6 additional samples are taken.</p>
<u>Data exchange</u>	Pig deliveries are registered in the slaughterhouse database prior to arrival and relevant data is entered (QS/IKB+: yes no). The OV has access to the slaughterhouse database and vice versa. The OV can check QS status information via the QS database. At the date of arrival food chain information is entered. Farmers have access to inspection results via web-application.	Pig deliveries are registered in the slaughterhouse database prior to arrival and relevant data is entered (QS/IKB+: yes no; Salmonella monitoring risk category; Food chain information: yes no; Blood profile: status). The OV has access to the prior information via access to the slaughterhouse database. The OV can check QS status information via the QS database. Farmers have access to inspection results via web-application.

5.4 Additional measures

In both SCMI approaches the slaughter companies also use historical animal health data of each pig supplier in their risk-management to cover additional aspects of meat safety. Table

5.3 compares these additional measures that are implemented in North Rhine-Westphalia, Lower Saxony and the Netherlands.

Table 5.3: Additional measures in the two approaches for SCMI (September 2010)

North Rhine Westphalia	Lower Saxony/ The Netherlands
<p>Pathological findings of 7 categories (defective parts, liver lesions, pleuritis, pneumonia, unfit for human consumption, focal lesions suspicious for mycobacterium) of each delivery during the last 6 month are kept in the slaughterhouse's database. Categories are weighted by risk factors. If the amount of carcasses with pathological distortions (in one of the 7 categories) of a farmer's deliveries during the last 6 month exceeds a threshold value (double mean value of the slaughterhouse of the last 6 month) an examination for residues is triggered and the farmer gets individual consulting.</p> <p>The head of the pigs is removed from the body without cleaving it.</p>	<p>Data about pathological findings (pneumonia and pleuritis) of the last 3 deliveries are kept in the database. If the amount of carcasses with pathological distortions of the lungs (pneumonia and pleuritis) of a farmer's deliveries during the last month exceeds a threshold value (double mean value of the slaughterhouse of the last month) an examination for residues of antibiotics is triggered.</p> <p>Blood samples are stored for 3 month in order to facilitate investigations in the case of an epizootic disease outbreak.</p>

5.5 Summarized: adaptations to the meat inspection system

One of the most important characteristics of SCMI is that it implies an ongoing process of adaptation to new hazards and requirements. SCMI can therefore be regarded as less static than the traditional system of meat inspection. As the Netherlands have a longer history of SCMI than Germany, the Dutch system has already undergone some adaptations.

5.5.1 The Netherlands

During the pilot period of SCMI in the Netherlands the former VWA audited the IKB-plus modules (for guarantee of controlled housing conditions and integrated production systems) and the procedures for *Mycobacterium avium* with its categorizing of farms according to risks (for guarantee of regular serological and / or microbiological monitoring). Because the former VWA approved this system, testing for *Mycobacterium avium* and the IKB-plus modules are now part of regular checks in the system. It is executed by the slaughterhouse and through the certification bodies. However the verification by NVWA of the post-mortem inspection by KDS is still extended. Concerning verification relating the decisions of the OAs on the pathological lesions, a maximum percentage of undetected deviations is set at 2% for each inspection position. SCMI also includes an additional check on the generalized pathological anomalies in the position "carcasses". The norm for undetected generalize pathological anomalies is set at 0%. Fig. 5.1 summarizes the additional procedures in the system of meat inspection for SCMI compared to the traditional meat inspection in the Netherlands.

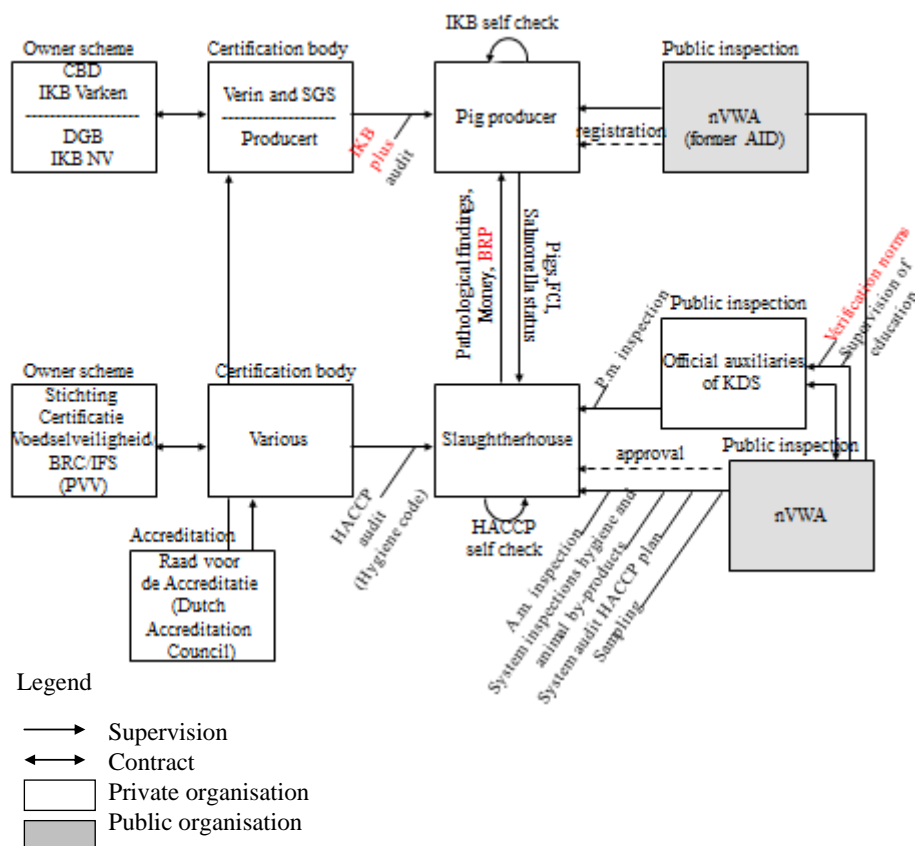


Figure 5.1: Adaptations (in red) to the meat inspection system with respect to SCMI compared to the traditional meat inspection in the Netherlands

5.5.2 Germany

Because SCMI systems in Germany are all freshly set up the whole system is still “under construction”. Most Bundesländer have recognized that large differences in SCMI between them should be avoided and a common basic understanding should be established. North Rhine-Westphalia and Lower Saxony can therefore be regarded as doing some kind of pioneer work in the field of meat inspection. It is one goal of the SAFEGUARD work package 3.1 to contribute to a common understanding of SCMI in all German Bundesländer.

5.6 Results and future developments

This section gives an overview of the current status the SCMI systems established in North Rhine-Westphalia, Lower Saxony and the Netherlands and provides insight into further developments that are planned by private industries and public authorities.

5.6.1 The Netherlands

SCMI is allowed at three slaughter locations. From January 1, 2012 on a fourth location will be approved in the Netherlands for SCMI. This is in cooperation with Belgium pig producers. In 2011 about 50% of the pigs were approved for SCMI.

Results from the pilot on SCMI in 2006 showed that the percentage of animals unfit for human consumption of the traditional meat inspection was similar to the percentage of SCMI, about 0.04%. No plans currently exist to extend the serological and / or microbiological monitoring to other zoonotic pathogens or animal diseases that may be relevant on farm level ("Multi-Serologie").

The HACCP audit will be combined with the audit on SCMI to further increase efficiency in the inspection activities of NVWA.

5.6.2 Germany

The results and the future plans for SCMI in North Rhine-Westphalia and Lower Saxony are summarized in table 5.5.

Table 5.4: Results and future plans for SCMI in North Rhine-Westphalia and Lower Saxony (as of September 2010)

	North Rhine Westphalia	Lower Saxony
<u>Results</u>	69% of the farms (97% of the pigs) are approved to SCMI	72 % of the deliveries are approved to SCMI
<u>Plans for the future</u>	<p>The farmers provide additional animal health data on a voluntary basis. From three values (daily weight gain, mortality rate and days of antibiotic treatment) the animal health index of a batch is calculated. This index can be relevant for meat inspection and for the farm's veterinarian.</p> <p>Blood samples may be tested for other zoonotic pathogens or animal diseases that are relevant on farm level (Multi-serology).</p>	Blood samples may be tested for other zoonotic pathogens or animal diseases that are relevant on farm level ("Multi-Serologie").

Source: DVG-Tagung 2010⁵⁴, personal communication.

⁵⁴ 2010 Annual meeting of the food hygiene working group of the German Veterinary Medical Society (DVG), personal communication.

6 Cross border comparison of meat inspection systems

This chapter contains an analysis of the SCMI systems under investigation from a cross-border point of view. An important aspect is the allocation of roles for different actors and their relationships.

6.1 Introduction

The Codex Alimentarius Commission (1999) defines risk analysis as the umbrella term that incorporates the subordinate tasks of risk assessment, risk management and risk communication⁵⁵. In the Netherlands and Germany risk assessment, including the design of monitoring systems, and risk communication are the first responsibilities of the national food safety authorities. In cooperation with universities, veterinary authorities and food business operators hazards are identified and monitoring systems are developed and implemented. Risk management consists of activities executed by the food business operators on the one hand and the inspection activities of the public authorities on the other hand. The term food business operator covers the primary production stage (animal production) as well as the processing stage (slaughterhouses). Hence, a triangular relationship in meat risk management exists between private parties in primary animal production, private parties in meat processing and the competent public authority. In this relationship roles and task may be allocated in different ways.

Both in Germany and the Netherlands fourth parties play a role in this relationship. These parties are also private bodies such as QS and local producer associations in Germany, and IKBNV and IKB Varken in the Netherlands. These fourth parties certify quality assurance systems in the primary sector and thereby bundle tasks and responsibilities of animal producers. The background is that a small number of slaughter companies in the processing stage is confronted with thousands of independent farmers and agricultural enterprises in the primary production stage. Both in Germany and the Netherlands these fourth parties must be accredited to EN 45011. Audits to verify compliance with the standards are conducted by other organizations (certifying bodies) than the certification organization (scheme holder). The certifying bodies (through different schemes) ensure among others the controlled housing conditions that are a prerequisite for access to SCMI and they arrange involvement in the salmonella monitoring program. In this way their activities affect the public inspection activities in the triangular relationship.

The rest of this chapter we discuss differences in the organization of risk management and inspection activities across the borders of North Rhine-Westphalia, Lower Saxony and the Netherlands. When an issue can be related to the federal level we compare the Netherlands with Germany. These differences concern the involvement of private parties (section 6.2), the content of the certifications schemes of QS and the Dutch IKBNV and IKB Varken schemes (section 6.3), the way data gathering is organized and managed (section 6.4), and the

⁵⁵ Risk assessment is further divided into *hazard identification*, *exposure assessment*, *hazard characterization* and *risk characterization*. This scheme has become an integral part of the European Union's food hygiene legislation. Other fields of work and science have spawned different but similar schemes to describe connections, relations and dependencies between these tasks dealing with risks. Another popular approach considers *risk management* the broader term which consists of *hazard identification*, *risk assessment* and *risk control* (HIRAC). Also the ISO 31000 family of standards ("Risk management - Principles and guidelines") sees risk management as the more generic term.

general risk orientation of the system (section 6.5). In the last section 6.6 we address the role allocations in the triangular relationship for the conditions that allow for SCMI and we discuss the differences between two existing systems in Lower Saxony/the Netherlands on the one hand and North Rhine-Westphalia on the other. We will see that the differences between the SCMI systems are not rooted in the roles in the relationships but in the content of the system.

6.2 Involvement of private parties

In this section we discuss three differences between the traditional system of meat inspection across the borders: 1) the involvement of private parties in the meat inspection, 2) the involvement of private parties in legislation, and 3) the fourth party involvement at the slaughterhouse level.

Involvement of private parties in the meat inspection

In North Rhine-Westphalia and Lower Saxony all persons involved in meat inspection, i.e. the Official Veterinarians (OV), Approved Veterinarians (AV) and Official Assistants (OA), are employed or hired by the local competent authority. In contrast, in the Netherlands the OAs conducting the post-mortem meat inspection system are employed by KDS, a private company. It might even be decided that this private organization will become an official control body. At present the OAs of KDS are still working under supervision of an OV of the competent authority NVWA. The OAs' education and training is established by KDS in cooperation with the NVWA and must be approved by the NVWA to guarantee proper functioning. In addition KDS is accredited to ISO 17020. The salaries of the OAs of KDS are paid by the NVWA. The costs of the salaries are finally passed on to the slaughterhouses by the NVWA through retribution. As a consequence of the involvement of a private party, the post-mortem inspection work by KDS is verified by NVWA. There are clear procedures for this verification. The verification is only slightly adjusted in the case of SCMI.

The ante-mortem inspection is conducted by an OV in both Germany and the Netherlands. However, NVWA allows an OA to execute the ante-mortem inspection activities if a slaughterhouse applies a quality assurance system that guarantees animal welfare during transportation. In Germany an OA is allowed to conduct ante-mortem inspection under supervision of the OV being present at the slaughterhouse.

Private parties involved in legislation

The Dutch Commodity Boards (like "Productschap voor Vee, Vlees en Eieren") are private bodies that have public tasks. They have legislative power and can issue autonomous regulations.⁵⁶ In Germany no comparable institutions exist in the agri-food sector.

Certified private quality assurance systems at the processing stage

In the Netherlands at the processing stage also private quality assurance systems are in place, such as Dutch HACCP. In slaughterhouses certified for Dutch HACCP the NVWA reduces its supervision activities. This allows NVWA to standardize and harmonize their supervision activities through system audits and system inspections. These inspection activities (system audits and inspections) have well-defined rules concerning frequency,

⁵⁶As the Dutch Parliament decided to dissolve these product boards in December 2011, their autonomous regulations might have to be included in the other types of regulation.

duration and scope and are aimed at reducing inspection time of NVWA. The terms system audits and system inspections are not common in the public supervision of North Rhine-Westphalia and Lower Saxony. At present, in North Rhine-Westphalia and Lower Saxony, private quality assurance activities do not impact inspection work of public authorities at the processing level in a regular and direct way. Of course, private quality assurance system and voluntary food standards assist food business operators in meeting legal requirements and therefore indirectly influence public inspection.

6.3 Quality assurance schemes for the primary sector

Differences exist between North Rhine-Westphalia, Lower Saxony and the Netherlands in the systems to accept pigs for SCMI, specifically the content of the quality assurance schemes for the primary sector that are used to ensure “controlled housing conditions since weaning in the integrated production systems”. The systems rely on the information provided by the private quality assurance system IKB NV, IKB Varken and QS to decide whether this requirement is met. Although private systems might mutually recognize their assessments criteria and audit results, each system must also be approved by the public authorities before it can allow access to SCMI.

In Lower Saxony and North Rhine-Westphalia a pig farmer is accepted to comply with the demand of controlled housing conditions since weaning if his farm is QS-certified. A pig farmer, therefore, needs a QS certification to have access to SCMI. IKB NV and IKB Varken in the Netherlands however are not sufficient for a farm to comply with the controlled housing conditions since weaning, because for example they allow for stables with open fronts. So slaughterhouses that apply SCMI have to impose additional requirements regarding housing on top of the requirements of IKB NV and IKB Varken. These requirements can be part of other requirements demanded by the slaughterhouse and can be arranged for in so-called 'plus modules'. Dutch farmers have access to slaughterhouses in Lower Saxony and North Rhine-Westphalia if they comply with the additional requirements set by QS in a 'QS plus module'. Under involvement of the public authorities, IKB NV and IKB Varken made an agreement with QS and certify such QS plus module. Through these QS plus modules Dutch farms are approved as QS equivalent. In this way the competent authorities do not have to recognize the other country's private quality assurance system. So the certification bodies as private fourth party organization arrange compliance with national standards and plus modules to comply with the other countries' standards. Currently the different housing requirements in the QS, IKB NV and IKB Varken are hardly a barrier of acceptance for slaughter in SCMI of finishing pigs traded cross border.

In addition to this there are differences in the formal requirements for organizations that execute audits. In the Netherlands these audit organizations have to be accredited to ISO 17020 (requirements for inspection bodies), whereas in Germany the certification bodies have to be accredited to ISO 45011 (requirements for product certification bodies) and individual auditors to ISO 19011 (auditing quality management systems).

6.4 Data exchange and communication

The overall conclusion about data exchange and communication is that there are more similarities than differences between the Netherlands and North Rhine-Westphalia and Lower Saxony. First we conclude on the standardization of pathological findings and data collection activities and then on the problem of dispersed farm-related health data.

Standardization of pathological findings

As risk-based systems like SCMI depend on reliable and comparable information, it seems natural to call for harmonization and standardization in assessing and classifying pathological findings during meat inspection and in storing the results (coding). But both countries lack a systematic way to standardize pathological findings across slaughterhouses.

IKB Varken slaughterhouses in the Netherlands use a catalogue to standardize the assessment and coding of pathological findings. As a result of the involvement of KDS in the meat inspection and verifications activities of NVWA, the post-mortem findings have become more standardized.

In Germany several initiatives to harmonize or standardize pathological findings exist. Some slaughter companies spend effort to harmonize pathological findings between their slaughter locations. The QS-system provides slaughterhouses with a catalogue of most common pathological lesions. Notwithstanding these efforts, there seem to be little effort to standardize pathological findings and coding in both countries.

Detailed data on post-mortem findings at the slaughterhouses

In the Netherlands, NVWA keeps record on the total number of slaughtered animals, condemned carcasses (and reasons), and the number of emergency slaughters at the national level. Data on the partially condemned material and related reasons on the animal and farm level are kept at the slaughterhouses. There is no single system of record keeping. The data at the slaughterhouse are not publicly available, although NVWA has access to these data on demand. In a separate system, NVWA keeps track of its verification activities and inspections (the audit and system inspections) and uses this information to report on its activities and evaluate their work. The HACCP inspection reports in the Netherlands are made public and available on the website of NVWA.

In Germany results of the meat inspection are collected by the public authorities at the slaughterhouses and reported at the federal level. Official meat hygiene statistics are published regularly by the Federal Statistical Office. There is IT support from the Federal Statistical office to transmit the data from meat inspection in a standardized way, but each DVO uses its own way to collect these data. Sources include the terminals at the slaughter line and the daily logs of the OV in paper form or electronic form.

Feedback of inspection results to the pig producer

In the Netherlands pig producers receive feedback information about the results of ante-mortem and post-mortem inspection. Lesions (pleuritis, lung, skin, liver and paw lesions), filling of the gastro-intestinal skin diseases are reported on the bill and, if available, in the digital account of the farmer at the slaughterhouse.

In Germany, findings that indicate a health risk for humans or animals must be reported back to the pig producer and his veterinarian. The results about the pathological findings (lungs, pleura, pericarditis, and liver) from each batch of slaughter pigs must be reported back to the pig producer in an aggregated form. The results of the classification of carcasses (EUROP-system, weight and price) must be reported back to the farmer within 15 days in an electronic way. Furthermore, at regular intervals, each participant in the QS-system receives information about his QS and salmonella monitoring status.

Dispersed farm-related health data

To summarize, though the level of reporting on results of the meat inspection at the federal level in Germany is more detailed than at the national level in the Netherlands, the situation in both countries is quite similar with respect to data management. Both countries keep meat inspection data for the purpose of the official statistics. These data are based on the daily paperwork of the OV's, which is later on transferred to a (national/federal) database. At the slaughterhouses data is gathered through the electronic terminals on a per-animal basis. Most DVOs do not have direct access to terminal-collected data but receive data compilations from the slaughter company upon request. This role allocation with respect to data keeping on post-mortem results affects the availability of the food chain information in two situations:

First, a Slaughterhouse and its OV should receive food chain information which includes relevant results of past ante- and post-mortem inspections and other health-related data. If a farm switches deliveries between two slaughterhouses (within the country or across the border), historical information about the deliveries not delivered to a slaughterhouse is lacking, because these data are recorded and kept at slaughterhouse level. Hence, the slaughterhouse and especially the OV, who has to assess a batch of slaughter pigs for SCMI based on prior information, only has an incomplete picture of the farm's health status.

Second, this can cause problems if farms structurally deliver part of their pigs to one slaughterhouse and another part to another slaughterhouse. In a typical all-in-all-out fattening farm the large part of regularly grown pigs might be delivered to one slaughterhouse, but the "non-growers" might be collected and delivered to another slaughterhouse. If the first slaughterhouse only receives "better" pigs, whereas the second only receives "lesser" pigs, the first slaughterhouse has a positive view on the health status on the farm, which is in fact an overestimation of the true farm's health status. This means that this farm ends up in the low risk category. If the farm delivers a batch of "lesser" pigs to the slaughterhouse, he will only get a visual inspection according to the low risk level status, possibly resulting in an increased health risk. If the farm was categorized based on all pigs, the farm would have ended up in a medium risk category, and a batch would get an intensified inspection. The health risk would have been lower. Having said this, it must be noted that if the pig farmer regularly delivers a mix of "better" and "lesser" pigs to each slaughterhouse, the farm will end up in the risk category associated with all his pigs. In any case, the historical information about the pigs not delivered to a slaughterhouse is lacking, because these data are recorded and kept at slaughterhouse level.

Other data like "salmonella monitoring status" or "controlled housing conditions" is managed in databases of third-party quality assurance systems (QS, IKB) which are technically accessible independent of location.

In the discussion in chapter 7 we will further elaborate on these issues.

6.5 General risk orientation of the system

EU legislation prescribes meat inspections to be risk based. In the Netherlands the following control activities are risk based with a definition of the risk categories:

- Salmonella monitoring on finishing pig farms. Farms with more than 30 finishing pigs need to have analyzed 12 blood samples per 4 month period and farms with less than 30 finishing pigs do not need to take blood samples.
- Salmonella monitoring on pig slaughterhouses. Slaughterhouses that slaughter more than 150.000 pigs per year need to take salmonella samples from 5 carcasses each day

and slaughterhouses that slaughter less than 150.000 pigs per year need take samples from 10 carcasses every two weeks.

- The NVWA's inspections for approval of the larger slaughterhouse result into two categories. Slaughterhouses with a good technical status of the buildings can be subjected to a reduced number of inspections or a reduced inspection time.
- The NVWA audits on the HACCP-system of slaughterhouses. In case of 100% compliance with the HACCP-plan, the NVWA executes one system audit per year. In the case of non-compliance re-inspection and penalties may follow. The kind of follow-up depends on the seriousness of the offence.
- The supervision activities of the OV of the NVWA in the post-mortem inspection increase with the size of the slaughterhouse. On large slaughterhouses (over 2,000 slaughterings per week or over 200 slaughterings per hour) supervision of NVWA is permanent, whereas on medium slaughterhouses (1,000-2,000 slaughterings per week or 51-200 slaughterings per hour) supervision is once every week, and on small slaughterhouses (less than 1,000 slaughterings per week or 50 or less slaughterings per hour) supervision takes place once every month.
- The verification activities of the OV of the NVWA on the performance of the OAs of KDS is reduced on large slaughterhouses to once a week (starting from January 2011) given satisfying performance of KDS and the accreditation of KDS' post-mortem inspection activities.
- The NVWA's sampling takes place as part of the official control at larger slaughterhouses, whereas in smaller slaughterhouses sampling for verification takes place once a year.

In Germany the following control activities are risk based with a definition of the risk categories:

- Salmonella monitoring on pig farms, where farms that deliver more pigs per year to a slaughterhouse need to take more blood samples (< 50 pigs, 10 samples; 51-100 pigs, 20 samples, 101-200 pigs, 47 samples; >200 pigs, 60 samples).
- The inspection intervals for food processing establishments (e.g. slaughterhouses) are determined risk-based. According to AVV Rüb each Bundesland has implemented a risk assessment scheme. The risk score (maximum 200 points) consists of a static value (according to type of establishment and type of product) and a variable score based on the results public inspection through the DVO. The score is transformed to 9 risk classes representing 9 different inspection frequencies (daily to triennial). As slaughterhouses belong to the high risk category, they are classified at least in risk class 5 (semi-annually).

The list above shows that in the Netherlands supervision of pork safety is more explicitly risk based (lower risks farms or slaughterhouses receive a less intense inspection). In Germany state agencies and DVOs have more freedom to develop own decision rules and practices. Explicitly risk based tasks are regulated at the federal level. However, over time it is not known what the effect is of the combination of the risk based activities on the actual level of food safety is that is maintained. This issue will be addressed further in the discussion.

6.6 Supply chain meat inspection (SCMI)

6.6.1 Tasks and role allocations

The European legislation allows for SCMI, without incisions, if certain requirements are met. The main tasks to fulfill these EU requirements are:

- 1) Proof of “controlled housing conditions and integrated production systems”
- 2) Implementation of a “regular serological and/or microbiological monitoring”, in order to do that:
 - 2a) Selection of disease or agent to be monitored (hazard identification)
 - 2b) Development of a science based monitoring system
 - 2c) Regular sampling of animals at farm level
 - 2d) Organization and performance of laboratory tests
 - 2e) Interpretation of test results, classification of farms/animals (risk assessment)
- 3) Acknowledgement of monitoring system and execution of meat inspection in consideration of risk assessment results

But the EU legislation does not prescribe in detail how responsibilities for these tasks must be allocated between the three parties of the triangular relationship in meat risk management between private parties in primary animal production, private parties in meat processing and the competent public authority. Currently, two SCMI systems are present in slaughterhouses in Germany, one in North Rhine-Westphalia and one in Lower Saxony. In the Netherlands one system exists, which is comparable to the system in Lower Saxony. In Germany both SCMI systems use the QS System to fulfill task 1. Pigs that originate from a QS-certified farm are considered to have been raised in “controlled housing conditions and integrated production systems”. In the Netherlands IKB NV and IKB Varken are starting point, but the slaughterhouse has to demand additional requirements to proof controlled housing conditions. So in the Netherlands this task is assigned to the slaughterhouse.

Task 2 (serological / microbiological monitoring) is assigned to the slaughter companies in both SCMI systems. Task 2 can indeed be assigned to slaughter companies according to Regulation (EC) No. 2074/2005. For sampling and laboratory testing existing programs may be used (e.g. in the case of the national salmonella monitoring program). The assessment, interpretation and classification of the farm is executed by the slaughterhouse. So, from role allocation perspective the situations concerning serological / microbiological monitoring in the Netherlands, North Rhine-Westphalia and in Lower Saxony are quite similar. In contrast, paragraph 6.6.2 and 6.6.3 will show that the content of the monitoring in the system in the Netherlands/Lower Saxony on the one hand and North Rhine-Westphalia is quite different.

Finally, approval of the monitoring systems (task 3) is assigned to the competent authorities both in Germany and in the Netherlands.

6.6.2 Two systems of SCMI using different epidemiological data

SCMI in the Netherlands/Lower Saxony on the one hand and North Rhine-Westphalia on the other hand use a different “epidemiological data.” In North Rhine-Westphalia these data are based on salmonella, whereas in Lower Saxony and the Netherlands the focus is on *Mycobacterium avium*. Results of the serological tests are interpreted as a measure of the farm-related risk to deliver slaughter animals containing zoonotic pathogens. In both systems pig farms are awarded a risk status level based on their performance in several past deliveries as determined with the serological test. This means that only after several deliveries a pig farm will get a risk level. The focus on different pathogens in the two systems complicates switching of pig farmers from one system to the other system. For example, a pig

farm that delivers to a slaughterhouse A with a supply chain meat inspection focusing on salmonella will have a salmonella risk status level, but no *Mycobacterium avium* level. A pig farmer, who wants to shift a delivery from slaughterhouse A to another slaughterhouse B with a supply chain meat inspection focusing on *Mycobacterium avium*, first will have to build a *Mycobacterium avium* risk status level. So this farmer, although he participated in one system will have to take additional actions to be able to participate in the other system, because the systems focuses on different pathogens. In our final chapter we discuss the consequences of this situation.

6.6.3 Two systems of SCMI using different “other data” from the holding

The two SCMI systems use a different “other data.” In North Rhine-Westphalia these data focus on the prevalence of pigs that show a lag in growth, whereas in Lower Saxony and the Netherlands the focus is on the (name of the) farm’s feed supplier. The focus on different other data in the two systems also complicates switching of pig farmers from one system to the other system. Comparable to the difference in epidemiological data, a farmer that changes from one to another system, will have to take additional actions to be able to participate in the other system. Likewise, we discuss the consequences of this situation in the last chapter.

7 Discussion and conclusions

In this final section we want to raise five points for discussion, regarding free trade across different borders and food safety.

7.1 The broken food chain information

In paragraph 6.4 we noted that because data on farm history are recorded and kept at slaughterhouse level, food chain information can be incomplete due to switching of deliveries and to farms structurally delivering to more slaughterhouses. If a farm switches deliveries between slaughterhouses, information about the deliveries not delivered to that slaughterhouse is lacking. If a farm structurally delivers part of its pigs to one slaughterhouse and another part to another slaughterhouse, the historical information about the pigs not delivered to a slaughterhouse is lacking.

A solution to the first problem is to receive the information from the other slaughterhouse the pigs were delivered to. For that reason the slaughterhouse needs to know to which other slaughterhouses the farm recently delivered pigs. Either the farm has to specify to the slaughterhouse to which other slaughterhouses the recent deliveries were delivered, or else these data can be stored in a central database which is accessible for all slaughterhouses.

A solution for the second problem is to conduct the ante-mortem inspection on the farm, for example two days prior to transport to slaughterhouse. Through visiting the farm the OV gets a complete picture of the farm's health status. The gains of the on-farm ante-mortem inspection compared to the ante-mortem inspection at the slaughterhouse must be weighed against the additional burden for the OV and the farmer in time and costs.

A possible solution for both problems is to develop a central database for all deliveries irrespective of the slaughterhouse the pigs are delivered to. Slaughterhouses must have access to this central database to receive the information about the recent deliveries delivered to other slaughterhouses.

7.2 Need for standardized data

The slaughterhouse is a central focus point in data gathering and keeping in ante- and post-mortem and epidemiological data of the farmers. As described in section 6.4, there seem to be little effort to standardize pathological findings and coding in both countries. As risk-based systems like SCMI depend on reliable and comparable information, it seems natural to call for harmonization and standardization of assessment, classification and coding of pathological findings during meat inspection. Standardization can pertain to content (pathological understanding) and technique (coding for electronic data processing). We recognize two reasons why standardization of pathological findings should be addressed:

First, if the proposed solution for the "broken food chain information" (Section 7.1) is a central database it will be crucial to define a common standard to store historical inspection results in a meaningful way.

Second, in order to assess the performance of the whole meat safety system on the long run, it will become necessary to compare inspection systems between regions and member states. This is only possible if comparable data for meat inspection results are available.

7.3 Information in SCMI as trade barrier

The SCMI system applied in Lower Saxony and the Netherlands use *Mycobacterium avium* as the main epidemiological information. In contrast, in North Rhine-Westphalia the system is based on epidemiological data from the salmonella monitoring. Also the “other data” in both systems are of different content. This confronts a farmer with switching costs, when he wants to start to supply to a slaughterhouse using the other system. The existence of SCMI systems using different “epidemiological data” and “other data” from the holding, is thus a barrier to inter-company acceptance of finishing pigs for slaughter in SCMI, for pig farmers who want to shift from one system/ company to another. We do not know how many farmers faced this problem and how it was solved.

A solution might be that the other slaughterhouse temporarily accepts the status of the farmer based on the other pathogen until it has built a new status based on the “own” pathogen.

Another solution might be that the task of “implementation of a regular serological and/or microbiological monitoring” (see section 6.6.1) is shifted from single slaughterhouses to a third party system. This might be one of the quality assurance systems already in place. Farmers, slaughterhouses and public authorities could then switch their relationships freely without losing time or information.

7.4 Importance of salmonella monitoring and reduction

The question which epidemiological data should be used within SCMI in the pork sector is not finally answered yet. A new EFSA opinion published in October 2011⁵⁷ contains an up-to-date statement about the most relevant biological hazards to be considered in meat inspection of pigs. The qualitative risk assessment performed by different EFSA panels “identified *Salmonella* spp., *Yersinia enterocolitica*, *Toxoplasma gondii* and *Trichinella* spp. as the most relevant biological hazards in the context of meat inspection of swine”. Regarding the monitoring for *Mycobacterium avium* EFSA states „*Mycobacterium avium* was not considered to be relevant in the context of meat-borne transmission. Current evidence suggests a possible association with consumption of milk, but no relationship has been established with pork consumption”⁵⁸. EFSA also states that „... the choice of MAP [*Mycobacterium avium*] as target of the monitoring was therefore not the result of a formal risk assessment”⁵⁹. Therefore, one can assume that German and Dutch slaughterhouses and DVOs who rely on *Mycobacterium avium* monitoring at the moment will reconsider this in the future.

7.5 Integrity of the system

In the Netherlands over the past decade the NVWA has faced budget reductions. This has been an incentive to working more efficiently and more risk based. The list of risk based activities is long and grew over the years (See section 6.5). The question here raised is: what is the combined effect of all risk based activities on the level of food safety in the Netherlands? Has the overall level of food safety at least remained at the same level? How

⁵⁷ EFSA European Food Safety Authority (Parma) (2011): Scientific Opinion on the public health hazards to be covered by inspection of meat (swine). On request from the European Commission. Question Nos. EFSA-Q-2010-00886, EFSA-Q-2010-01019 and EFSA-Q-2010-00930, adopted on 31 August 2011. In: EFSA Journal 9 (10).

⁵⁸ EFSA Scientific Opinion: Page 29

⁵⁹ EFSA Scientific Opinion: Page 58

do we know, because clear guidelines and standards for the quality of the supervision by the authorities in relation to the level of food safety are lacking both in Germany and the Netherlands. Further research is needed to address this problem.

7.6 Conclusions

The traditional meat inspection systems in the Netherlands, North Rhine-Westphalia and Lower Saxony are quite comparable. The most important difference is that the Netherlands uses private companies in the official post mortem inspection (KDS), whereas in North Rhine-Westphalia and Lower Saxony only government bodies are involved. Furthermore, in the Netherlands two quality control systems exist at farm level (IKB Varken and IKB NV), and only one in North Rhine-Westphalia and Lower Saxony (QS). Finally, in the Netherlands auditors in the quality control systems at farm level must be accredited to ISO 17020 and in North Rhine-Westphalia and Lower Saxony to ISO 19011.

The systems of supply chain meat inspection in place in the three regions the Netherlands, North Rhine-Westphalia and Lower Saxony differ not only between these regions, but also between individual slaughter companies in these regions. These differences complicate farmers from switching deliveries of pigs from one slaughterhouse to another in each region and the trade in pigs between these regions and across the Dutch-German border. The supply chain meat inspection systems of individual slaughter companies differ in their focus on epidemiological data (*Mycobacterium avium* versus *Salmonella*), in their focus on other relevant data (feed supplier versus occurrence of 'non-growing' pigs), and in their focus on controlled housing conditions in integrated production systems (IKB Varken, IKB NV and QS). At the moment food chain information and historical health data related to batch of slaughter pigs are sent to and stored at the slaughterhouse and not accessible if a pig producer switches his delivery to another slaughterhouse. Because supply chain meat inspection uses historical performance data of farms in assessing food safety, the standardization and swift exchange of these data mutually between slaughterhouses, between slaughterhouses and competent authorities within each region and across borders, in case of international trade, must be arranged in the future.

Annex 1

Template form for the submission of food chain information as provided by the German ordinance about hygiene of food of animal origin (Tier-LMHV):

Anlage 7 (zu § 10 Abs. 1) Informationen zur Lebensmittelsicherheit nach Anhang II Abschnitt III Nr. 1 in Verbindung mit Nr. 3 und 4 Buchstabe b Satz 2 der Verordnung (EG) Nr. 853/2004 für Tiere, die in einen Schlachthof verbracht wurden oder verbracht werden sollen		
(Fundstelle: BGBl. I 2007, 1858)		
I) Betriebsidentifikation und Angaben zu den Tieren:		
Name: Anschrift: Tel.: Fax:	Betriebskennnummer/Registriernummer des Betriebes nach ViehVerkehrsVO: Kennzeichnung der Tiere laut Lieferschein/Tierpass:	
Tierart: <input type="checkbox"/> Schwein <input type="checkbox"/> Rind <input type="checkbox"/> Pferd <input type="checkbox"/> Schaf <input type="checkbox"/> Ziege <input type="checkbox"/> Geflügel ^{*)} <input type="checkbox"/> Hasentiere ^{*)} <input type="checkbox"/> Farmwild ^{*)} :		
Anzahl der zu schlachtenden Tiere:		
II) Standarderklärung Der Lebensmittelunternehmer, der für den Herkunftsbetrieb der oben genannten Tiere verantwortlich ist, erklärt Folgendes:		
1. Über den Tiergesundheitsstatus des Herkunftsbetriebes, den Gesundheitsstatus der Tiere und zu Produktionsdaten, die das Auftreten einer Krankheit anzeigen könnten, liegen keine relevanten Informationen vor. Dem Herkunftsbetrieb sind keine relevanten Informationen über frühere Schlachtier- und Fleischuntersuchungen bekannt. 2. Es liegen keine Anzeichen für das Auftreten von Krankheiten vor, die die Sicherheit des Fleisches beeinträchtigen könnten. 3. Im Zeitraum von 7 Tagen vor Verbringung der Tiere zur Schlachtung bestanden keine Wartezeiten für verabreichte Tierarzneimittel und wurden keine sonstigen Behandlungen durchgeführt, ausgenommen (z. B. Repellentien). 4. Es liegen keine Ergebnisse von Probenanalysen vor, die für den Schutz der öffentlichen Gesundheit von Bedeutung sind, ausgenommen (z. B. Salmonellenstatus). 5. Name und Anschrift des privaten, normalerweise hinzugezogenen Tierarztes: Name: Anschrift: Telefon: Fax:		
..... (Ort) (Datum) (Unterschrift des Lebensmittelunternehmers)
^{*)} Angabe der Tierart.		

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